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The pedagogical dimension of teacher education frames teaching as a relational, context-aware, and ethically grounded profession rather than just a set of procedural skills. From a research perspective, this demands robust research methodologies that can critically examine the complex realities of schools and inform evidence-based policies. Equally important is the connection between theory and practice, which helps to bridge the persistent gap between universities and schools.

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ATEE Spring Conference 2024

# ATEE Spring Conference 2024

## Teacher education research in Europe: trends, challenges, practices and perspectives

May 29th – June 1st, 2024
S. Agostino, Bergamo



## Edited by Nicole Bianquin and Francesco Magni

UNIVERSITÀ DEGLI STUDI DI BERGAMO

**2025**

UNIVERSITÀ DEGLI STUDI DI BERGAMO | Dipartimento di Scienze Umane e Sociali

CQIIA
Centro per la Qualità dell'Insegnamento, dell'Innovazione didattica e dell'Apprendimento
UNIVERSITÀ DEGLI STUDI DI BERGAMO

ATEE
Association for Teacher Education in Europe

BOOK OF PROCEEDINGS

# ATEE Spring Conference 2024

Teacher education research in Europe:
trends, challenges, practices and perspectives

## May 29th – June 1st, 2024

### S. Agostino, 2 - Bergamo, Italy

**Edited by Nicole Bianquin and Francesco Magni**

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**Università degli studi di Bergamo**

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# INTRODUCTION

# Back to the Core:
# Rediscovering the Power of Teacher Education Research

Teacher education is a deeply pedagogical process rooted in values, ethics, and the social purpose of schooling. Globally, it sits at the core of educational quality and fairness, as research in comparative and international education demonstrates: the training of teachers directly influences students' learning chances, social inclusion, and the democratic aims of schools. Teachers are not simply transmitters of curricula, but active professionals whose convictions, reflective skills, and ability to manage the complexities of classroom life give shape and substance to the educational experience itself.

In many contexts, the ongoing shortage of qualified teachers poses a threat to the right to quality education for all. Elsewhere, inadequate preparation undermines student learning and exacerbates inequalities, especially for learners with diverse needs or those from marginalized communities. Scientific research into teacher education – through theoretical frameworks and empirical studies – has sparked a broad and lively international debate on how to create training systems that are adaptable, inclusive, and responsive to social change. Over the past decade, noteworthy advances in teacher education research have driven innovations in teaching methods, curriculum design, and assessment practices. These include the integration of reflective practice models, teacher-led research, and collaborative professional learning communities as drivers of systemic improvement. Although the quality and passion of teachers are undoubtedly crucial to making a difference in any school, teacher education research is now more vital than ever for carefully and effectively examining the complex and challenging realities of schools and institutions that aim to educate children and young people.

The pedagogical dimension of teacher education is therefore crucial, as it frames teaching as a relational, context-aware, and ethically grounded profession rather than just a set of procedural skills1. From a research perspective, this demands robust research methodologies – ranging from longitudinal studies and mixed-methods approaches to participatory action research – that can critically examine the complex realities of schools and inform evidence-based policies. Equally important is the connection between theory and practice, achieved through authentic, school-based experiences guided by expert mentors, which helps to bridge the persistent gap between universities and schools.

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[1] OECD, *Unlocking High-Quality Teaching*, OECD Publishing, Paris 2025.

Within this framework, Italy's long-standing tradition of training specialized support teachers (docenti di sostegno) represents a distinctive and valuable contribution. Since the 1970s, Italy has pioneered inclusive education by progressively phasing out special schools and training teachers to work collaboratively with colleagues in mainstream classrooms to support students with disabilities. This experience – rooted in legislative milestones such as Law No. 517/1977 and reinforced by later reforms – has established a model of collaborative, school-embedded teacher preparation that is internationally recognized for promoting participation, equity, and the rights of all learners[2]. The extensive expertise developed through decades of support-teacher training offers critical insights for the broader field of teacher education, particularly in fostering reflective practice, interprofessional collaboration, and attention to the diverse needs of learners.

Furthermore, significant reforms (DPCM 2023) are currently transforming Italy's initial teacher education system for secondary schools, enhancing partnerships between universities and schools. Central to these reforms are the Teaching and Learning Centers, conceived as genuine educational hubs within each university and as inter-university networks that will play a crucial role in the coming years[3].

Tackling the long-standing issue of precarious employment – which has compromised the continuity of education that students rightfully deserve – has now become an urgent priority. Although recent measures mark an essential first step forward, a considerable imbalance remains between the number of prospective teachers available and the persistent shortages affecting specific regions and subject areas[4].

One notable achievement of the 2023 reform is its resolution of a long-standing regulatory gap that had remained unresolved for over a decade. The reform also reinstates a model of initial teacher education based on active collaboration between universities and schools, extending this approach explicitly to secondary education.

An effective system of initial teacher education must provide clear and coherent guidance to universities, ensuring the quality and consistency of training programs. At the same time, it should foster strong, trust-based partnerships with schools to guarantee a seamless integration of theory and practice. Establishing such a virtuous cycle is essential to overcome the mutual hesitations and mistrust that too often separate these two key institutions, both fundamental to the education of young people. Emphasis should therefore be placed on direct school-based traineeships and indirect internship experiences supported by qualified tutors. Furthermore, the renewed framework for initial teacher education for secondary school teachers in Italy should be conceived as an interdisciplinary pathway, fostering deep and meaningful learning that goes beyond the superficial accumulation of fragmented knowledge. This perspective calls for strong connections among diverse epistemological approaches and for a dynamic dialogue between theoretical insights and practical experiences within the school context. There is no doubt that the system still has significant problems, inefficiencies and contradictions. These regulatory changes are still recent and will inevitably require further refinements, adjustments and improvements over the coming years[5].

The contributions gathered in this volume reflect the richness and diversity of experiences showcased during the ATEE Spring Conference 2024, held at the University of Bergamo from May 29 to June 1, 2024. The volume presents 70 selected papers out of more than 300 presented by researchers representing over 40 countries.

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[2] P. Aiello, C. Giaconi, L. D'Alonzo, A. Mura, & T. Zappaterra, *Ruolo e funzioni dell'insegnante specializzato per il sostegno. Riflessioni, studi, esperienze e ricerche sul profilo di una figura cruciale del sistema formativo nazionale*, in «Italian Journal Of Special Education for Inclusion», 2024, n. 12, pp. 15-18.

[3] F. Magni, *Teachers' shortage and initial teacher education reforms in Italy: an overview,* in «European Journal of Teacher Education», 2024, pp. 1-16.

[4] F. Magni, V. Capriotti, *Addressing the teacher shortage crisis in Italy: among reforms, challenges and a case study,* in «Journal of Education for Teaching», 2025, pp. 1-15.

[5] G. Bertagna, F. Magni (eds.), *Lauree e abilitazione all'insegnamento. Analisi del presente, tracce di futuro*, Edizioni Studium, Roma 2022.

This broad spectrum of studies – ranging from theoretical analyses to empirical research and case studies conducted in different contexts – highlights promising directions that can inspire renewed inquiry and concrete proposals aimed at improving contemporary educational systems.

The texts are organized into five sub-themes, the same as at the conference, with the addition of the poster session:

- Teacher education and pedagogical perspective in uncertain times: history, theory, policies and practices.
- Digital innovation and artificial intelligence (AI): schools, teachers and students between real and virtual world.
- Inclusion in teaching and learning processes and school improvement.
- Teaching and learning challenges and professional development.
- School & work and the role of teachers in Vocational Education and Training.

We also wish to express our sincere thanks to the entire Scientific Committee and the additional experts who selflessly volunteered their time for the double-blind peer review process. Likewise, we extend our heartfelt gratitude to the organizing committee and the wonderful ATEE community for making the conference such a memorable experience.

**Francesco Magni – Nicole Bianquin**

Chairs of the ATEE Spring Conference 2024

# Teacher education and pedagogical perspective in uncertain times: history, theory, policies and practices

# The Reflected Double Tetrahedron Model: Project-based learning in teacher training

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## Abstract

Education's constant evolution (digitalisation, social norms, student interests) necessitates adjustments in teachers and teacher training. To bridge the gap between school reality and teacher education, and to enhance readiness for these changes, we propose the Reflected Double Tetrahedron Model to depict the parallels between educational levels. The course described serves as a test case to evaluate the model's applicability. Its design focuses on pre-service teachers experiencing school reality and fostering their confidence in innovative teaching methods. We assess the model via pre-service teachers' feedback, their evolving beliefs and our observations. Initial results suggest the model offers a valuable framework to connect school practice and teacher education.

**Keywords:** learning ecosystem; teacher training; framework; pre-service teachers; belief change.

## 1. Introduction

Students at all educational levels attend courses to gain new competencies and knowledge, requiring a supportive social and physical environment, and motivating questions, among many other elements. We define "student need" as any aspect facilitating learning. Following the COVID-19 pandemic, Austria digitalised lower-secondary schools and promoted interdisciplinary, project-based teaching (BMBWF, 2020), while this requires innovative teaching methods, teachers and pre-service teachers are reluctant to implement innovations due to the lack of prior experience with such methods in both university and school settings (Thurm & Barzel, 2020). Therefore, we propose that teacher training should adapt to innovation and student needs by providing pre-service teachers (PST) with opportunities to experience, reflect on, conceptualise, and experiment with teaching scenarios, aligning with Experiential Learning Theory (ELT) (Kolb et al., 2014). Based on these, we aimed at designing a course for PSTs. However, we faced difficulties due to a lack of a framework depicting the parallels between school and university education. Students, teachers, content, innovation, and the learning environment form a learning ecosystem (Liljedahl & Zager, 2021), while higher educational levels form similar ecosystems. We will call the union of these ecosystems a teaching-learning ecosystem (TLE). This study introduces the Reflected Double Tetrahedron Model (RDTM) (Figure 1) to depict this correspondence, with each tetrahedron representing a different level (school and teacher training), matching vertices, and a joining vertex for the educator bridging these levels.

This model informs the teacher training course design framed by ELT following the phases experience, reflect, think and act. While conducting the course and analysing data, we studied the RDTM to prove its applicability. The RDTM illustrates the cyclical relationship between student preferences and teacher training, highlighting the dynamic interplay across educational levels.

This study establishes a theoretical framework for our course design, highlighting the RDTM's unique contribution to bridging the gap between theory and practice in teacher education.


## 2. Theoretical Framework and literature review

In this section, we present existing models found in the literature and highlight the lack of models aligning school practice and teacher training. Then we present the theoretical framework for our course design, and how our model, the RDTM, was created.

### 2.1 Literature review

Several models depicting learning situations can be found in the literature. Brousseau`s didactic triangle (teacher, student, content) (Brousseau, 1997) has been expanded to include artefacts and social learning into a socio-didactical tetrahedron (Rezat & Sträßer, 2012; Engeström, 2014). Further research focused on technology (Rossi et al., 2018), and AI (Dasari et al., 2024). Tomaszewski's double tetrahedron model addressed collaborative learning (Tomaszewski, 2023). While such models have been used to study technology implementation (Donevska-Todorova & Trgalova, 2017), they often focus solely on school education. Prediger et al. (2019) used the three-tetrahedron model to depict all three institutional levels: school education, teacher training and teacher trainers' training. However, these models overlook the interplay between the educational levels or focus on just one level. We identified a gap in models for teacher training courses aligning school practice and higher education.

### 2.2 Theoretical framework for course design

Our course design is based on the Experiential Learning Theory (Kolb et al., 2014), representing a four-phase learning cycle: (1) experiencing, (2) reflecting, (3) thinking, and (4) acting. Similarly, Kuzniak et al. (2013) found that teacher training offering practice opportunities makes PSTs experience school reality and enhances PSTs' motivation to implement novel teaching approaches. Motivation and beliefs are studied by Self Determination Theory (SDT) (Ryan & Deci, 2000b.). We define beliefs as

accepting something as true or false based on knowledge, mental and social state, and affect (Goldin et al., op. 2009). Ryan and Deci (2000a) found that intrinsic motivation drives actions based on beliefs. However, some beliefs are stable and difficult to change, particularly from childhood and early school (Liljedahl et al., 2012). Davis's Technology Acceptance Model (TAM) posits that perceived usability and ease of use correlate with users' acceptance (Davis, 1985). This study uses the Innovation Acceptance Model (IAM) (Békési et al., 2024), an adaptation of TAM, to predict PSTs' innovation readiness by examining perceived usability and ease of use. We aim to foster a belief shift in PSTs by convincing them of the innovations' usability and their ease of use.

### *2.3 The model*
Our model visualises the parallels between educational levels by reflecting one modified didactic tetrahedron and joining them. This reflected double tetrahedron model (RDTM) (Figure 1) illustrates the interplay within the TLE adding a new perspective to the existing models. A reflection preserves identities; in our case, it assigns students to PSTs. By student, we mean secondary school children, and we refer to students in higher education as pre-service teachers (PST), as we focus on would-be teachers and teacher training. However, PSTs are also considered as learners. Both students and PSTs are learners. Understanding student and societal needs is crucial for designing a responsive course. The COVID-19 pandemic accelerated digitalisation in education, increasing the demand for integrating technology. Research and our findings indicate that innovative methods, such as technology integration, outdoor learning, and collaborative project-based STEAM (Science, Technology, Engineering, Art, Mathematics) (Yakman, 2008) education, enhance student motivation and foster positive attitudes towards learning (Caton, 2021; Ulbrich et al., 2020; Békési et al., 2024). As mentioned in the introduction, innovation is an element of "student needs". RDTM suggests that innovation should be present at both levels, meaning that PSTs should be familiar with innovation at the school level and experience it in teacher training. Content* implies that PSTs are familiar with the school contents and create a new understanding of teaching these contents.
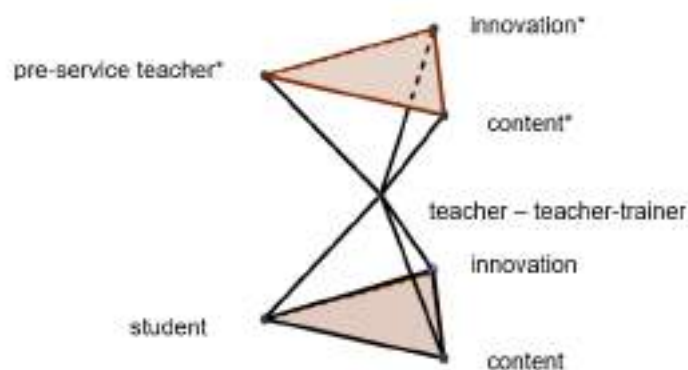


*Figure 1: Reflected Double Tetrahedron Model.*

This study utilises ELT (Kolb et al., 2014) for course design, and IAM (Békési et al., 2024) to investigate how PSTs' needs and beliefs evolve. We propose the RDTM to frame a course that aims to align school practice and teacher training. Our research question is:

RQ: To what extent is the reflected double tetrahedron model applicable to frame a course for PSTs aiming at a shift in their beliefs and impacting their innovation readiness?

The following sections detail the course design, the data collected from PSTs, and our findings. Finally, we discuss the RDTM's applicability.

# 3. Course design

Following an overview of the course design, we present a detailed example. Our teacher training course is informed by ELT and focuses on project-based learning (PBL). Given that PBL frames many school-level activities, we also followed its 5 phases in our course to enable PSTs to experience PBL through the lens of our ELT framework. PBL involves 5 phases: (1) a driving question; (2) student exploration; (3) collaboration; (4) students' self-management; (5) students creating a tangible product (Krajcik & Blumenfeld, 2005). While students learn content, PSTs engage in PBL to study PBL as a teaching method following the ELT cycle: PSTs *experience* the 5 phases of PBL, *reflect* on their experience, *think* about the main features and create similar activities, and then *test* these activities in a new experience.

Despite PSTs' daily technology use, they often lack experience integrating technology in education or with other innovative methods like project-based STEAM activities (Kuzniak et al., 2013). Therefore, the *experience* phase focuses on examples. The *reflecting* phase examines student perspectives and the learning impact to illustrate 'usefulness'. In the *thinking* phase, PSTs design similar activities, and in the *testing* phase, they enact them to experience 'ease of use'. The presentation phase encourages reflection on beliefs about innovation.

In the first phase, PSTs were introduced to current school trends, example activities, student perspectives and needs, innovative teaching methods, and their learning impact. The usefulness of innovation was illustrated using data from our previous STEAM research. This phase mirrored the first phase of ELT, while PSTs experienced PBL. Due to the paper's focus on the training course and the model, only selected school-level data is presented here for illustrative purposes. This data, collected from 100 lower-secondary students across four classes over four years (starting in 2020/21), included their views on mathematics and project feedback. A representative selection is presented in Table 1 illustrating the preferences of a Grade 5 class. The data indicates a preference for gamified learning and technology use, as opposed to written assignments or exams. SDT suggests that you are more likely to learn something you like, highlighting the importance of understanding student preferences, although other factors are equally significant.

| likes | | dislikes | |
|---|---|---|---|
| Games: Kahoot!, Quizlet, Actionbound, … | 17 | Homework | 13 |
| Creative: Tinkercad | 3 | Exams | 2 |
| Variety | 3 | Lot of writing | 2 |
| iPad | 2 | Unclear explanation | 2 |

*Table 1: Students' preferences.*
*Note: The table summarises the number of times each item was mentioned.*

To exemplify PBL, we presented a 'Mars project' conducted in two grade 7 classes in 2023. In this project, students explored the challenges of settling on Mars and then presented their findings to their families and friends. To illustrate student and other stakeholders' perspectives, a 5-point Likert scale questionnaire was administered (1 = strongly disagree, 5 = strongly agree). Figure 2 provides an overview of the overwhelmingly positive responses.
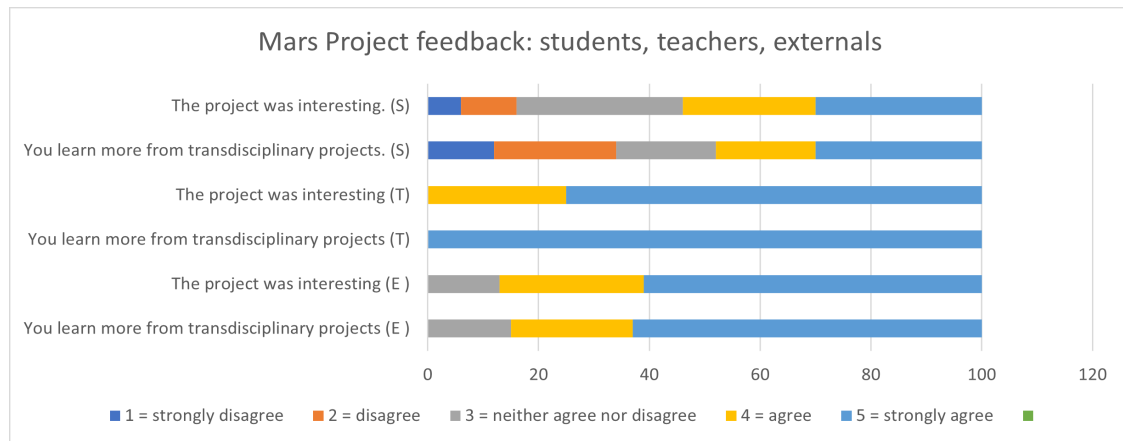
*Figure 2: Feedback on the Mars project from students (S), teachers (T) and externals (E).*

We consider that students' preferences reflect their needs, and addressing these may enhance learning through increased motivation, although other factors also influence learning. To illustrate the positive learning impact, PSTs were shown how positive student attitudes can correlate with increased competency, using results from the Austrian national competency test, IKM Plus[1], which showed two participating classes scoring significantly higher (186 and 182 on average) than the national average (170 out of 220) (Békési et al., 2024). This phase highlighted student preferences for real-life activities, teamwork, technology integration, and gamified learning, alongside the potential for positive learning impact while PSTs were reflecting on their experiences.

In phase 3, PSTs designed similar activities, considered possible challenges and shared their ideas on Padlet (Figure 3). For instance, they suggested studying bread and beer production and found that numerous subjects could be integrated such as history (beer as a salary in Egypt), biology (the nutrition pyramid), and mathematics (percentages). They planned a bakery visit, to study the ingredients, where they grow, and how long they need to travel, which could be discussed in geography. They even considered hands-on bread baking and explored potential links to literature and art. They created activities with real-life references, such as determining the maximum size of a coke can to fit through the bin's flap.



*Figure 3: Examples of project and activity ideas PSTs collected in Padlet.*

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[1] IKM Plus: https://www.iqs.gv.at/themen/nationale-kompetenzerhebung/ikm-plus

Phase 4 involved implementing these activities within the course, and a teaching practice in secondary schools, allowing PSTs to test their activities. Finally, phase 5 focused on reflection, with participants discussing, sharing their experiences and starting a new learning cycle.

## 4. Data collection and analysis

To explore the course's impact on PSTs' views, we collected data from questionnaires, interviews, and observations. We questioned 40 PSTs about their school experiences and willingness to implement novel methods before and after the course. To triangulate the data, we conducted semi-structured interviews with 5 PSTs. Questionnaire results were evaluated using descriptive statistics, and qualitative responses were thematically analysed using an inductive coding strategy. Pre-course questionnaires revealed limited experience with PBL and technology implementation both at school and university. While PSTs could identify some benefits, they expressed concerns about disruption, curriculum and time constraints. PSTs also reported limited technology integration at the university and the lack of courses on technology implementation. Figure 4 shows the post-course questionnaire results, indicating a positive shift in beliefs.
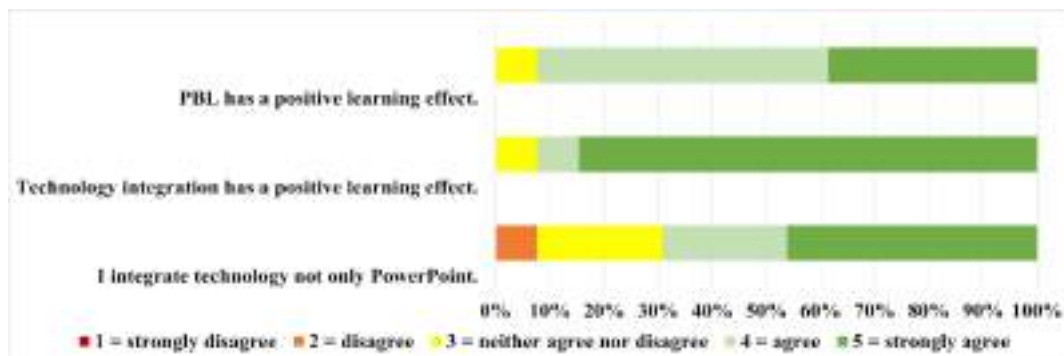


*Figure 4: Pre-service teachers' views on PBL after the training.*

The interviews revealed that PSTs' traditional school education was characterised by frontal teaching and limited technology use, mainly PowerPoint presentations. Higher education followed a similar pattern: passive lectures with limited technology implementation. One interviewee stated:

«I think it would be important to learn about different strategies, how to solve a problem and more open-ended questions. For instance, how to measure something creatively by comparing the length of your shoes with the length you want to measure. We learn a lot of theories at the university, but we never create anything, a task, an activity. It would be important to learn how to create activities that are meaningful for the students».

Another PST explained that while her school had a smart board, she couldn't recall using it. Kahoot! was used rarely, mainly for celebratory occasions, not for meaningful learning activities. Overall, PSTs positively evaluated the training, appreciating the practice and discussion opportunities. Figure 5 illustrates a positive shift in PSTs' confidence.
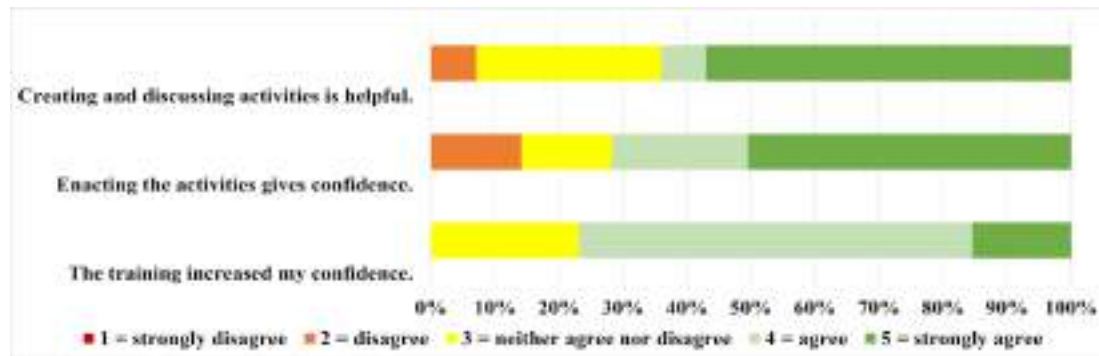
*Figure 5:PSTs' confidence after the training.*

The presentations in phase 5 revealed that some PSTs even implemented activities designed during the course and were pleased with their success. PSTs reported that their students praised the innovative methods, leading to increased student engagement and motivation.


## 5. Discussion and conclusion

Pre-course questionnaires and interviews indicated that PSTs lacked experience with innovative methods, leading to concerns and hesitation in implementing them. School-level data illustrating student preferences, perspectives, and the activities' learning impact seemed to convince PSTs of the use of innovation, a factor also studied by IAM (Békési et al., 2024). Through the course, PSTs gained insights into the benefits of these methods and increased their confidence by creating, testing, and evaluating novel activities, as suggested by post-course questionnaires (Figures 4 and 5). This evidence demonstrates a positive shift in PSTs' beliefs, which may be explained by PSTs experiencing the ease of use of these methods, the second variable studied by IAM.

These results suggest that teacher training responding to student needs impacts PSTs' views on the usefulness of innovation. By practising, they experience PBL, learn to design similar activities and become confident in implementing these novel methods. Teacher trainers practising PBL with the PSTs act as role models. Our course design enhances PSTs' innovation-readiness by engaging them in experiencing, reflecting on, creating and testing innovative activities. Findings in the literature support ours (Kuzniak et al., 2013; Thurm & Barzel, 2020). These results demonstrate the effectiveness of our course design, answering our research question. We examined the parallels between the two educational levels and found that PSTs experiencing school practice are more invention-ready. If innovation, such as PBL, is used at the school level, PSTs need knowledge about PBL, including its impact on students and how to design and conduct such activities. The same principle applies to content. PSTs, as university students, also have parallel roles and needs just like school students. Therefore, positioning the vertices of students and PSTs, content and content*, and innovation and innovation* as reflected images (Figure 1) emphasises the connections between these levels. PSTs, as university students, must learn both content and innovative teaching methods to meet school student needs. The model's joining point represents teachers, teacher trainers, and researchers or trainers of teacher trainers, connecting these levels. The RDTM effectively depicts the similarities, and dynamic interchange between the educational levels.

Presenting PSTs with innovative teaching methods, showcasing student evaluations, and demonstrating positive learning impact through IKM Plus test results positively influenced PSTs' beliefs about the usefulness of these methods. We found that creating and implementing innovative activities helps PSTs gain confidence. Therefore, teacher training needs to prioritise these opportunities, with teacher trainers acting as role models. This suggests that teacher training reflecting on school education from aspects like technology implementation and interdisciplinary project-based learning can foster innovation-readiness among PSTs. However, broader aspects of teacher education - including theory and ethics - require complementary approaches. The RDTM proved suitable for informing the course design and visualising the interconnectedness of student

needs and preferences, teacher training, and the broader TLE. However, the model fails to depict aspects - including school policy, curriculum development and ethics - not relevant at the school level. Further research, including longitudinal studies following PSTs throughout their careers assessing their innovation-readiness, would be valuable. We designed the model for PSTs majoring in mathematics, but our findings suggest its potential applicability in other disciplines, warranting further investigation. The model may also assist teacher trainers in developing courses for both novice and experienced in-service teachers, providing ongoing support to meet the evolving student and PST needs.

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*«The Italian didactic secret».*
*Teachers' education according to Giuseppe Lombardo-Radice's*
*thought*

# «The Italian didactic secret».
# Teachers' education according to Giuseppe Lombardo-Radice's thought

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## Abstract

A hundred years after the reform of the Italian school carried out in 1923 by the minister Giovanni Gentile, it could be useful to meditate on the great role recognised to the teachers' education, especially on the primary school ones detailed in the programmes set by Giuseppe Lombardo Radice. What he used to consider the «Italian didactic secret» consisted in an education that consistently conjugated theory and practice, namely a philosophy-based pedagogy looking to the newest outcomes of the psychological researches and opened to the modern experimentations of the activism, but strictly refusing any didactic pre-established and rigid "method". In particular Lombardo Radice criticised the claim according to which the pedagogy had to focus on the child, indulging his or her spontaneity, while the main task of pedagogy is to define the educator's profile. The claim of children's spontaneity derives from a mistaken comprehension of Rousseau's work: even if the child is actually spontaneous, that spontaneity shows itself inside an educative room under the strict control of the pedagogue, who cannot neglect it. The main risk in the activist pedagogical approach, according to Giuseppe Lombardo Radice, was to «close children in their infantility», instead to lead them to adulthood. This risk can be avoided through the education of authoritative and trustworthy teachers, as cultivated people in whom children could see some models of wise and sensibile adults. It is culture to assure authority to the teacher: he or she possesses knowledge and competence that the child does not have, but that he aspire to conquer in order to leave childhood.

## 1. «The good core of positivism»

«By now, in defending the good core of positivism, I am realising that there are none other than us despised idealists!» wittily observed Giuseppe Lombardo-Radice (1959, p. 65) in a parenthesis of *Athena fanciulla. Scienza e poesia della scuola serena* (*Girl Athena. Science and Poetry of the Serene School*), dropping *en passant* an annotation that could well represent the starting point for a reflection on what is really meant by "serene school" and thus on why contemporary pedagogy has perhaps done wrong to abandon this concept, that has been central in Italian early 20th century pedagogy, relegating it almost exclusively to the care of scholars of the history of education.

This consideration, placed as a commentary on the description of the home education given to his children, referred to the defense, which Lombardo-Radice (Scaglia 2023; Ead. 2021; Dessardo 2018; Rossi 2017) polemically conducted against the opinion of some colleagues, of the "objectivist and sensist tendency", i.e. the "precise, very concrete reference to an object or being observed in its environment and life". That is to say: Lombardo-Radice defended, against the positivists themselves, the didactics - of a typically positivist stamp - based on the observation of the environment and on concrete facts and objects. In short, everything the opposite of what is usually superficially attributed to neo-idealist pedagogy, and this is precisely the "good core" of positivism at the basis of the "serene school" promoted by the Sicilian pedagogue. And which is after all still at the basis of much of the didactics in use today in Italian and international primary schools, albeit under other names and without explicit reference to its former promoter.

It can therefore be said that if the concept of the "serene school" is considered outdated, perhaps even only because of the sensations that the adjective "serene" evokes in the ears of contemporaries, this is probably due to a certain misrepresentation of Giuseppe Lombardo-Radice's lesson that took place in the decades following the Second World War, in the need and perhaps in the anxiety to renew the Italian school in order to free it from the heavy legacy of Fascism and to make it converge towards other experiences matured at an international level.

What remained as the epitome of Lombardo-Radice's complex thought was the reference, often abstracted from the context, to the "poet" child, to an ahistorical, almost incorporeal child, made up entirely of intuition and spontaneity, reducing the "serene school" almost to a caricature. Justice clearly needs to be done: the *scuola serena* would be the ideal realisation - at least in its author's intentions - of the 1923 reform, which had posed as urgent precisely the problem of the rigorous training of primary teachers (Schirripa 2023), bringing their course of study from the three poorly structured years of the normal school to the seven years of the magistral institute, deeply influencing, for the following decades, through that of their teachers, the basic culture of Italians.

To get a truer idea of Lombard's original project, one need only read his own comments on the reform (D'Arcangeli 2024; Mattone, Moretti, Signori 2023; Galfré 2000; Charnitzky 1996):

> «This is the didactic secret of the Gentile reform that concerns teachers, and which we want to be Italy's didactic secret in the face of other countries; an education that assists the child in his spontaneous development, that gives him the opportunity to give us what he already possesses, and receives, so to speak, from the child the cue and the element for education: an education that pushes the child to personal observations and abolishes all rhetorical conventionalism; an education that makes the pupil a little researcher, a discoverer in his own world; an education that sparks and ignites and puts the child in the presence of the beautiful and the great and makes him feel that school is beautiful, and that it cannot be replaced by anything else; that not even play is more beautiful than school; that school is the most enchanting spiritual recreation he can desire; in short, an education that despises nothing of what our people know and do and that moves from the traditions of the people, elevating and improving them.
> An education that draws on the homeland's every strength» (Lombardo Radice 1925, p. 242).

Moreover, the entire book *Athena fanciulla*, published in 1925, collected the observations he had made over the years at Montesca (De Salvo 2017), the experiences he had gained with his children's education, the notes on childish drawing, on Giuseppina Pizzigoni's "La Rinnovata" and on a few other cases, all that book is nothing more - and the author makes this clear - than a collection of *exempla* for the realisation and implementation of the 1923 reform.

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## 2. Being teachers

The purpose of education is not the pupil *per se*, as Lombardo-Radice feared positivist pedagogy and some declinations of activism intended - but his projection into the future: educating him means in fact leading him to adulthood. The Sicilian pedagogue warned the animators of activism against the risk of «closing children in their infantility», limiting themselves to indulging their most superficial desires and presenting them without sufficient authority, which is characteristic of the adult man and which in the adult the child always unconsciously seeks.

«He who educates studies; indeed, educating means neither more nor less than studying. It is not the handing over of a deposit; it is the strengthening of our soul to make it capable of the utmost spontaneity and truthfulness in contact with the pupils» (Lombardo Radice 1959, p. 26). Hence the teacher's ability to arouse the pupil's curiosity and desire to learn: from the intensity of his previous studies, from the culture that the child contemplates in the adult, not withstanding remaining forever in his condition of minority, but aspiring on the contrary to confront the "greats", whom he perceives as authoritative. Culture,  Lombardo Radice clearly explains, is not a mere "deposit" and teaching is therefore not simply the transmission of notions: culture is the elevation of one's own soul and teaching is accomplished in the spiritual encounter between pupil and master, an encounter made possible precisely by the soul-widening action - by magnanimity - of the master who has studied and made his own what he has studied: «Think with the philosopher, relive with the historian, palpitate with the poet, and I would be a master of philosophy, of history, of poetry; educate your character, refrain your unconscious impulses, spur on your weaknesses, be a gentleman and despiser of all selfishness, and you will be a master of morality, even without a didactic of moral education» (Lombardo Radice 1951, p. 6).

Authoritativeness comes to the teacher not only from natural and unavoidable communication skills (which may eventually be refined through didactic study and practice), but also from what he actually knows, and which is still unknown to the child. This is the reason for Gentile's reform focus on the teacher's culture, rather than on didactic methodologies for the transmission of knowledge, which are only useful if there is actually something to teach. It is from direct contact with authentic culture - this was Lombardo Radice's and Gentile's wager - that the teacher would find by himself the ways to perfect his teaching action: a "critical" didactics, as Lombardo Radice called it, and therefore always provisional, the result of daily confrontation with knowledge, updated from year to year, class after class, as new pupils, new contexts, new problems arose, rather than "learnt" on the benches of the teacher training college in schematic forms that in principle could always be reproduced over time. One can learn to teach, if it is ever really possible, only by drawing from great literature, by approaching the main authors directly, rather than through school manuals that "chop up" and return food that has already been "remixed".

It was precisely the teacher's need to continually adapt, and therefore to progressively revise and amend his teaching style, that made didactic "lessons" and the claim of a "scientific pedagogy", which would indicate once and for all the formula for the "perfect" lesson, superfluous, if not even harmful. Hence also Giuseppe Lombardo Radice's main interest in the history of pedagogy and education, which he understood - he wrote as early as 1905, in his first early work - as the most authentic pedagogy, as a doctrine in action and realised, even if by nature always subject to revision and updating.

## 3. "National" education

From this angle, one can usefully reflect also on another concept considered outdated and often misunderstood today, that of "national education" (Lombardo Radice 1916; Dessardo 2018), to be understood more appropriately in the sense of "popular", and closely linked to the "serene school", which in the end is nothing more than its practical realisation.

National culture is both the "high" culture, i.e. the literary, artistic and intellectual product left to their descendants by Italians throughout their history, but "national education" is also simply popular

culture, the customs and traditions of the people inhabiting the Peninsula, the "low" culture, often (at least in those times) illiterate, made up of popular wisdom, proverbs, folklore, lullabies and uncoded musical tunes. It is the encounter between these two cultures that constitutes the "authentic" Italian soul, that completes it in its different declinations, and this encounter proves to be possible almost only at school: it is up to the teachers, wrote Lombardo-Radice, to encourage this encounter and thus become the interpreters, mediators, in a certain sense maieuts of future Italy, an Italy that still had to complete its unity within itself, in the fruitful exchange between its cultures and social classes, transforming a simple "geographical expression" into an authentic spiritual community.

By understanding the dialectical process within the life of the spirit from this perspective, as a perennial dialogue between past, present and future, neo-idealism offers itself to us in far less palatial guise than it has often been recounted, and instead reveals itself as a philosophical doctrine that is not only humanistic, but also humanitarian, of which in particular - in this declination - Giuseppe Lombardo Radice became the standard-bearer with his – and his wife Gemma Harasim's (Sistoli Paoli 2009) – studies about Pestalozzi.

In the "national" datum, an essential attribute of the State, Lombardo Radice saw, probably deluding himself, the only motive capable of justifying, even to the point of self-sacrifice, a profound and gratuitous solidarity between citizens who were otherwise strangers to each other, in some way made brothers by the commonality, more than of lineage (Lombardo Radice's patriotism had absolutely no ethnic character), of spirit, a commonality given precisely by the participation in the same history and culture. Therefore, it is only in one's own homeland that a man can aspire to truly fulfil himself, to reach the highest peaks of spiritual life, which is, on the other hand, necessarily diminished if conducted among people who, having been formed in another culture, naturally aim to different spiritual goals.

The path of self-education, which the teacher must unceasingly exercise on himself, he must also know how to arouse in his pupils, introducing them to the fullness of the life of the spirit, thus mediating between their family origins, often of popular extraction, and the highest achievements of national culture. The school must therefore be "serene" because it is placed at the intersection of home life and national and then universal life, an extension of the home and at the same time open to society, of which it represents a sort of compendium, as also professed by Dewey in his *Pedagogical creed*.

For Lombardo Radice, the fruitful exchange between home and school, between family and society, takes place not because it is supported by "scientifically" collected data, but through the person of the teacher himself, essentially through his humanity, a humanity that must be nourished from the most disparate sources of culture, but according to a coherent programme, not improvised. For Lombardo Radice, the positivist school, which claims to rely on an objective view of reality is instead based on assumptions that it is incapable of guaranteeing and is therefore, inevitably, a "soulless" school, constitutively incapable of fulfilling its task of humanisation. It is the school of manuals and treatises, which remain a dead letter if they are not made their own by the teacher and, with him and for him, by the pupils. On the subject of "methods", he wrote of the Montesca school and its patron: «Let us therefore study not Franchetti's method, but Franchetti herself» (Lombardo Radice 1959, p. 20), meaning that that of pure, aseptic scientific observation is nothing but an illusion, as it is not possible to identify a point of observation external to that of the educator, called upon to develop the methods, but ending up, inevitably, by coinciding the method with the person who adopts it. Hence, too, the aforementioned reservations about the more orthodox Montessori women, whom he mocked as «faithful priestesses of the method» because they slavishly applied it, avoiding making their own personal contributions, certain, however, that in the end «their teacher is the least Montessorian of all» (Lombardo Radice 1926, p. 25).

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## 4. Science and poetry

Lombardo-Radice's school did not disdain the scientific disciplines, far from it; in many texts the Catanese pedagogue sang the praises of teachers who were "scientists" and "researchers". But they must be presented not through the pretense of a scientistic objectivity, but with the personal involvement of the pupil, spiritually united with his teacher, who must have already had the same experience. «The sensible subject of a natural science lesson for a popular school is not a given tree, or a part of a tree presented verbalistically at school, but for example: the forest, the whole of life that is the forest both as a vegetal association and as a correlation of plants and animals [...]; not the frog, but the pond, also as a whole of biological and physical manifestations: the river, the meadow, the mountain, and the like. Harmonies and struggles of natural existence; contests and contrasts of individual beings». And again, summarising: «It is only of value to the child what he achieves through his own experience, or which, with the guidance of a master can become his own experience, with the complete illusion of having achieved the result by himself». Looking at the process from the master's side, it sounds like this: «The poetry I taste is that which I can make taste, and in making it taste I feel it more vividly mine; the scientific discovery is a revelation to myself, when I conceive it as a revelation for the human mind in the universal and launch it against error, of which I do not triumph, but she by my means» (Lombardo Radice 1961, p. 18).

As is well known, among the most successful school experiences he counted La Montesca directed by Alice Hallgarten Franchetti, which placed the observation of nature at the centre of its educational proposal. This school embodied the ideal of a "serene school" because of its ability to fully valorise the various inclinations of the children, exalting their nature as "poets".

It is precisely the definition of the child as a "poet" that is one of the most probable causes of the historical overcoming of Lombardo's proposal, since the image of the poet, with its implicit references to genius, seems to clash with the modern democratic conception of childhood, for which the child is primarily a holder of rights and a citizen; the imponderable concept of poetry, moreover, eludes the logic, particularly in vogue today, of the possibility of "measuring" the outcomes of educational action, which pertain more to the field of science. Well, for Lombardo-Radice, however, the scientific approach and the inclination to poetry, if correctly interpreted, ended up coinciding in the child's soul, naturally open to all the possibilities of the spirit: «Alice Franchetti's children», he wrote, taking La Montesca as a model, «receive a particularly scientific education, which however coincides with artistic education; expositors rather than narrators, but sharp; systematic illustrators of scientific observations, but full of serene joy and love for the things illustrated [...]. Science, but also poetry, therefore» (Lombardo Radice 1959, p. 42). And again: «La Montesca presents everything to him as a gentle miracle, which one must understand and love; it connects him with the social world, transforms him into a little conservationist, into a painter of his world» (*ibi*, p. 44).

Science and poetry - it is no coincidence that the subtitle of *Girl Athena* was precisely *Science and Poetry of the Serene School* - end up coinciding because, at least in Lombardo-Radice's conception, "poetry" is the first intuitive form, proper to children, of synaesthetic understanding of reality, thus a form of philosophy understood as hermeneutics of natural phenomena, which are precisely the object of science. This position does justice as much to the coldest positivism as - and perhaps above all - to the "insincere" school, so many times severely attacked by the Sicilian pedagogist, that school that only aimed at transmitting preconceived notions and subjecting the child to the social system, for example through the practice, harshly contested by Lombardo-Radice, of the fantasy theme, that is, disconnected from the real concrete experiences of the child: «The child is, in itself, poetry. He is a face all eyes, now dreaming, now laughing, now scrutinising. Do not upset him by forcing him into invention. He will give you, by himself, what poetry he can, and that is his own naivety. And the more he will give you, the less you will distance him from modest and precise observations and from everyday things» (*ibi*, pp. 281-282).

Poetry therefore as an expression of the child's observation of reality, as a reaction to the amazement caused in the soul by the encounter with novelty, an encounter made possible by the teacher. Here, too, we can see the Rousseauian attitude of foreseeing the child's desires and making him spontaneously fulfil what the master has planned: the so-called "reality tasks", the themes assigned

starting from concrete experiences that the master has prepared, go precisely in this direction. Conversely, "fantasy" composition, which asks of the pupil what he cannot give, because it is foreign to his life experience and his feelings, risks turning into a temptation to plagiarism, to copying and badly repeating other people's forms and styles in a stereotyped and, indeed, "insincere" form.

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# Lifelong Learning for Mongolia:
# Occupational Health & Safety project (3L4MHOS)*

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## Abstract

The *Lifelong Learning for Mongolia: Occupational Health & Safety (3L4MOHS)* project aims to strengthen Mongolian higher education institutions (HEIs) by enhancing their capacity for industrial workforce training and addressing critical Occupational Health and Safety (OHS) issues. The project will establish fully equipped OHS Centers in four Mongolian universities and provide training for teaching and administrative staff, led by international experts. Focusing on Work Package 2 (WP2), the project seeks to train teaching staff, modernize curricula with digital tools (e.g., AR/VR), and develop innovative pedagogical methods to ensure equitable lifelong learning access. Outcomes include improved teaching quality, governance, and internationalization of Mongolian HEIs.

**Keywords:** digital transformation; lifelong learning; teacher training; e-learning; pedagogical innovation.

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* The contribution is the result of the authors' joint reflection and research. Specifically, Y. Falzone authored paragraphs 2, 2.1 and conclusion and A. La Marca authored paragraph 1.

## 1. The impact of emerging technologies for lifelong learning

Over the past decade, the use of technology in education has transformed numerous aspects of learning. The increasing availability of educational resources and the expansion of higher education beyond traditional classrooms have created new opportunities for both teachers and students. Technology has facilitated personalized learning experiences, enhanced collaborative tools, and introduced innovative teaching methods such as virtual classrooms, interactive simulations, and adaptive learning platforms. These advancements have not only improved the quality of education but also promoted inclusivity, enabling learners from diverse backgrounds to participate and succeed in their academic journeys (Celik, 2023).

The provision of lifelong learning opportunities and its role in the higher education system must be rethought to include new educational designs tailored to the digital era (Zgaga et al., 2019). This shift requires reimagining learning frameworks to integrate flexible, accessible, and technology-enabled approaches that cater to diverse learner needs. Countries worldwide, as well as transnational organizations, have increasingly emphasized the development of lifelong learning initiatives in their higher education policy documents (Shava et al., 2023; Bond et al., 2018). Such policies highlight the need for systemic reforms aimed at fostering a culture of continuous learning and enhancing the employability and competitiveness of graduates in a globalized economy.

For instance, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) advocates for a broader vision: "The right to education must be expanded to be lifelong and encompass the right to information, culture, science, and connectivity" (UNESCO, 2021, p. 4). This perspective underlines the importance of integrating lifelong learning as a core component of higher education, ensuring its alignment with the demands of the knowledge society and fostering inclusive and equitable access to learning opportunities for all. Lifelong learning as a guiding principle appears in the Sustainable Development Vision (SDV) 2030 as:

> «A civil and lifelong education system must be open, accessible and of high quality. Lifelong learning is a key principle of Sustainable Development Goal 4 with which countries committed to 'ensure inclusive and equitable quality education and promote lifelong learning opportunities for all […] It includes learning activities for people of every age, in all contexts (family, school, community, workplace, etc.) and using different modalities (formal and informal education), which together respond to a wide range of learning-related needs and demands» (UNESCO, 2020, p. 18).

The integration of digital technologies in education has transformed traditional teaching methods, making learning more accessible, interactive, and personalized. In this context, technology-based learning plays a crucial role in training and professional development, contributing to a proactive and resilient educational system.

Such a system requires forward-thinking educational policies capable of anticipating innovation and actively supporting the digitalization process. This approach has been a cornerstone of European policies over the past decade, as highlighted by the European Commission (2020). Specifically, strategies like the Digital Education Action Plan have aimed to strengthen the digital skills of students and teachers, promoting equity and inclusion in access to technology (Pedone, 2021).

Learning, therefore, serves as the foundation for the digital transition, not only facilitating the adoption of new technologies but also preparing the workforce and citizens to live and operate effectively in an increasingly interconnected and data-driven society. This transformation requires investments in technological infrastructure, continuous training, and the development of transversal skills such as critical thinking, creativity, and problem-solving, which are essential to addressing future challenges.

Mongolia is situated in a unique socio-economic context, characterized by frequent changes in political governance over the past decades, as highlighted in UNESCO's 2020 report *Mongolia, Education Policy Review: Towards a Lifelong Learning System*. This complex scenario presents a range of challenges for education, making it crucial to adopt an educational system that promotes lifelong learning.

Initiating a lifelong learning project in Mongolia addresses the need to overcome structural and social barriers that limit equitable access to education, particularly for marginalized populations. Proposed solutions include the use of e-learning resources, standardized educational policies to improve access to education, and strengthening professional training for teachers. In this context, a lifelong learning project becomes essential to meet the needs of an inclusive and sustainable education system, capable of supporting the growth and integration of all citizens into modern society.

Another critical aspect involves translating international educational concepts into the local context. The challenge lies not only in translating educational terms but in making them resonate with Mongolia's cultural and social reality. Therefore, the introduction of a lifelong learning system is not just about adopting global educational models, but also about adapting them to the specific needs of the country, creating an educational vision that truly reflects the unique features and challenges of the Mongolian context.

## 2. The Lifelong Learning for Mongolia: Occupational Health & Safety (3L4MOHS) project

In the unique context of Mongolia, characterized by distinctive geographic challenges, occupational health and safety (OHS) education emerges as an indispensable element to protect the well-being of workers and support sustainable economic and social development. The complex nature of the Mongolian terrain, with remote industrial areas and extreme climatic conditions, underscores the importance of adopting innovative and inclusive educational strategies to address these critical issues. Lifelong education in Mongolia emerged in response to strong socio-economic needs during the 1990s, following the country's transition to democracy and a market economy. The 1991 Education Law formalized lifelong learning as a sub-sector of the education system, paving the way for the establishment of dedicated centers at both national and local levels. Despite the progress made, numerous challenges remain, including an inadequate regulatory framework, financial constraints, a shortage of qualified human resources, and accessibility issues (Yembuu, 2021).

The project (3L4MOHS) aims to transfer know-how from the European part of the Mongolian partners, in order to Develop and Implement Lifelong Learning Centres at University level. With the increasing advancement of technology and the emergence of digital platforms, Mongolia is well positioned to integrate e-learning methodologies into its OHS education system. This transition presents an opportunity to overcome logistical barriers traditionally associated with face-to-face training, such as long distances to travel and difficult weather conditions. The adoption of digital solutions not only improves accessibility, but also allows for the customization of training paths, tailoring them to the specific needs of workers in different sectors. In addition, the implementation of lifelong learning programs within the occupational health and safety educational framework could help foster a culture of prevention and shared responsibility. These programs, combined with the use of digital tools, offer an effective means of disseminating knowledge, updating skills and raising awareness of occupational hazards among workers, with a positive impact on productivity and quality of life.

Although the integration of digital tools into lifelong learning in Mongolia offers significant advantages, we are fully aware of the challenges associated with their implementation.

Internet access, for instance, remains a major issue in Mongolia, particularly in rural and remote areas where infrastructure is limited and connection costs are high (Tuul et al., 2016). This digital divide creates a gap between urban and rural populations, limiting the ability of those in disadvantaged areas to benefit from digital learning resources. Moreover, hardware limitations — including the limited availability of computers, tablets, and smartphones — further hinder the implementation of digital tools. For this reason, the project has provided for the purchase and distribution of appropriate technological resources, to concretely support educational activities in local contexts.

In addition to infrastructural and financial challenges, it is also essential to address the resistance to change among both teachers and students. Some educators may lack the necessary skills and knowledge to effectively integrate digital tools into their teaching practices, while others may be reluctant to adopt new methodologies due to their familiarity with traditional approaches. To tackle

these issues, specific training sessions on the use of digital devices in education have been launched, along with capacity-building activities focused on the design and management of Learning Management Systems (LMS).

For the implementation of the project, the analysis of the Educational needs highlighted significant gaps and crucial requirements in the Mongolian educational system, with a focus on occupational health and safety (OHS) training. Currently, Mongolia's educational landscape lacks structured OHS training courses at the higher education level. Available training is mainly delivered by NGOs or independent centers, often run by instructors who lack advanced teaching skills and experience in designing training content. This lack compromises the quality and effectiveness of training for students and workers, with direct repercussions on safety and well-being in the workplace.

To gain a deep understanding of the specific needs and requirements of the Mongolian partners, a focus group was organized during the first training session dedicated to digital pedagogies. The session involved nine stakeholders from educational institutions, training organizations, and non-governmental organizations operating in Mongolia. The aim of the meeting was to gather direct insights into the current challenges faced by the educational system, as well as to identify good practices and effective solutions that could be adapted and enhanced within the framework of the project activities. Through a structured and participatory dialogue, participants shared their experiences regarding the integration of digital technologies in teaching, professional training in specific areas — such as occupational health and safety — and the main infrastructural and methodological challenges.

One of the central issues that emerged from the survey conducted is the need to supplement theoretical instruction with practical sessions. The latter are considered crucial for translating knowledge into applicable skills. Practical sessions, combined with courses organized directly in workplaces, were identified as highly efficient training methods, capable of responding pragmatically to the needs of students and companies, and also offering a cost-effective solution for many organizations.

Another critical element concerns the need to modernize and digitize education delivery methods. The integration of advanced technological tools such as instructional videos, virtual reality and interactive platforms enhances both education accessibility and the quality of learning. Specifically, the digital transformation of education can enable the personalization of training and provide immersive experiences that increase the effectiveness of knowledge transfer. In addition, the project emphasized the role of innovative pedagogical approaches, including blended learning and gamification, in adapting educational content and methods to the specific needs of the Mongolian context.

The project placed special emphasis on collaboration with industry stakeholders and government partners, recognizing the importance of alignment between the education system and labor market needs. This synergy is crucial for ensuring the relevance and effectiveness of the educational programs in order to produce a tangible impact on the national economy. The direct involvement of key stakeholders allowed educational innovation to be tailored to the country's strategic priorities, ensuring that the benefits of training extended not only to individual workers, but also to the overall growth of the productive sector and Mongolia's economic sustainability.

### 2.1 Innovative Strategies and Challenges in the Digitalization of Higher Education in Mongolia: European Literature Review

Taking note of the needs outlined above, the specific objectives of the project include the need to establish Lifelong Learning Centres (LLCs) in Mongolian Higher Education Institutions, which will act as hubs for lifelong learning, exploiting modern digital tools to improve the quality of learning. With the aim of responding to the needs of the Mongolian context and in order to support the digital transformation and digitisation of learning delivery methods and teaching in training curricula, a European literature review was conducted to identify innovative practices, training methodologies and tools for OHS training. Through the analysis of successful implementation cases, potential barriers to the use of digital tools for OHS training emerged, providing a comprehensive picture of the opportunities and challenges.

Based on the analysis conducted, a detailed report was compiled summarising the most cutting-edge European trends, practices and teaching methodologies for e-learning training.

It was found that gamification stands out as a particularly effective strategy. The integration of typical game elements, such as evaluation systems, challenges and rewards, enhances learner engagement and fosters more robust learning outcomes. Recent studies confirm that these practices have no negative side effects and represent a dynamic solution for encouraging active student participation while promoting a more motivating and personalised learning process (Lipnicka, 2020; van Gaalen et al., 2021; Rodeghiero Neto & Amaral, 2024).

The project, for the digital transformation of the teaching-learning process, also envisages the use of Virtual Reality (VR) tools, which are becoming more relevant in educational and professional contexts. The literature highlights how such technologies have positive effects on risk reduction and increased cognitive retention (Gulbay & Leone, 2024). In particular, VR proves to be an irreplaceable resource for simulating hazardous situations that would be impossible to replicate in reality, such as possible contamination situations in industry. This experiential learning mode not only stimulates engagement, but also facilitates a deeper and more lasting understanding of safety and health content in hazardous work environments (Junaini et al., 2022). Although AR can offer significant benefits, it is crucial to carefully consider how to implement it in the educational context to maximise the benefits and reduce any frustrations or difficulties students may have. The use of AR visors, such as Hololens, means that users cannot make direct eye contact, reducing non-verbal communication and emotional expressions, which are important for effective collaboration (Radu & Schneider, 2019). Finally, the analysis shows the importance of integrating the different digital tools mentioned with the adoption of active learning strategies. For instance, the combined approach integrating techniques such as gamification and problem-based learning (PBL) has been shown to be particularly effective in improving educational outcomes. However, the report also highlights some of the difficulties and challenges involved in implementing this training, such as increased workload for teachers and resistance to change on the part of students.

The implementation of digital tools in education faces complex challenges related to digital inequalities, institutional rigidities and insufficient technological skills (UNESCO, 2023). Socio-economic and geographical disparities limit equitable access to resources, while resistance to change hinders the adoption of innovative methodologies. Lack of adequate training for teachers and students, combined with deficiencies in technical support and availability of up-to-date resources, reduce the effectiveness of digital technologies. In addition, ineffective communication undermines interaction and motivation in online learning. Overcoming these barriers requires an integrated approach to promote equity, innovation and inclusiveness.

In the specific context of Mongolia, the project aims to establish centres for lifelong learning and digital transformation as hubs for educational innovation and inclusion. These centres will serve as hubs for the professional training of teachers, for the testing of innovative digital teaching tools and for direct support to local schools in the transition to hybrid and digitised teaching models. By conducting case studies on successful experiences and using advanced digital platforms, the project intends to provide stakeholders with operational tools and evidence-based knowledge to foster the effective and sustainable integration of ICT. Thus, teacher training emerges as a key element for the success of e-learning technologies, and this is the ultimate goal of WP2. It is crucial that educators receive adequate and targeted training that makes them fully prepared to integrate digital tools into their teaching practice. Only through solid and continuous training can the effective use of technologies be ensured, thereby optimising the benefits for students.

## 3. Conclusion

The conclusions emerging from the proposed analysis highlight the importance of promoting quality education in Mongolia through targeted and strategic interventions. Health and safety training, selected as a pilot curriculum, proves crucial for strategic sectors such as mining, construction and

agriculture, demonstrating how educational innovation can have a significant impact on sectors crucial to the national economy.

However, there is a noticeable absence of Lifelong Learning Centres in higher education, a void that limits the continuous development of the skills needed to meet the challenges of the contemporary labour market. The digitisation of courses and the introduction of advanced technological tools are therefore essential to improve the quality and standards of education in Mongolian academic institutions. These interventions represent not only an opportunity for technological upgrading, but also a means of bridging the gap between higher education institutions and other stakeholders, fostering sustainable growth and the creation of new job opportunities.

The establishment of Lifelong Learning Centres and the digitisation of education are key levers for modernising the Mongolian education system, strengthening the link between education and economic and social development. However, constant collaboration with Mongolian partners enables us to gather continuous feedback on the concrete needs and requirements of local contexts, thus ensuring the effectiveness and sustainability of ongoing activities.

These efforts represent an essential step towards an inclusive and innovative education system, capable of responding to local needs and aligning with global trends.

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# Teachers and Artificial Intelligence: Developing Digital Citizenship Skills[*]

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## Abstract

Artificial Intelligence (AI) represents the peak of transformative technological innovations in education. In this context, the development of pedagogical and digital citizenship skills in teachers is crucial. This work stems from the state of the art on teaching of AI and in-depth analysis of free tools for the use of this technology. Subsequently, we present a study conducted on a sample of 200 sicilian future teachers collecting their opinions on the use of AI in teaching.
These activities aim at bringing future teachers closer to the world of AI by guiding them in the creation of AI-based systems. This study allowed future teachers to analyze the potential of AI, start a self-assessment process and understand how to develop all the required skills for using AI.

**Keywords:** digital citizenship; artificial intelligence; teacher training; ethic issues; ChatGPT.

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[*] The contribution is the result of the authors' joint reflection and research. Specifically, Y. Falzone authored paragraphs 2, 4; B. Miro paragraph 1 and E. Gulbay authored paragraphs 3 and conclusion.

## 1. Understanding the implication of AI in education

Artificial Intelligence (AI) is transforming different fields, including education and teaching approaches. In this context, AI plays an increasingly significant role in education, offering students and teachers access to advanced and personalised educational resources. In order to participate productively in the AI era, it is essential that future teachers acquire a fundamental understanding of how AI works and how it will impact their lives (Gentile et al., 2023; Baidoo-Anu & Owusu Ansah, 2023). This competence becomes even more relevant in light of recent advances in the field of *deep learning*, which have made possible the development of advanced technologies such as generative artificial intelligence. Such technologies, including Generative Adversarial Networks (GANs) and Generative Pre-trained Transformers (GPTs), use existing digital content, such as video, images, text and audio, to create new artificial artifacts based on the analysis of patterns and distributions learned during the training process (Baidoo-Anu & Owusu Ansah, 2023). Integrating this knowledge into teacher training not only fosters a critical understanding of AI, but also prepares teachers to harness these technologies to enhance learning and address future challenges in education.

Several studies show how AI represents a significant evolution in the field of educational design, outlining its potential for adapting learning environments to the unique needs of students, such as Intelligent Tutoring Systems or Learning Analytics (LA) (Ayeni et al., 2024; Bahroun et al., 2023; Pagliara & Bonavolonta, 2024)

AI offers numerous benefits in education, revolutionizing the teaching and learning experience. Here are some key indicators:

- automating administrative tasks: AI streamlines administrative tasks such as attendance tracking, grading, and scheduling, freeing up valuable time for teachers to focus on meaningful interactions with students;
- assistance in task creation and assessment: AI-powered tools help teachers create performance tasks, develop rubrics, and assess student work efficiently. This enables educators to provide targeted feedback tailored to individual learner needs;
- personalization of learning: AI facilitates personalized learning experiences by providing learners with choices and opportunities to express their voices. This fosters a sense of ownership over their education journey,
- enhanced understanding through interactivity: AI enables more interactive and immersive learning experiences through simulations, virtual reality, and adaptive learning platforms. This fosters deeper understanding and engagement among students;
- identification of struggling students: AI algorithms can analyze student performance data to identify patterns indicative of struggling learners. With this insight, teachers can intervene early and provide targeted support to help students succeed;
- fostering curiosity and exploration: AI-powered learning tools encourage curiosity by offering learners access to a wide range of topics and perspectives. This promotes exploration and critical thinking skills development.

The analysis and data management capabilities of the most modern AI systems pose themselves as important support tools for teaching activities (Fabiano, 2024). They make tasks that are repetitive and take a lot of time easier and better, which gives teachers more time to focus on important things. Some examples of these tools are systems for managing learning, platforms for making educational content, software that changes based on how students are learning, and programs for tutoring online. These tools not only help with tasks like organising classes and grading, but they also use fancy technology to assess students' progress. They can figure out patterns in how students learn and see where they might need help. Teachers can then use this information to make learning better for each student and find problems early. Remarkably, these tools are continuously updated with self-learning strategies as people use them, ensuring they remain effective for innovative teaching methods.

However, the introduction of AI in education also raises important ethical and privacy issues. It is evident that the use of AI has raised many ethical (Bodò et al., 2017; Southgate, 2020) and security issues in relation to the collection, use and dissemination of data. For this reason, it is important to

know what issues may arise when AI is introduced in the educational context and to help teachers better prepare for this new challenge. In this regard, UNESCO introduced global standards for AI ethics, which were adopted and signed by 193 member countries on 25 November 2021. The recommendation is addressed to policymakers and includes four 'values':

1. respect, protection and promotion of human rights and fundamental freedoms and human dignity;
2. living in peaceful, just and interconnected societies,
3. ensuring diversity and inclusiveness;
4. living in a thriving environment and ecosystem.

These values are to be implemented according to the following 'principles', which recall those of digital citizenship: Proportionality and Do No Harm, Safety and Security, Fairness and Non-Discrimination, Sustainability, Privacy, Human Oversight and Determination, Transparency, Accountability and Reliability, Awareness and Literacy, Governance and Adaptive and Multistakeholder Collaboration. This agreement emphasises the importance of ethics in the field of AI worldwide, highlighting the dangers associated with cultural, social and environmental diversity while creating a universal value framework (Nguyen et al. 2023). More recently, in 2023, UNESCO published *Guidance for Generative AI in Education and Research*, highlighting that generative AI technologies, such as ChatGPT, have introduced additional ethical and operational issues.

## 2. Artificial Intelligence and Digital Citizenship

The link between digital citizenship and AI is complex and multidimensional. On the one hand, AI can facilitate a more active and informed digital citizenship, transforming individuals from mere consumers of information to active and aware participants; on the other, it is essential that citizens develop critical skills to navigate this new information landscape. The opportunities for efficiency, innovation, and growth related to the use of AI require reflection on its long-term effects, calling for an ongoing effort to balance progress and ethical responsibility (Gulbay et al. 2024).

A good digital citizen can discern between reliable information and disinformation, a task made difficult by the proliferation of manipulative content and the spread of fake news (Falzone, 2024). AI, while offering tools for fact-checking and identifying misleading content, is not a panacea. Indeed, the use of algorithms and recommendation systems can sometimes contribute to creating information bubbles, reinforcing distorted views of reality.

Moreover, the issue of transparency is crucial. It is important to understand how algorithms work to influence the information they receive and how these decisions may impact their civic involvement.

It can be argued that the link between digital citizenship and artificial intelligence is characterised by a balance between opportunities and risks. To fully exploit the potential of AI in promoting meaningful civic participation, it is crucial that citizens are equipped with the necessary skills to deal with the challenges of misinformation and manipulation. Indeed, these two 'realities' are extremely dependent and interconnected; aiming for an increasingly ethical use of technology and the digital world must be a priority, especially for the educational world (La Marca & Falzone, 2024).

Training teachers means providing them with opportunities to develop the skills they need to understand the actual benefits but also the potential risks and limitations of using AI. It is crucial that they are able to critically understand the impact of AI in the educational context, acquiring skills to consciously assess how to use these technologies in an ethical and responsible manner, for the benefit of their students and the entire educational process. Therefore, it is necessary to educate citizens in the development and consequent application of critical thinking, read as an essential filter to be applied with and to the approach to AI.

An arduous task, continuing in this direction, is that entrusted to those in charge of training and learning-teaching, who must be able to provide students with an adequate 'toolbox', a toolkit, that can enable them to orient themselves in an increasingly technological world. This process will inevitably lead to the development of a greater sense of responsibility and attention towards all that

the digital and/or artificial world makes available to them, leading, we hope, to an increasingly aware and mature use of the advanced tools that technology offers us today.

In order to train teachers in the critical use of artificial intelligence, it is important to integrate AI education into the school curriculum in a cross- and multidisciplinary manner. Simulations, case studies and realistic scenarios can be used to make students understand how AI is used in different contexts and fields. In addition, involving experts in the field, educational institutions and the local community can offer different perspectives on the use of AI and stimulate debate on ethical and social issues.

Integrating AI into the educational context helps improve the learning experience that teachers offer their students. By aligning AI technologies such as ChatGPT to the curriculum, teachers ensure that the integration is seamlessly integrated into the existing teaching framework, fostering a cohesive and effective learning environment. For inquiry-based learning, ChatGPT and AI can help encourage students to ask questions, explore topics and engage in self-directed learning. By posing prompts or open-ended challenges, teachers can guide students to use ChatGPT as a tool for exploring and analysing problems. This approach helps students develop critical thinking skills and digital citizenship skills, as it encourages them to reflect, research, and consider different perspectives and possible solutions. The personalised feedback and differentiation offered by AI tools allow teachers to meet the needs of individual students, offering the possibility to provide targeted instruction and support, ultimately leading to better student outcomes.

## 3. Structure of the training program

In an effort to enhance the educational landscape and equip educators with innovative tools, a comprehensive training program was conducted with 200 sicilian future teachers focusing on understanding and addressing concerns related to the use of AI in education (Table 1).

| Modules | Activities |
|---|---|
| Understanding and addressing concerns related to the use of AI in education | • Introduction to the potential of AI in education.<br>• Open discussion on the ethical and pedagogical concerns of students regarding the use of Generative AI.<br>• Brainstorming activities to identify and resolve doubts and uncertainties. |
| Practical training on effective and ethical use | • Guided hands-on session on using ChatGPT for creating educational resources (e.g., exercises, interactive stories, and quizzes).<br>• Discussion on interaction models and appropriate language to use with ChatGPT.<br>• Guided hands-on session on using Copilot for creating educational resources. |
| Experiencing ChatGPT in teaching | • Presentation of case studies on using ChatGPT to enhance students' learning experience.<br>• Hands-on activity to design lessons or educational activities using ChatGPT as a teaching aid.<br>• Discussion on the results obtained and the potential for integrating ChatGPT into the primary education curriculum. |

*Table 1: Training program organization*

The training starting with an insightful introduction to the potential of AI in education. Future teachers delved the possibilities that AI offers, from personalized learning experiences to enhanced student engagement. We started an open discussion where ethical and pedagogical concerns regarding the use of Generative AI were explored. Future teachers engaged in thought-provoking conversations, reflecting on the implications of AI integration in the classroom and its impact on student learning and development. Brainstorming activities were then conducted to foster collaboration and problem-solving among educators. Future teachers worked together to identify and resolve doubts and

uncertainties surrounding the implementation of AI in education, ensuring a thorough understanding of the technology implications.

Moving on to practical training, teachers participated in guided hands-on sessions focused on the effective and ethical use of AI tools. They were introduced to ChatGPT, a versatile AI platform, and learned to create educational resources such as exercises, interactive stories, and quizzes. Through interactive discussions, teachers explored different interaction models and appropriate language to use with ChatGPT, ensuring effective communication with the AI system. Additionally, teachers were guided through hands-on sessions on using Copilot, further expanding their toolkit for creating educational resources. This practical training equipped educators with the skills needed to leverage AI tools effectively in the classroom.

Experiencing ChatGPT in teaching was a highlight of the training program. Teachers were presented with case studies showcasing the successful integration of ChatGPT to enhance students' learning experiences. They actively engaged in hands-on activities, designing lessons and educational activities with ChatGPT as a teaching aid. Through reflective discussions, teachers analyzed the results obtained and explored the potential for integrating ChatGPT into the primary education curriculum.

## 4. Analysis of the training program

The training program provided future teachers with a comprehensive understanding of AI in education, equipped them with practical skills for its implementation, and fostered a collaborative environment for exploring its potential. As AI continues to shape the future of education, teachers are empowered to embrace these technologies and create enriching learning experiences for their students.

In order to analyse the training course conducted, the teachers were asked to write critical reflections on the training course they undertook. A thematic analysis of the responses was conducted by creating qualitative categories reflecting the most common and recurring observations (Table 2).

| Categories | Description |
|---|---|
| Use in education | Discussion and analysis of the ways in which AI can be used in the context of education. |
| User friendliness and accessibility | Considerations on the user-friendliness of AI, including accessibility aspects for users with different levels of technological competence. User interface, intuitiveness and tools to make interaction with AI more accessible are discussed. |
| AI differences and capabilities | It includes discussions on differences in functionality, text generation capabilities and practical applications in different contexts. |
| Impact on teaching and learning | The use of AI in education to improve teaching effectiveness, stimulate creativity and facilitate cultural integration. Gaps in understanding and personalisation of learning. |
| Usefulness and limits of AI | The usefulness of AI for grammar correction and support, while highlighting the need for conscious use and critical supervision to achieve effective results. |
| Future training and preparation | Includes considerations on task automation, required skills and career prospects influenced by the advancement of AI |
| Ethical implications and privacy | Ethical concerns and privacy considerations associated with the use of AI. Includes discussions on transparency in the use of data, privacy protection and the social impact of technologies. |
| Positive feedback | It includes praise for the effectiveness of the responses, the quality of the results generated and the overall experience. |
| Educational challenges | It includes problems of adaptation, teacher training and acceptance by students and parents. |

*Table 2: Categories emerging from thematic analysis*

The thematic analysis conducted revealed several key aspects related to the use of AI in educational contexts. Teachers have honed their skills in formulating prompts for generative AI systems. it is important to formulate clear and detailed prompts to avoid ambiguity in the answers generated by the model. This emphasises how crucial accuracy in question construction is to obtain relevant and precise information. Addressing the ethical implications of these instruments revealed confusion and disorientation around these issues. Teachers testified that they had a greater understanding of the risks related to their privacy, this also provided a general awareness of the limitations of AI. For instance, ChatGPT is not immune to errors or misunderstandings, especially when dealing with complex texts, and users must be prepared to interpret answers critically. In connection with this, it was emphasised that the information provided by ChatGPT should always be verified through reliable external sources. This approach promotes a habit of critical evaluation and helps students to distinguish between reliable and unreliable sources. Another theme that emerged was the need to use AI under the supervision of teachers, who can guide and direct the use of the tool consistently with educational objectives.

The importance of continuous feedback and monitoring by teachers was also recognised, particularly by observing how students interact with these systems and providing them with guidance to guide the use of this tool. This highlights the importance of adequate training to allow students to understand both the potential and limitations of ChatGPT, while learning the correct ways to interact with the system. Finally, the need to periodically update and revise the guidelines for the use of ChatGPT was emphasised. Such revision allows the guidelines to be adapted to changes in technology and the educational environment, ensuring that its use remains appropriate and effective at all times.

## 5. Conclusions

The training program on integrating AI into education has been a transformative experience for teachers, equipping them with the knowledge and skills needed to navigate the complexities of AI integration in the classroom. Through engaging discussions, practical training sessions, and hands-on activities, teachers have gained a deeper understanding of the potential of AI to enhance student learning experiences.

By addressing concerns related to ethics, pedagogy, and effective use of AI tools, educators are now better prepared to harness the power of AI responsibly. The brainstorming activities facilitated collaborative problem-solving, enabling teachers to identify and resolve uncertainties surrounding AI implementation.

Practical training sessions on using ChatGPT and Copilot have empowered teachers to create engaging educational resources, fostering creativity and innovation in teaching practices. The presentation of case studies has provided valuable insights into real-world applications of AI in education, inspiring teachers to explore new possibilities for enhancing their teaching methodologies.

As we reflect on the outcomes of this training program, it is evident that AI has the potential to revolutionize education, offering personalized learning experiences and empowering educators to meet the diverse needs of their students. By integrating AI into the curriculum, teachers can cultivate critical thinking, creativity, and digital literacy skills among students, preparing them for success in an increasingly AI-driven world.

Moving forward, it is essential to continue providing support and resources for educators as they navigate the ever-evolving landscape of AI in education. By fostering a culture of lifelong learning and adaptation, we can ensure that educators remain at the forefront of innovation, driving positive change in the education sector.

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# Bleak Pedagogy:
# A new term unveiled from research on Adultcentrism

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## Abstract

With this work we propose an overview of the studies that led to the operationalization of Adultcentrism (AD) and Black Pedagogy (BP) scales. Moreover, we outline the international research connections with childist theoretical perspective, which has been analyzed in its potential to promote age-inclusive developments and educational methodologies (Biswas et al., 2023).
Indeed, through the analyses of our results, it has become clear that Adultcentrism seems to reflect the natural point of view of adults, which risks leading to detrimental practices only if exacerbated (Florio et. al, 2022a). Furthermore, the construct of Black Pedagogy proved to be particularly useful if used in a non-judgmental way (Florio et al., 2023), prompting the proposal of the new term "Bleak Pedagogy".

**Keywords:** adultcentrism; bleak pedagogy; black pedagogy; authoritarian education; childism.

## 1. Introduction

The term "Bleak" Pedagogy emerges in our discourses in replacement of "Black" Pedagogy as a reinterpretation of entrenched educational practices grounded in the dominance of an exacerbated adultcentric *forma mentis*. Presented during the ATEE Spring Conference 2024, this contribution investigates how adult-biased frameworks shape pedagogical practices based on power and oppression that lead to detrimental outcomes for children. Drawing on empirical research and theoretical interventions, the authors advocate for a transformative approach that deconstructs traditional power dynamics and highlights the urgent need for age-inclusive pedagogies. This paper delves into the origins, implications, and potential transformations surrounding the terms "adultcentrism" and "bleak pedagogy".

## 2. The foundational role of adultcentrism

Adultcentrism refers to the pervasive bias inherent in adult-child relationships, where adult perspectives dominate and marginalize children's voices (Foti, 2004; Furioso, 2000; Goode, 1986; Mackay, 1974, 2003; Pedrocco Biancardi, 2002). Operationalized by Florio, Caso, and Castelli (2020a), adultcentrism emerges as a "natural" viewpoint for adults but becomes problematic when unrecognized (Florio et al., 2022). It perpetuates harmful assumptions, such as the belief that adults possess superior judgment or inherent authority over children (Bell, 1988, 1995; Checkoway, 1996; Fletcher, 2013; Fletcher & Vavrus, 2006; Rodrìguez Tramolao, 2013). Empirical tools, such as the Adultcentrism Scale (Florio et al., 2020a, 2022), facilitate the study of this construct, offering insights into how it informs societal norms and parenting practices.
The adultcentric paradigm is particularly concerning due to its role in normalizing authoritarian educational practices. The risk of escalating adultcentrism into overt control has been discussed in Florio et al. (2022), if exacerbated, it fosters environments where children's needs and perspectives are consistently subordinated to adult priorities. An example is using and endorsing "Black Pedagogy" practices: this term, rooted in historical authoritarian practices (Rutschky, 1977, 2015), encompasses methods characterized by control, punishment, and the systemic use of power over children. It has been largely discussed its reliance on physical and psychological violence as 'necessary' tools for toughening children up in view of adult life (Brokate, 2005; Miller, 1980, 1983, 2007), but – despite being increasingly critiqued by professionals (Perticari, 2016) –, subtler forms of these practices remain embedded in contemporary educational and cultural norms (Florio et al., 2020b, 2022).

## 3. From Black Pedagogy to Bleak Pedagogy: Reconceptualizing power dynamics

The transition from "Black" Pedagogy to "Bleak" Pedagogy reflects a fundamental shift in understanding, since the term bleak has been chosen to escape from the good-bad opposition (Florio et al., 2023) when referring to adults' educational role and to capture the desolation and lack of alternative pedagogical resources in authoritarian frameworks. This can lead the adult to experience frustration, as there seems to be no other way to act, thus fostering a feeling of having to do something very unpleasant but deemed necessary for the child's own good.
On the occasion of the ATEE Spring Conference 2024, we sought to illustrate our reasoning through selected famous paintings that, in our view, effectively capture the emotional and relational impact of a bleak pedagogy in action.
Giovanni Segantini's painting (cf. Fig. 1) *Le cattive madri* (The bad mothers) portrays a windswept, unwelcoming landscape, devoid of nurturing resources. The depiction of an arid and desolate landscape serves as a stage for the atonement of those bad mothers who are guilty of not adhering to the purest values of motherhood; a scene rich in symbolism, inspired by the lyrics of his friend Luigi Illica, who translated a segment of the poem *Pandjavalli* (Giovanelli, 2014; del Bondio, 1999).

*Figure 1: Giovanni Segantini – Le cattive madri (The bad mothers), 1894.*

By virtue of the subjective nature of artistic reception experience, we would like to share what is our purely personal impression arising when looking at this stark depiction: it reminded us of the desolation and lack of alternatives that characterize Bleak Pedagogy as we conceptualize it, where the adult often appears to be the first to suffer. Yet, this bleak environment is not without hope: it stands as a powerful call to action, urging us to see its emptiness not as an endpoint, but as a canvas for transformation. It offers space, a space to plant the seeds of new resources and ideas, though the barren ground must first be tilled with care and intention. This is more than an invitation; it is a challenge to reimagine these desolate landscapes as fertile ground for growth, renewal, and boundless potential for the well-being of both the child and the adult.

Similarly, Edvard Munch's *Evening on Karl Johan Street* (Fig. 2) deeply resonated with us and informed our reflections, as it provides a haunting portrayal of alienation and gloom.



*Figure 2: Edvard Munch – Evening on Karl Johan Street, 1892.*

The effectiveness of this depiction allows us to illustrate what we believe could also be the isolating nature of oppressive pedagogies, whose system of premises becomes purely self-referential and endowed with a high internal coherence, making it difficult to escape – or even to find the desire or motivation to envision or pursue alternatives. It is interesting to highlight an aspect of Munch's artistic practice in this regard: notably, his "horse cure," (i.e. *Hestekur*) which involved exposing his works to the natural elements – rain, snow, wind, and even decay – precisely to temper them and make them more "real"[1]. The deliberate exposure of the paintings to the harsh elements, intended to temper them, inspired us to draw a parallel with the rationale of bleak pedagogy. This educational approach subjects children to adverse conditions under the pretext of preparing them for the challenges of adult life. The concept of "toughening up through adversity" lies at the heart of this critique, underscoring the urgent need for a balanced approach that nurtures both resilience and care in child-rearing.

In summary, the transition from "Black Pedagogy" to "Bleak Pedagogy" represents not merely a terminological shift but a call for a profound reconsideration of the power dynamics embedded in educational practices. Bleak Pedagogy becomes evident in practice when adults rely heavily on the authority of their role to educate, highlighting the absence of alternative strategies – we can hypothesize that this occurs particularly in societal environments dominated by norms or demands that create external pressures, requiring adults to achieve certain results with young people. The centrality of power highlights the emotional and intellectual deprivation caused by such methods and risks becoming the only framework young people learn to express their needs, which they may later replicate by asserting their authority over adults when they perceive an opportunity to do so (e.g., adolescent rebellion), thus perpetuating intergenerational transmission.

## 4. Empirical insights

The empirical foundation underpinning our reasoning is based on several studies involving diverse groups of participants. It is important to specify that in this paragraph, we refer exclusively to our previous works, as the scales of Adultcentrism and Bleak Pedagogy are relatively new, and no publications by other authors have yet associated these two constructs within a research design.

During the initial validation phase of the Adultcentrism Scale and the Bleak Pedagogy Scale (referred to as the Black Pedagogy Scale at the time), analyses were conducted on the responses of university students and parents of Italian primary school pupils (Florio et al., 2020b, 2020a). Subsequently, the responses of primary school teachers were analyzed in the study *Detrimental Educational Practices Deemed as Culturally Acceptable: Adultcentrism and Black Pedagogy in Italian Primary Schools* (Florio et al., 2022). Further analyses were carried out in the work *Mind-Mindedness and Educational Stance in a Sample of Primary School Teachers* (Florio et al., 2023), with additional papers currently submitted or in preparation. In these studies, alongside the exploration of the constructs' meanings through a comprehensive literature review, we also focused on quantitative analyses and methodologies, supported by the substantial number of participants who engaged with our research proposal. This robust participation enabled us to conduct various analyses, including Exploratory and Confirmatory Factor Analyses (EFA and CFA), linear regression analysis, and Structural Equation Modeling (SEM)—the latter being part of a paper currently under submission.

The Adultcentrism Scale and the Bleak Pedagogy Scale allowed us to quantify and analyze these constructs, revealing significant correlations between adultcentrism and the authoritarian practices described by the Bleak Pedagogy construct. Key findings emphasize the predictive role of adultcentrism in fostering bleak pedagogical practices. Interestingly, participants demonstrated greater agreement with the values of bleak pedagogy than with its methods, suggesting a tendency to reject its practices. These results underscore the urgency of addressing underlying biases and developing interventions that promote an educational stance inclusive of children's culture and perspectives.

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[1] "The artist is, in fact, convinced that his own works being tools for communicating feelings of decay, destruction and dissolution, to expose them to the air, to the elements of nature (rain, wind, snow, sun…) and to the contact with the world (dust, rust, excrement, mold, wax, candle smoke…) is a way to temper them and make them protagonists of that 'cure' which is part of the artistic genesis". (Duò, 2023, p. 58) - Own translation from Italian to English

## 5. Childism as a transformative structural lens

Perspectives The transformative purpose of the Adultcentrism Scale and Bleak Pedagogy Scale extends beyond their applicability for promoting children's cultures and perspectives within existing educational systems. While these Scales provide valuable insights for micro-level organizational changes and pedagogical practices, it is essential to recognize the broader social critique revealed by the paradigm of adult-centrism and related concepts like adultism. Education, as an intergenerational relationship, is shaped by cultural norms, institutional frameworks, and political economy that often rely on age-based segregation and hierarchies. Understanding the power dynamics and transformative potential of these relational divisions requires examining how oppressive structures are sustained through constructed notions of "adulthood" and "childhood."

By applying the Scales, adults can become more aware of their privileges and use this awareness to rethink educational structures that move beyond age-based hierarchies. For example, education need not be limited to adults teaching children but can also involve adults *learning from* children (Biswas, 2021), fostering more inclusive intergenerational relationships.

This transformative response to age-based hierarchies is a core principle of childism. In its most expansive sense, childism advocates for the recognition, social justice, and inclusion of all humans. The ethicist John Wall (2019) illustrates the movement's epistemological trajectory by comparing childism to feminism, highlighting its dual role in deconstructing adultism's history and reconstructing new social norms. In this way, childist interventions challenge dominant understandings of childhood, which have historically been rooted in the subordination of children by adults, and expand the vision of what it means to build inclusive human communities.

It is mention worthy that while movements such as the New School movement, along with related efforts like the progressive education movement (Kennedy 2018) and the Italian *Movimento di Cooperazione Educativa* (Tripi 2024), do reflect childist inclinations—particularly in their critiques of authority and their advocacy for child-centered, democratic schooling—what distinguishes childism is its potential to offer structural pathways for transforming the economic, political, and social nexus of society beyond the school. As David Kennedy rightly notes, these movements embody a sensibility aligned with the "empathic mode" of child-rearing and the democratic social character, and can be seen as early expressions of a childist agenda within schooling (Biswas et al, 2023). However, their interventions remain primarily situated in specific Western contexts and are largely limited to pedagogical reform. This leaves open the question of how childism might be applied transnationally to restructure broader political economic systems. In particular, there is an urgent need to respond to contemporary adultist injustices—such as intergenerational climate injustice—where neoliberal economies depend on education systems to reproduce human capital, often without regard for children's lived realities or future wellbeing.

## 6. Implications for practice and conclusions

The introduction of "Bleak Pedagogy" as a critical concept invites educators, policymakers, and researchers to reflect on the long-term consequences of authoritarian practices, not only on children but also on adults themselves. By framing these methods within a social constructionist perspective, the authors advocate moving beyond binary judgments of "good" or "bad" pedagogies and, consequently, simplistic labels of "good" or "bad" teachers, fathers, or mothers. Instead, the focus shifts towards understanding how cultural norms perpetuate these practices and identifying pathways for systemic change, fostering a meeting point between adult and children's cultures to the benefit of both.

Practical implications include the development of training programs for educators and teachers that prioritize relational and empathetic approaches, alongside policy reforms aimed at embedding frameworks inclusive of children's and adolescents' cultures into educational systems. These steps

are essential for fostering environments that respect children's rights and support their holistic development.

Adultcentrism's influence extends beyond interpersonal dynamics, shaping educational systems and institutional practices in profound ways. Within this framework, the concept of "Bleak Pedagogy" represents a significant step forward in understanding the far-reaching impacts of exacerbated adultcentric bias. By exposing the limitations of authoritarian practices and advocating for relational and genuinely inclusive approaches to adult-child relationships, this research offers a roadmap for transformative change. Integrating the perspective of childism as a lens for reimagining these dynamics could provide an essential foundation for restructuring educational *and* political economic systems to prioritize mutual respect, equity, and growth for all generations.

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# Promoting and supporting learner resilience in the hospital school

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## Abstract

While research on childhood resilience is growing, limited attention has been given to the resilience of hospitalised children, who face unique challenges beyond their illness and treatment. This study addressed this gap by exploring the narratives of hospital school teachers in the Republic of Ireland. Through 16 semi-structured interviews, the dynamic and holistic role of teachers in fostering and supporting resilience emerged. Teachers proactively and reactively provided emotional support within the 'safe' environment of the hospital school. Leveraging the 'normalcy' of school, children's social needs were nurtured by teachers facilitating peer connections and social skills, which in turn, supported belongingness, identity formation, and reduced isolation. These findings underscore the vital teacher role and offers valuable insights for educational and healthcare professionals.

**Keywords:** resilience; socio-emotional needs; hospital school; hospital school teacher.

# 1. Introduction

Schools are important social spaces for children's socio-emotional development, providing opportunities to establish positive relationships and develop a sense of belonging (Darling-Hammond et al., 2019). The social interactions and opportunities to socialise within schools contributes to children's identity formation and socio-emotional skills and habits, highlighting the school's role in fostering their holistic growth, beyond academic learning (Chafouleas & Iovino, 2021; Shin et al., 2016).

## 1.1 Hospitalised children
However, children who experience illness, warranting hospitalisation, face removal from this environment, presenting challenges outside their medical treatment. Depending on the severity of the illness, treatment plan, and hospital policies, hospitalised children may be restricted in peer interactions and have extended absences from their 'base' school, often resulting in social isolation and emotional challenges (Sawyer et al., 2023). It is well documented that hospitalisation can present stressors and adverse experiences requiring emotional adjustment (Macias et al., 2015; Moses, 2011; Savina et al., 2014). To this end, many children struggle with this disconnection, isolation and maintaining close friendships, potentially contributing to developmental disruptions (Desjardins et al., 2019; Schulte & Barrera, 2010; Yates, 2012).

## 1.2 Cultivating Resilience
To understand how children navigate such challenges, Masten's (2019) resilience framework is employed. Defined as "the process of, capacity for, or outcome of successful adaptation despite challenging or threatening circumstances," (Masten et al., 1990, p.426), children's resilience can be considered from the environmental and individual stressors encountered, alongside the accrued protective factors, which allow them to continue to function and cope (Greene, 2008). Therefore, resilience encompasses not just 'bouncing back' from adversity but also growing and developing through challenges. Masten points to the many factors surrounding the child as key, including individual characteristics (e.g. age, self-regulation), familial support (e.g. secure caregiving, significant others), and social connections (e.g. positive relationships, supports; Bain & Durbach, 2021; Masten, 2001, 2019).

Through this lens, schools play a pivotal role in fostering resilience through the social and emotional provisions afforded. For example, children have regular opportunities to experience mastery, success and achievement as well as nurture intrinsic motivation, self-efficacy, and persistence during setbacks (Masten et al., 2008). Not surprisingly, teachers are instrumental in creating these supports (Masten, 2014). Teacher's social support and reassurance of children that they are respected, valued, and cared for, positively impacts them when navigating challenges (Agbaria & Bdier, 2020; Rigby, 2000). In turn, this support enhances children's relationships and socio-emotional well-being (Cohen et al., 2000; Li et al., 2022). Notably, teachers' provision of social support is particularly important for those with limited familial support or fewer reliable social networks (Wentzel, 2016).

## 1.3 Hospital Schools
Despite a growing body of research on childhood resilience, little is known about the experiences of hospitalised children, as most studies are situated within mainstream educational settings. Yet, we do know that these children are removed from their usual 'base' school during hospitalisation, and some may have the opportunity to attend a hospital school. These schools are complex and flexible educational settings that offer personalised learning opportunities, tailored to the child's unique and multifaceted needs (Angstrom-Brannstrom et al., 2008). Specifically, holistic approaches, which support their socio-emotional needs, beyond their medical care, are warranted (Darling- Hammond, 2019; Hopkins et al., 2014; Maor & Mitchem., 2018). However, research exploring resilience in this context remains limited, as does the understanding of the role of the hospital school and their teachers. How is resilience promoted and supported in this setting? Are children offered opportunities to derive strength from their hospital experiences?

To address this gap, this study explores hospital school teachers in the Republic of Ireland. In particular, the teacher's role and the approaches employed in promoting the socio-emotional needs of hospitalised children are considered. The following research question frames the study: How do hospital school teachers support the socio-emotional needs of learners in hospital schools?

## 2. Methodology

### 2.1 Design
A narrative inquiry (NI) design was employed, allowing participants to provide their experiences through thick, rich stories. Connelly and Calandinin (1990) first employed NI to explore teachers' perceptions and personal stories, arguing that education and educational research involves the construction and reconstruction of personal and social stories, with the key storytellers being learners, teachers, and researchers. More specifically, narratives have been used to examine resilience, pointing to its suitability (Wyman, 2003). In this study, we aimed to explore the role and practices of hospital school teachers by leveraging NI through storytelling, where teachers share their professional experiences with hospitalised children (Haydon & der Riet, 2017). This approach also captured cultural, personal, and environmental influences shaping these experiences (Squire et al., 2014).

### 2.2 Participants
The researchers purposefully recruited participants from three hospital schools in the Republic of Ireland, based on the following criteria: fully qualified teacher status and currently working with hospitalised children in one of the three hospital schools targeted. Information pertaining to the study was initially sent to the school principal of each school. Following their permission, the researchers visited the hospital schools to outline the study in detail and distribute consent forms to teachers. Participants subsequently contacted the researchers, using the provided contact information, to express their willingness to take part and agree a mutually agreeable time for interview. Participation was voluntary.
The final sample included 16 hospital school teachers, with teaching experience in the hospital school setting ranging 6months (n=2) to 26 years. Teachers had qualified teacher status at primary (n-11) or post-primary (n=5) levels. The sample included 14 females and 2 males.

### 2.3 Research Tool
Semi-structured interviews served as the research instrument. Each teacher participated in one face-to-face interview with one researcher, lasting approximately 45 minutes. This format facilitated authentic, honest dialogue and allowed probing for deeper insights when necessary (Sigad, 2023). With participant's permission, each interview was recorded for accuracy. The interview schedule contained a range of open-ended questions under four sections: teaching background, teaching day, learner needs, and teacher supports and approaches. The interview schedule was piloted in advance with a qualified teacher, who did not take part in the study.

### 2.4    Procedure
Interviews were conducted between April and July 2023, in the respective teacher's hospital school. The time and date for each interview was agreed in advance to ensure it did not present an additional burden for the teacher and suited their schedule. The interviews were recorded by the researcher for accuracy, providing comprehensive documentation of each interview (Cohen et al., 2018).
Two weeks prior to the interview, each teacher who had indicated their willingness to take part, received an information sheet pertaining to the study and their involvement. This information reiterated the details provided during the researchers face-to-face meeting in each school. The researchers' contact details were also repeated, should the participants have any queries. Participants returned their signed consent form prior to their interview.

### 2.5 Analysis of Data

Interview data were analysed using Braun and Clarke's (2006) six-step thematic analysis: repeated readings of the transcripts for familiarity, identifying codes, arranging codes, reviewing and removing irrelevant material, and naming of themes. Although presented linearly, the analysis was iterative and reflexive, with the overarching objective to highlight the participants' voices. Both researchers were involved in the analysis to increase rigour, discussing each step collaboratively. Two key themes emerged: (1) proactive and reactive emotional support and (2) fostering connections.

### 2.6 Rigour and Trustworthiness
To ensure rigour and trustworthiness underscoring this qualitative research (Morse, 2015), all analyses and original data were kept (Petty et al., 2012). Participants were also provided with the opportunity to review their transcript for accuracy (Morse, 2015). The researchers also meet regularly during data analysis to discuss and debrief on each stage (Nowell et al., 2017). In the presentation of findings, the researchers' interpretations were grounded by the participants' direct quotations, therefore allowing rigour to be assessed and transparency provided (Patton, 2015).

### 2.7 Ethics
Ethical approval was granted by the ethics board of the researchers' University, and all ethical standards were strictly observed in adherence with these guidelines. Prior to the start of the study, the researchers informed the participants of the nature of the study in writing and in person, as well as the voluntary nature of participation. Participants signed a consent form prior to being interviewed, with the understanding that they could terminate or refuse to answer any question, without repercussion (BERA, 2024). Participants data was anonymised to protect their identity, with all identifying information removed during transcription. The researchers' contact details were shared in the distributed information sheet and in person in the school. The contact details of mental health professionals were also provided, should they be required.

## 3. Results

The thematic analysis resulted in the emergence of two themes, both demonstrating hospital school teachers as integral in the promotion of hospitalised children's resilience. Accordingly, teachers supported children's needs by providing (1) proactive and reactive emotional support and (2) fostering connections. In documenting each theme, the respective elements are discussed in line with their prominence in the interviews.

### 3.1 Theme 1: Proactive and reactive emotional support
The first theme highlighted teachers as key sources of emotional support for children attending the hospital school. This support was both proactive and reactive. Proactively, teachers anticipated the emotional needs of learners by planning lessons and interactions that accommodated each child's emotional, physical, and medical circumstances. For example, if a teacher was aware that a learner had experienced a challenging day or received difficult news, they carefully considered how this might impact their ability to attend and engage in lessons, adjusting their approach to offer appropriate support.

> «...their energy levels can be compromised, their attention span can be compromised, their cognitive processing can be altered due to medications or just fatigue, whatever the case may be».

This proactive approach was informed by teachers periodically visiting learners at their bedside or in the ward, observing and engaging in conversations with them, and obtaining updates from parents, other teachers and members of the multidisciplinary team.

> «...you can almost sense it by their face, by their words, by their tone of voice even, you know. 'He's not going to be able for this'».

These efforts allowed teachers to build a holistic understanding of each child's emotional and medical state, enabling tailored support that addressed the unique challenges each child faced.

To further support children's emotional needs, teachers shared their observations and interactions with the teaching and multidisciplinary teams in a more formal manner, affording a consistent and coordinated approach to care and education.

> «I've a multi-disciplinary team meeting for the ward…one member of each discipline who works on the ward, meets up to discuss certain children and it's at that meeting that you get the information and then you've to relay that to the teachers that you work with. Thankfully we work together, we talk it out».

Emotional support was also reactive, with teachers responding to children's emotions as they surfaced during lessons and their time in the school. This support was immediate, spontaneous, and individualised to meet the child's needs in the moment. A subtle and gentle approach was evident in many accounts, highlighting the comforting role teachers assumed. They encouraged children to openly express and process their emotions in response to their experiences. One teacher recounted:

> «'You don't have to explain yourself if you don't want to, you just enjoy [the lesson]. Come in and enjoy it, it will give you a break'. It's never, as I say to them, about the academic. It's about the child's well-being. That's what I'm chasing».

In doing so, children were provided with a safe and supportive space for self-expression. Interestingly, two teachers intimated that some children only felt comfortable expressing themselves within this school environment.

> «…they can take ownership because there's so much that happens here [hospital] that's not their choice. They have to do this and that, their parents telling them, the doctor telling them, you know, so this is their chance».

The reactionary approach also acknowledged the dynamic nature of children's emotions, shaped by their immediate and ongoing experience of hospitalisation, medical treatments, and the challenges of their illnesses.

> «I walked in and out of a lot of rooms and was told 'No' and the level of politeness can vary in the no. You can have some [children] shout at you and tell you get the hell out. Some can be quite abusive».

Alternatively, when a child preferred not to discuss their emotions, teachers offered distraction through the planned lessons or gently redirecting conversations. This approach aimed to uplift the child's mood, offering a buffer against the broader hospital environment and their ongoing circumstances. Teachers stated that lessons were intentionally designed to be stimulating and engaging, while avoiding any additional stress.

> «…having them distracted, whether it's a piece of maths or whatever, because we usually try and focus on their area of interest because then, it makes it easier and just gives them a 'feelgood' factor».

More broadly, teachers provided children with both immediate and long-term reassurance, emphasising that they were valued beyond their illness and treatment, and that their learning and engagement was important. By encouraging regular attendance at the hospital school and offering flexible, interesting, and appropriately challenging lessons, teachers conveyed the message that the children mattered and that their education remained a priority. This often subtle and covert communication reinforced hope, reminding children that they would get better and continue their educational journey.

> «We're actually telling you, 'There's going to be an end to this, and you will get back to being an ordinary pupil or teenager and everything that goes with that'. Yeah, they're unwell but come on, it's only a small part of who they are».

### 3.2    *Theme 2: Fostering connections*

The second theme, fostering connections, centred on teachers' efforts to provide social support and peer interaction and connection. This included regular and varied opportunities for children to interact, where teachers actively endorsed school attendance, regardless of the length of time a child could manage.

> «It [school] gives them a focus. It gives them something to get up for. It's a well-being piece in cases where kids are cleared for classroom, they're able to get out of their room, they're able to see other people».

Teachers facilitated opportunities for children to meet and connect, using lessons as a vehicle for social interaction, rather than purely academic purposes. The emphasis was on social connections with peers and teachers. Teachers believed this approach helped children build new peer relationships and supported the development of their social skills, as shown by their accounts:

> «…we like doing the multi-grade [lesson] because it's just good for their social skills and it's good for them to get out and talk to other people…»

> «… we get a lot of teenagers, so we do a lot of student voice, student choice, you know that kind of way».

Teachers regarded attendance and interaction in lessons as a success for children, prioritising these over academic progress or traditional learning outcomes. Consequently, the focus shifted from academics to fostering connection and offering social support during this challenging time. In this supportive environment, teachers observed that children gain a sense of belonging and felt less isolated. One teacher reflected:

> «Just meeting other children, really. The social aspect. It all comes down to that- not feeling alone in their illness or isolation, realising they're not the only ones. We can fit two students in our small classroom on the ward at a time, so I really try, if possible, to bring two children of similar age together. Sometimes they don't talk or acknowledge each other, but you see them looking- realising they're not alone».

Another echoed this sentiment:

> «And look and see, it's not just me. Make friends, chat, do ordinary teenage stuff and chat about music or art, whatever it is but they see other…»

Finally, teachers affirmed that the hospital school was perceived as a familiar and 'normal' space amidst the new and often unfamiliar hospital environment. Children's familiarity with what a school and teacher does, provides them with a sense of continuity through routines and supportive interactions. One teacher explained:

> «We're non-medical. We're teachers- everyone knows what a teacher is. They know how to interact with a teacher because they've presumably done it before. They can talk to their friends about things like, 'Oh I did this today' or 'This teacher is driving me mental'…»

This sense of normalcy was seen as crucial in helping children maintain their identity and feel a sense of belonging, separate from their illness and hospitalisation. As one teacher noted:

> «One thing I always push with the kids is there are no medical interventions in the classroom. You try and encourage as positively 'Please come to school,' because in the setting, it's probably the only normal part of the entire day».

From this perspective, the hospital school is a sanctuary - a space where children can temporarily escape the realities of their treatment and immerse themselves in familiar routines and social interactions.

## 4. Discussion

This research explored how resilience is fostered and supported in hospitalised children, with particular attention to the role and approaches adopted by hospital school teachers in the Republic of Ireland. Previous research has emphasised the multidimensional nature of the development of resilience in children, with the support systems and environments in which they operate instrumental (Bain & Durbach, 2021; Masten, 2001, 2019). Using a narrative inquiry design, this study identified two themes that highlight the critical role of hospital teachers in nurturing children's resilience through provision of emotional supports and fostering connections. Both themes underscore the importance teachers place on addressing children's socio-emotional needs, echoing research which argues that schools are key to children's holistic growth, beyond academic learning, and equipping children to navigate adversities (Chafouleas & Iovino 2021; Shin et al., 2016).

### 4.1 Placing holistic needs to the fore
Hospitalised children experience significant needs beyond their medical treatment, including emotional, social and academic supports (Maor & Mitchem, 2020). Separation from family and friends, along with the disruption of familiar environments and routines in the unfamiliar hospital setting, can have a negative impact on children (Hopkins et al., 2014). The results of this study suggest that hospital teachers take a holistic approach in supporting the dynamic and related needs of these children (Darling-Hammond, 2019), ensuring they are supported in ways that aid both recovery and growth during this difficult time. The teachers placed importance on children's socio-emotional needs, whilst facilitating their learning. Interestingly, the often-central position of academic learning was secondary to the more immediate socio-emotional needs of the child. By integrating socio-emotional considerations and supports into their lessons and interactions, hospital teachers not only give children a recognisable space and routine, but also cultivates their resilience, in the face of upheaval (Masten, 2019).

### 4.2    Teacher as emotional buffer
Teachers assumed an adaptive and individualised approach to support children's emotional needs, serving as emotional buffers to mitigate stress and emotional challenges. This approach aligns with previous research showing the positive influence of school support on healthy development and stress reduction (Lackova Rebicova et al., 2021; Tennant et al., 2015). Hospital teachers anticipated children's emotional needs during lesson planning and communication, intentionally providing positive and stimulating experiences while avoiding any potential stressors. Bishop (2010) emphasised the role of positive, engaging experiences in enhancing well-being, a strategy also beneficial for hospitalised children, as highlighted by other scholars (Hutton, 2003; Keehan, 2021). Teachers also reported carefully responding to children's changing emotions, gently guiding them to participate in planned activities and redirecting conversations, to maintain and improve their mood.

### 4.3    Capitalising on normalcy
The sense of normalcy provided by hospital schools, through planned lessons, familiar teacher roles, and opportunities to establish peer connections, was another key finding. Early research by Karl et al (1999) underscored the positive impact of engaging in familiar activities and routines on the well-being of hospitalised teenagers. Similarly, Bishop (2010) stressed that participation in routines and activities, that mirror life outside the hospital, can help children to maintain a positive outlook. By attending hospital schools, teachers provided children continuity in their education, fostering connections with peers and reinforcing their identity, beyond that of a patient (Capurso and Dennis, 2017; Keehan, 2021). This engagement positions them as active participants in their own lives, generating a sense of agency as students and individuals (Bandura, 2006). Moreover, participation in the hospital school, whether academically or socially, enhances self-esteem and affirms their capabilities to navigate challenges in both their health and broader life (Bang et al., 2020).

The normalcy of hospital schools also alleviated feelings of isolation, providing psychological relief and hope, amidst the challenges of illness and hospitalisation (Keehan, 2021; Yates, 2012). In this

familiar environment, teachers recognised the importance of facilitating social connections, which could boost children's support networks. In the same vein, Bishop (2010) confirms the importance of companionship, social interaction and support for hospitalised patients. By encouraging these positive peer interactions, teachers created opportunities for children to share both their struggles and achievements, creating a common ground and camaraderie. These shared experiences also reassured children that they were not alone in their illness and hospitalisation, thus reducing feelings of isolation (Keehan, 2021).

### 4.4    School as sanctuary

The final mechanism facilitating teachers' promotion of children's resilience is the representation of the school as a 'sanctuary', within the broader hospital environment. Sigad (2023) identifies these alternative "spaces of being" as environments where individuals can temporarily escape adverse conditions and experience different forms of reality. Importantly, these safe spaces provide opportunities for coping and stress reduction (Ferrara & Flammia, 2013; Carmel et al., 2015). However, some argue that this dynamic can also reflect emotional dissociation and repression (Filipušic et al., 2015).

This study found evidence of both outcomes, with teachers expressing knowledge of when to pursue each. In some cases, the school served as a refuge where children could disengage from discussions about illness and treatment. Instead, they could immerse themselves in the planned lesson. Conversely, teachers provided opportunities for children to express their emotions openly, if they felt comfortable in doing so. Interestingly, the findings revealed that some children only felt comfortable expressing themselves in the hospital school, rather than the busier hospital environment, again pointing to the significance of this non-threatening, supportive setting and the compassionate teachers there. The ability to express emotions in a supportive environment is essential for emotional regulation, helping children process their experiences and develop effective coping strategies for future challenges. According to Lackova Rebicova et al. (2021) higher levels of teacher support are linked to reduced emotional distress among children. Additionally, such support reaffirms to children that they are respected, valued, and cared for (Agbaria & Bdier, 2020; Rigby, 2000).

### 4.5 Limitations of the study

While this study highlights the dynamic and holistic role of hospital teachers and the diverse approaches they employ to support children's resilience during hospitalisation, several limitations must be acknowledged. The majority of participants were female (n=14), with only 2 males interviewed. This reflects the gender distribution within hospital schools in Ireland. Secondly, the research was conducted solely in hospital schools within Ireland, limiting the applicability of findings to other jurisdictions. Thirdly, given the qualitative nature of the study, the findings are not intended to be generalised across the entire population of hospital teachers.

Despite these limitations, the study provides a valuable foundation for further exploration. Future research could benefit from a broader range of stakeholders, such as parents and members of the multidisciplinary team supporting hospitalised children. The next phase of the study will explore some of these additional perspectives, including those of teachers in 'base' schools and parents of hospitalised children. This will help to further illuminate the multifaceted and socially informed nature of resilience.

## 5.  Conclusions

This study revealed the essential role of the hospital teacher in fostering resilience among hospitalised children, by addressing their holistic needs. Teachers provided emotional support, created a sense of normalcy, and offered safe spaces that allowed children to express or temporarily disengage from their emotional challenges. These strategies helped to reduce distress and nurtured socio-emotional growth, supporting children in coping with the complexities of illness and hospitalisation. By adopting individualised approaches and affording supportive connections, hospital teachers not only contributed to children's immediate well-being but also empowered them

with coping mechanisms, essential for future challenges. This affirms the vital role educational environments play in promoting resilience, even in the most adverse conditions.

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# Reasons and beliefs of (Greek) teachers for participating in an MSc relevant to their profession

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## Abstract

The present paper is based on a broader survey of teachers' reasons and beliefs for participating in a teacher education MSc program. It also explores their reflections on their experiences as postgraduate students. All participants in the research were already professional teachers in public education, working in both primary and secondary education. Two groups (6 primary and 6 secondary teachers) were formed during the research to compare their beliefs pointing out possible differences or similarities. The research conducted through semi-structured interviews. At this paper, we focus on the central research question: What are the reasons and motivations based on which the participants, who were already employed as teachers, chose to undertake an MSc in Teacher Education?

**Keywords:** teachers' education; lifelong learning; motives; criteria; challenges.

## 1. Theoretical issues

The use of the term motivation is essentially related to the attempt to explore the reasons that motivated someone to take action, i.e. what it was that prompted teachers to attend a postgraduate programme at university. To identify the reasons that led the research participants to make this decision, this is directly relevant to the study of the criteria based on which they chose to attend a postgraduate course at university. More generally, according to Billett (2010), there is a wide range of motivations that motivate individuals from the desire for personal improvement and the pursuit of interaction with other fellow human beings, to financial motivation and the cultivation of a flexible and, more importantly, multidimensional work profile.

The extent to which the learner's motivation influences the educational process is quite important. According to a study conducted by Kellaghan et al. (1996), (as cited in: Harlen & Deakin- Crick, 2003, p. 171) learners who are motivated by external factors - i.e. factors beyond their personal development - tend not to assimilate in depth the new knowledge offered to them even though their performance and degree of participation in the programme may seemingly be exemplary.

Focusing on attendance in university programmes, an important role is played by: a) the age of the individual, b) the education he/she has already participated in up to that point and c) the economic situation of the individual in combination with his/her social status (Norman & Hyland, 2003). Aspin & Chapman (2000) also identify three primary reasons as motivations in relation to participation in Lifelong Learning (LL): a) the expectation of improved earnings, b) personal development and c) the wider impact of LL on society.

Based on the foregoing, two categories of trainees could be identified according to their motivation: (i) trainees motivated by an inner need for development and improvement and (ii) trainees motivated by factors and expecting results beyond personal improvement, such as advancement to a higher job position.

## 2. Methodology

In the context of the topic under study, it was considered that qualitative research is more relevant to the direction in which the topic will be approached. The research tool that was used is semi-structured interviews.

Through the semi-structured interviews, the researcher can approach each participant's experience as unique, while the research itself gives us the opportunity to capture the different perceptions that the participants have acquired and to deepen our analysis of them. Also, a key feature -and advantage- of this method is that it gives the process a sense of freedom through the form of a type of conversation between the interviewer and the interviewee (Korres, 2017).

The research sample included primary and secondary school teachers who, as already professional teachers, decided to attend an MSc programme. The total number of interviewees was twelve (12). To compare the findings between primary and secondary teachers, the total population of twelve teachers was divided into two sub-groups. The first group is composed of six teachers who work in primary education (referred to as I. 1-6), while the second group consists of six teachers who work in secondary education (referred to as I. 7-12).

The relative research questions were:
1. What are the reasons, motivations and criteria on the basis of which the research participants, who were already been working as teachers, chose to attend a postgraduate course of study?
2. How do the teachers who took part in the survey describe their experience of participating in the programme?
3. Are there differences in the reasons, criteria and motivations for choosing to attend a postgraduate programme between primary and secondary school teachers?

## 3. Analysis - Findings

The interviews of teachers in both sub-groups followed the same interview axes created for the survey. The research interview discussion axes were as follows:
   a) interviewees' beliefs about participation in Lifelong Learning;
   b) reasons - incentives - criteria for selection and participation in the MSc;
   c) experience and satisfaction of the interviewees from their participation in the MSc.

### *3.1 Axis (a)*
Regarding the preference of the interviewees for participating in a university programme, overall, all of them stated that the university played a catalytic role in their decision to acquire new knowledge. While none of them seemed to have been in doubt as to whether the training they attended would take place within a postgraduate programme within the university.

I.3: «Well yes where would I do it outside (laughs)? … it definitely worked positively that it was within the university because I felt a security, I had thought about that before I started. […] I trusted the institution».

I.9: «Look if it wasn't the university for what reason to choose it? There wasn't-for me there is nothing more powerful no more powerful weapon to the citizens than the university. The university, not that there is. To me it is a sacred space, fully qualified, providing us with everything we are with its good, with its bad, with its shortcomings. But for me, its positives are not, cannot be drowned out by anything. You mean with the university».

While it seems that the fact that university teaching staff are considered the most suitable and qualified also plays an important role in the choice of the primary teachers who participated.

I.4: «I think the people who organize it have more knowledge and are more qualified and more organized».

Finally, among the responses of primary school teachers, there was a perception that the university would help their development and their status within the school unit, even after the end of the programme they participated in.

I.2: «First of all I wanted a prestige in my workplace, that is to say I wanted a subject e which would give me a paper e which among my colleagues but also among my pupils and parents would make me more knowledgeable, more e in today's standards, more up to date».

While some stated that they did not wish to obtain any training but considered it necessary for their development to obtain a postgraduate diploma, which of course only the university could provide. This perception was common to both groups.

I.4: « […] I was looking for a postgraduate degree at university».

I.6: «Yes, I had decided that I wanted to go to a postgraduate programme, and so I did.[…] I think that the university and the postgraduate programme e is a more complete, a more complete form of further education, so to speak».

### *3.2 Axis (b)*
The second axis explores the reasons, motivations and criteria that prompted the interviewees to choose to continue their studies. It also seeks to understand the rationale behind their choice of the programme they eventually attended.
Regarding what prompted the interviewees to continue their studies, given that all the interviewees were already working in the public formal education sector, all of them were working in schools.
The perception that the knowledge they possessed was not sufficient was often encountered in the first group (primary school teachers). While they noted that, the time that had elapsed since obtaining

their degree created an uncertainty about updating their knowledge. In addition, although they were already working in education they wished to obtain more creditable qualifications:

I.1: « […] for specialization but (smiles) it's also about getting more formal qualifications».

I. 2: « […] I wanted a recognition in my work, […] I wanted a subject which would give me a paper […] which among my colleagues but also among my students and parents would make me more knowledgeable, more up to date because the knowledge I had acquired had passed the years and I felt that I needed to renew myself».

Many of the teachers said that they felt that their degree and this first stage of their studies in general had not equipped them with as much knowledge as they would have liked, either because in practice they had encountered some difficulties in teaching. This was met in the responses of both groups:

I.2: «the knowledge that I had gained had been passed down the years and I felt that I needed to refresh so I chose this».

I.3: « […] I felt that I had not learned anything».

The feeling that their first level of study was no longer enough appeared more frequently in the responses of secondary school teachers:

I.8: «At that time, I thought a postgraduate degree was necessary. That is to say, I considered that my degree alone did not meet e the requirements of the profession e and that is why I wanted to do a postgraduate degree. […] when one starts to do some training, it's as if one gets used to it, as if one gets addicted in a way».

I.10: «First of all what, what made me continue my studies is that I wanted to expand my knowledge in the field that I was involved in[…] and that I think has a direct impact on the quality of life, not only my personal and my family's life, but also the educational work, the educational function that I perform».

Participants also stated that their main motivation was their professional recognition. While it was noted in both groups that gaining new knowledge and new qualifications would act as an aid to climbing the hierarchy.

I.4: « […] I will say the love for learning, for studying, um of course it helps me both professionally and salary-wise and in my professional advancement[…] first I put my love of learning, let's say, first and then the use of them as a professional tool».

I.5: «My first degree did not help me to be able to climb up in the education sector to higher levels[…] an upgrade in our educational status».

I.12: «Initially I thought that objectively with a degree I could not do anything I knew this I knew that it was now the time and my age such that I knew that a degree was not enough. I was late in getting started of course because I didn't know what I wanted».

Among the responses in the secondary school teacher group, there was a statement that attending a programme after completing basic studies, even after some years of professional career, seemed to be a natural progression.

I.9: « […] as long as I was studying and as long as I was watching, I liked other things. It doesn't mean you do one thing and that's it».

I.10: « […] that I wanted to broaden my knowledge in the field I was involved in».

It was further articulated that despite the experience and familiarity they had gained with the subject, they still noticed areas that needed improvement».

I.11: «needs of education, the practice, the educational practice, gaps, deficiencies».

On the choice of the programme they participated in over all the others offered. Interviewees largely stated that they were looking for a way to gain expertise and felt that the programme they participated in was the appropriate means to gain it».

I.1: « [...] I chose it as a specialization if I happen to have a child with learning difficulties to know how to manage it, how to deal with it».

I.8: «That I wanted specialization, that's what I wanted. That I wanted this one because it provided me with expertise in my subject, it provided me with expertise in the new curricula in the new teaching methods and programs».

### 3.3 Axis (c)

Regarding whether the criteria, reasons and motivations based on which each interviewee chose the programme in the first phase, after its completion, are confirmed, most participants answered positively. As the interviewees of the second group
At the same time, in the group of secondary school teachers, it was more noticeable that through their further education they aimed to diversify their working conditions and, in essence, their professional development.

I.7: « [...] I chose it on the basis that it would help me in my professional development [...] it helped me e in my tenure, in my appointment, e and it also helped me in the classroom».

I.12: «Yes and to be honest I have no regrets at all that I did it and I think that's what led me to the position I'm in now».

Some of the interviewees noted that although they were generally satisfied with the programme, they would have preferred it to give more time and space to developing practical skills through internships. This belief was most pronounced in the interviews with primary school teachers.

I.1: «Well yes, I find that they are responding just that okay it's now a transition from the theory that the courses had we are moving into practice in the classroom, so I'm also saying that I would like there to be more practical training».

However, some of the participants did not seem to be fully satisfied. Typically, they mentioned their concerns about whether the knowledge they gained was applicable and would be of use somewhere in their professional life.
While others seemed to feel that the programme did not meet their expectations. At the same time, the importance of including some kind of practical training in the training programs was again stressed.

I.3. « (laughs). In my mind I had it in mind as something very different, I thought that e would learn things from it. I didn't. I only learned when we went to practice».

It was also noted that although the training was a personal initiative of the interviewee, it was made difficult by the demands and expected results of the programme.
It appears that for some of the participants the programme did not meet their expectations at all. Characteristics from the interviewees in the first group:

I.3: «The programme was extra boring[...] I feel that I didn't get anything. [...] In my mind I had it as something very different, I thought I would learn things from it. I didn't. I only learned when we went to the internship».

Other interviewees noted the difficulty of combining their family life with the demands of the programme.

It was also mentioned that there could have been a better relationship between the programme and new technologies, or even in cases where new technologies and specialized programs were used by trainees there could have been more explanation of their use and exploitation by programme staff. Finally, the issue of the fees that trainees were required to pay in order to participate in the programme was also raised.

> I.8: «It was quite expensive though[...]It was quite a lot of pressure, and quite a lot of work [...]It was quite a demanding project, but from there, it was worth it».

During the discussion, the interviewees also analyzed the climate among the participants in the programme. Regarding the relationships that developed between the participants. In general, it was observed that the interviewees developed good working relationships with the other participants in the programme.

> I.7: «Very good, we always had very good cooperation, very good relationships».

> I.9: «Look at that and just that we had all that every weekend all together, in there; there were friendly relationships, a lot. And with our teachers. We've done our traveling; we still get together».

While the majority mentioned the fruitful interactional relationships that developed between participants.

> I.2: «Generally with everyone - with all participants was positive».

> I.5: «Interaction, cooperation, we understood that we all had the same questions, the same anxieties, the same curiosity, the same needs for training, that all of us in our schools are facing the same problems».

Several of them noted that they developed friendly relationships with other participants which they maintain to this day, and they consider that since they were educational participants in the project, this is helpful in their later scientific life as an advisory network.
There were also interviewees who reported an uneasy relationship between the participants of the programme.

> I.3: «The atmosphere because we were inexperienced people was very...  diverse. [..] that is very lukewarm things, there was no bonding. It was something that was for everybody that was a process».

> I.11: «The relationships were a bit strange, [..] I didn't know anybody, there was a competition».

## 4. Answering research questions (R.Q.)

### 4.1 1st R.Q.
All participants seem to agree that a teacher's knowledge should not remain static and that it should keep pace with new educational standards. While it is mentioned that often this is something that is predetermined by the system itself. It is therefore apparent that among the participants it is considered important that the teacher periodically returns to the position of trainee. While quite an important motivation among the interviewees seems to have been the feeling that only their undergraduate level of education was insufficient or that their knowledge needed an update.
The interviewees seemed to factor into the decision to continue their studies both the need to feel knowledgeable among their peers and believing that it would give their position in the classroom prestige both towards their students and the students' parents. Among the participants, there were also cases where their family or social environment had been a driving force and supportive context for continuing their studies. While favorable treatment from the work environment also benefited both the completion of the programme they were already involved in and their desire to participate in another in the future.

The analysis of the interviews showed that all participants relied on the credibility and prestige of a postgraduate programme within a university institution for this continuous acquisition of new knowledge. In addition, some participants stressed that an important criterion for their choice was the university itself. In several cases their choice was to participate in a MSc at the university they had attended in the MSc. Even interviewees who revealed that one of the main reasons for participating in a Lifelong Learning programme was to move up the hierarchy or to strengthen and enrich their formal qualifications, highlighted as an important reason the credibility of the university as an institution both in terms of programme organization, course content, level of knowledge and finally the certainty of the excellent training of the lecturers. A concern is raised by the fact that some of the participants seem to have been significantly motivated by a professional insecurity. That is, they went for further training as a guarantee for their professional stability.

Those on the other hand who postponed their entry into a further education programme were cited by interviewees as having to bear the financial costs of participating in such a programme. Among other things, it was mentioned that although they had arrived at the subject they wished to train in, and had chosen the programme they wanted to join, they had to wait to be able to finance their studies.

### 4.2 2nd R.Q.

An important motivation for the final choice of the programme they would participate in seemed to be the flexibility of the programme. This was the second most important criterion for selecting the programme, right after the subject matter it dealt with. This was fully justified by the fact that the participants were working alongside their postgraduate training process. Furthermore, participants who stated that the programs they participated in provided a flexibility in the structure of the course schedule (weekend attendance, distance learning) seemed to feel more confident in the choice they made and more satisfied with their participation in the programme.

Participants reported that their main source of information received from friends or colleagues, with internet searches acting as a supplement to this information.

In evaluating their experience of the programme, trainees also reported negative aspects. In particular, the perception that the programme was too theoretical and did not include a sufficient period of practical training was more frequently expressed. This fact, in addition to dissatisfaction with the structure of the programme, seemed to cause a feeling of insecurity among some of the participants as to whether they themselves would be able in the long term to put into practice and reconfigure their teaching.

In addition, several of the participants were not satisfied with the use of new technologies in their participation in the MSc. Many of the teachers expected that a further training would also update their technological knowledge in terms of the use of new technologies in the classroom. Teachers who reported having this expectation seemed disappointed with this aspect of their experience while participating in the MSc.

There were also instances where participants indicated that they were not satisfied with the programme they participated in and that it did not meet their expectations of it at all when they started. In these cases, the participants' only motivation for completing the programme was to obtain a Master's degree and thus enrich their CVs.

In terms of their relationships with other participants, participants' beliefs ranged generally from neutral to excellent. There was, of course, a feeling that the atmosphere between participants in the programme was characterized by a degree of competition, which did not indicate the development of closer working relationships. The most interesting finding is that participants felt that through their participation in the programme and their cooperation within it with their fellow students, they were able to build a network of colleagues with high standards of training. This also seems to give them a sense of security about solving possible issues that may arise, in the sense that they can refer to the network they have developed through their participation in the MSc, for pedagogical advice or suggestions about teaching.

### *4.3 3rd R.Q.*

In this R.Q. we investigated whether differences (and similarities) were observed in the responses of the survey participants of the two different groups (primary and secondary teachers).

Regarding their view on Lifelong Learning in a general context there seems to be agreement that every citizen benefits from acquiring new knowledge and skills. Especially if this knowledge and skills are acquired in the context of a structured programme.

However, primary teachers believe that they ought (as an abligation) to return to training from time to time. Secondary teachers group they decide to return to training in the broader view of professional development.

It is observed that in the primary teacher group, the opinion of the students' parents seems to be an important motivator. In the sense that teachers seemed to feel more strongly the need to present themselves as knowledgeable and innovative in the eyes of their students' parents. On the other hand, in the group of secondary school teachers, teachers seemed to attach great importance to new developments regarding teacher qualifications. While they appeared to feel to a greater extent than primary teachers the need to enrich their CV, not uncritically with new training but motivated largely by the acquisition of new qualifications.

Regarding the reasons why primary teachers chose to continue their studies, they seem to have been motivated by the need for training, as well as the attempt to acquire the necessary knowledge to deal with possible specificities in the teaching of their students, for which they did not feel fully adequate only from their knowledge at the first-degree level. In the group of secondary school teachers, the most dominant perception was the desire to acquire additional qualifications with the aim of climbing the hierarchy. An element that was also observed in the group of primary teachers.

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# Challenges Ahead to Train Culturally and Linguistically Responsive Teachers

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## Abstract

Training culturally and linguistically responsive teachers (CLRT) is a growing need in a time marked by rising populations of culturally diverse students. The training process is surrounded by many challenges and identifying those challenges as a starting point is pivotal. Drawing on the findings of a needs analysis of EFL teachers, this study is based on participatory research to explore the challenges in the Turkish teacher education context by organizing a panel discussion with six experts and practitioners. To collect data, a roundtable discussion is adopted that resembled a focus-group interview. Findings indicate training CLRT is a multi-layered issue surrounded by many factors, demanding layer-by-layer solutions at individual, institutional, and systemic levels, for which comprehensive reforms are needed.

**Keywords:** teacher education; culturally responsive teaching; participatory research; focus group; teaching habitus.

## 1. Introduction

Educators face significant challenges in addressing the needs of culturally and linguistically diverse students (CLDS) (Migration Policy Institute, 2016), largely due to limitations in teacher education programs and broader educational frameworks (Villegas & Lucas, 2002). Reports by international organizations like UNESCO (2019, 2020) consistently highlight the difficulties in implementing culturally responsive teaching (CRT) effectively across different contexts. Although multicultural education (Banks, 2015) and CRT (Gay, 2018) have gained importance in teacher education, their integration into educational practices often remains superficial (King & Butler, 2015, Morrison et al., 2022). It is often the result of introducing add-on courses or updating mission statements without making meaningful changes to the core curriculum (Martin & Dagostino-Kalniz, 2015). Furthermore, educational systems have responded to increasing classroom diversity by introducing supplementary courses or revising mission statements to include cultural responsiveness. However, these measures typically leave the core curriculum unchanged (Goodwin, 1997), which leads to a fragmented approach to CRT that fails to achieve desired outcomes.

Türkiye, known for its rich cultural diversity, faces similar challenges (Karsli-Calamak & Kilinc, 2021). The Turkish education system has taken steps to adopt strategies that emphasize cultural diversity in teaching in alignment with international standards set by the Council of Europe and the United Nations Sustainable Development Goals (MoNE, 2017b). The General Competencies of the Teaching Profession and the Türkiye Qualifications Framework mandate that teachers be sensitive to cultural and linguistic diversity and adapt their teaching methods accordingly (MoNE, 2017a). Despite these formal requirements, the implementation of CRT in Türkiye remains insufficient (Paksoy, 2017).

Research in Türkiye reveals that educators generally acknowledge the importance of cultural values and display positive attitudes towards CRT. However, they frequently lack the practical skills and knowledge needed to implement these concepts effectively in the classroom (Kotluk & Kocakaya, 2019). This gap between awareness and practical application is largely attributed to deficiencies in teacher training programs (Zorba, 2020). Studies show that Turkish teachers often struggle with the realities of multicultural classrooms, which are exacerbated by inadequate preparation (Çalışkan, 2019). These challenges are further intensified by a lack of in-service training opportunities, leaving many teachers unprepared to meet the needs of CLDS (TEDMEM, 2019). This gap between policy and practice is further complicated by the systemic challenges within the educational framework, such as overcrowded classrooms, overloaded curricula, and a general emphasis on rote learning over critical and reflective teaching practices (Nayir & Saridas, 2020).

The need for CRT is particularly important in the context of English as a Foreign Language (EFL) education in Türkiye. The intricate relationship between language and culture, coupled with the role of English as a global lingua franca, makes it particularly important for EFL teachers to be culturally responsive (Kramsch, 2018). In multilingual contexts, the need for CRT is even greater, as teachers must navigate the intersections of language, culture, and education (Phan, 2008). However, research suggests that EFL teacher education programs in Türkiye have not fully embraced CRT (Çalışkan, 2019), which indicates a gap in the preparation of EFL teachers who can effectively manage these cultural complexities.

Several scholars have proposed models to address the deficiencies in current teacher education practices by advocating for a more systematic integration of CRT principles (Hernandez et al., 2013; Parkhouse et al., 2023; Skepple, 2011). While these models offer valuable insights into how CRT can be integrated into teacher education, there still remains significant gaps in the current research. Notably, they have been conducted in Western contexts, particularly in the United States, where the socio-political and cultural dynamics differ significantly from those in non-Western settings. This raises important questions about the applicability of these models in other educational contexts, such as in Türkiye, where the historical, cultural, and political factors shaping education are distinct. Additionally, there is a lack of research that thoroughly examines the specific challenges and barriers that teacher educators face when preparing teacher candidates for teaching in culturally diverse settings and teachers face when attempting to implement CRT in diverse educational systems. While some studies have touched on these barriers (Brown et al., 2022; Gay, 2015), they tend to approach

in a generalized manner, without delving into the unique systemic, institutional, and cultural factors that may hinder the preparation of culturally and linguistically responsive teachers (CLRT).

### *1.1 Aim statement*

Despite the policy-level acknowledgement of CRT in Türkiye, translating these principles into practice remains limited. This study aims to explore and identify the key factors that hinder the effective training of CLRT in Türkiye, particularly within EFL teacher education programs. By delving into the challenges specific to the Turkish educational context, this research seeks to contribute to the broader discourse on CRT by filling a critical gap in the existing literature, especially regarding the factors that inhibit the training of CLRT. This study is significant as it addresses this gap by providing a comprehensive analysis of the obstacles to implementing CRT in Türkiye's EFL teacher education programs. Ultimately, the findings aim to inform the development of more effective teacher education models that better meet the diverse needs of Turkish students. To this end, this study drew on CRT as its theoretical framework, which guided the study through the critical examination of its current status in Türkiye and worldwide, the development and finalization of the panel discussion questions, and the analysis and interpretation of the results. The primary research question guiding this study is:

1. What are the key factors that inhibit the training of culturally and linguistically responsive teachers in Türkiye, particularly within the context of English as a Foreign Language teacher education programs?

## 2. Method

To explore the challenges of training CLRT in Türkiye, the study employed a participatory research design within an EFL teacher education program at a state university located in mid-Anatolia, Türkiye. This research builds on the findings of the analysis of the CRT needs of EFL teachers. Drawing on the identified CRT needs of EFL teachers, this study involved a panel discussion in September 2023, which was structured as a focus-group interview, to delve deeper into the factors that account for these needs and the challenges of training CLRT in Türkiye. Purposive sampling was used to select ten information-rich experts with significant experience and expertise in multicultural education, teacher education, and active teaching experience in culturally diverse classrooms. Six experts participated, including specialists in Curriculum and Instruction, English Language Teaching, and an experienced EFL teacher who also served as an administrator.

After obtaining permission from the Human Subjects Ethics Committee and the participants' consent, the panellists were informed about the aim of the panel and provided with the state-of-the-art CRT and training CLRT in Türkiye and across the world. The panel discussion lasted four hours with one break time for refreshments and adopted a roundtable format to encourage dynamic interaction among participants. Structured around four key questions, the discussion aimed to keep the conversation focused on the research objectives. Each panellist was allocated five minutes to present their views, followed by open discussion. The session concluded with a summary by the first author, who also moderated the panel, highlighting the main ideas, common themes, and conclusions.

To ensure credibility and researcher agreement, two independent rapporteurs documented the discussion, and the transcripts were later cross-checked. An inductive content analysis was conducted under the supervision of two experts by following the recommendations of Guest et al. (2013). MAXQDA, an analytical tool for systematic qualitative data analysis, was utilized. The analysis was iterative, involving repeated readings of the transcripts, generation of codes, and identification of themes. The themes were refined after a second cycle of coding (Saldaña, 2013). The intercoder agreement was calculated at .81, which exceeds the threshold for high agreement (Krippendorff, 2004). Trustworthiness was ensured through prolonged engagement with data, triangulation of investigators and data sources, and an audit trail reviewed by external experts (Harding, 2019).

## 3. Findings

The analysis has identified three major factors inhibiting the training of CLRT in Türkiye: external factors, systemic factors, and personal factors. These factors are interrelated, creating an intricate relationship whereby external factors shape systemic and personal dimensions, resulting in a multifaceted set of challenges that complicate the preparation of CLRT. Table 1 illustrates these factors and the corresponding sub-factors derived through the content analysis of the data from the panel discussion.

| Factors | Sub-factors |
| --- | --- |
| External | Political, Economic, and Humanitarian Crises |
| | Diminishing Reputation of Teaching Profession |
| | Feeling of Hopelessness |
| | Problems about the Wellbeing of Teachers |
| Systemic | Contextual Constraints |
| | Educational Frameworks Favoring Passiveness |
| | Narrow Definition of the Role of EFL Teachers |
| | Restrictive National Components |
| | Insufficient Training in CRT Practices |
| Personal | Deficit View of Diversity |
| | Reluctance towards Professional Development |
| | One Size Fits All Approaches |
| | Lack of Knowledge and Awareness |

*Table 1: Factors and sub-factors from the content analysis*

External factors emerge from broader societal issues that extend beyond the educational context. These include political instability, economic pressures, and humanitarian crises, all intensified by the Covid-19 pandemic. Panellists strongly emphasized that these crises generate considerable stress and burnout among educators. For instance, panellists indicated that preservice teachers often feel overwhelmed due to the declining societal perception of teaching as a profession, resulting in a diminished sense of professional self-worth and motivation. As one expert highlighted "Teachers are continuously operating in survival mode, which severely limits their capacity to develop culturally responsive skills." These external issues require radical policy-level solutions, as institutional changes alone cannot sufficiently address such broad societal challenges.

Systemic factors include issues embedded within the educational structures and policies that directly constrain teachers' capacity to implement CRT. The panellists identified several constraints, such as overcrowding of classrooms, overloaded curricula, and inadequate teaching hours, all of which limit teachers' ability to apply culturally responsive pedagogical strategies effectively. The panellists also stressed the dominance of essentialist perspectives within the Turkish education system, favoring passive knowledge reproduction rather than active learning and reflective practice. For instance, teachers frequently face pressure to deliver prescribed curricula rigidly, which leaves little space for tailoring content to culturally diverse student needs. Another critical point raised was that inclusive education policies in Türkiye were narrowly defined, primarily focusing on students with special educational needs and thus excluding broader cultural responsiveness. Additionally, panellists noted that the training opportunities for both preservice and in-service teachers were limited. The lack of comprehensive and obligatory CRT-focused coursework, coupled with insufficient faculty diversity, exacerbates the gap between theoretical knowledge presented at universities and the realities teachers face in the classroom. As one panellist explained, "The multicultural education courses provided are often elective and superficial, rarely engaging preservice teachers deeply enough to significantly impact their teaching practices."

Personal factors involve individual teachers' attitudes, perceptions, and capacities, significantly shaping their responsiveness to cultural and linguistic diversity. A particularly problematic issue highlighted by panellists is the prevalent deficit perspective on diversity among educators. Instead of viewing CLDS as assets, some teachers perceive diversity as burdensome. Such attitudes undermine culturally responsive practice from the outset. The panel discussion also revealed misconceptions about student homogeneity among teachers, who often fail to recognize or accommodate the unique challenges faced by CLDS, such as living with extended families, exposure to drug abuse, forced labor, or domestic violence. Additionally, ineffective parent-school relationships were cited as significant personal barriers, with interactions typically reactive rather than proactive. Such ignorance creates a significant disconnect between teachers and students, diminishing trust and student engagement. Furthermore, misconceptions about teacher agency compound these issues. Many teachers perceive themselves as passive technicians strictly adhering to prescribed curricula rather than active and reflective practitioners capable of adapting their instruction. Consequently, they exhibit reluctance or dependence on explicit, step-by-step instructions, thus limiting their autonomy and adaptability. Lastly, panellists identified reluctance among teacher educators themselves to move beyond traditional comfort zones, which negatively impacts preservice teachers' preparedness.

## 4. Discussion and Conclusion

The findings reveal a complex and interwoven set of challenges that hinder the effective training of CLRT in a mid-Anatolian EFL teacher education program in Türkiye. These obstacles, spanning external, systemic, and personal factors, do not exist in isolation but interact in a way that creates a nested structure of barriers. This intricate web of challenges suggests that the practices, beliefs, and attitudes of teachers are not solely the result of individual choices or isolated professional development efforts. Instead, they are deeply influenced by the broader educational environment and societal context in which they are situated. This interconnected and nested nature of the obstacles aligns with Bourdieu's concept of habitus, which refers to the deeply ingrained dispositions shaped by an individual's social and cultural context (Bourdieu & Passeron, 1977).

Given the evidence that teacher practices are shaped by this complex network of influences, the study proposes that CRT should be understood as a teaching habitus. This perspective emphasises that CRT is not just a set of skills or knowledge to be acquired but a way of being that is deeply embedded in the social and institutional contexts in which teachers operate. By viewing CRT through this framework, it becomes clear that reforms must extend beyond individual teacher training to encompass the broader societal and institutional contexts in which teaching occurs (Stunell, 2021).

Therefore, the study argues that focusing solely on the development of individual teachers without addressing the broader systemic and institutional contexts can be ineffective. While individual development is crucial, it must be supported by a larger strategy that includes policy changes, institutional support, and ongoing professional development opportunities (Borko, 2004; Irvine, 2003) because an overreliance on individual efforts can lead to burnout and diminish the effectiveness of CRT implementation, particularly when teachers lack the necessary support structures (Zeichner & Liston, 1996). Hence, a comprehensive approach is required that combines individual teacher development with systemic reforms.

The study also advocates for the systematic integration of CRT that is tailored to the country's unique cultural diversity throughout the teacher education curriculum in Türkiye (Polat & Kılıç, 2013). This approach requires a curriculum that not only provides teachers with the necessary skills and knowledge but also fosters a reflective practice that allows them to critically examine their own cultural assumptions and the broader societal influences on their teaching (Acquah & Szelei, 2020). Teacher education programs must also move beyond a one-size-fits-all approach and instead cultivate teacher agency by empowering educators to become reflective practitioners (Acquah & Commins, 2017). This requires a shift from passive knowledge reproduction to active and experiential learning that provides teachers with the skills and confidence to adapt their teaching methods to

meet diverse student needs. Empowering teachers as reflective practitioners is essential for fostering a CRT habitus as it helps them navigate the complexities of multicultural classrooms effectively (Civitillo et al., 2019).

Another key implication is the necessity for comprehensive professional development opportunities for in-service teachers. These opportunities should address the specific challenges faced in multicultural classrooms and provide ongoing support to help educators implement CRT effectively (Gay, 2018). Additionally, promoting stronger school-parent relationships is crucial, with an emphasis on consistent, proactive engagement with culturally diverse families. This holistic approach ensures that teachers are supported not only in their professional development but also in their efforts to create inclusive and responsive learning environments.

Finally, this comprehensive, evidence-based approach to CRT has broader implications beyond Türkiye. By focusing on the development of a CRT habitus, it offers a blueprint for other nations struggling with similar challenges in their education systems. Integrating CRT principles in this way can lead to improved educational outcomes for CLDS, which contributes to global efforts to promote more equitable and inclusive educational environments. In essence, this study not only addresses the specific needs of the Turkish context but also provides insights that can inform teacher education practices worldwide and demonstrates the importance of both individual and systemic efforts in achieving meaningful educational reform.

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# Gender Stereotypes between School and Guidance: A Look at European Regulations and Vocational Education in Italy

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## Abstract

Gender equality remains a key goal of the EU's Gender Equality Strategy, aiming to promote a gender-equal Europe through social progress. The Gender Equality Index (2023) shows Europe is still far from this goal. Education must focus on implementing gender policies with an intersectional perspective. Statistics highlight segregation in education and professions due to gender stereotypes. This contribution analyzes the main European Commission documents and International Convention on gender equality furthermore the Italian School Legislation, deepening into The vocational education and training track. If public schools today in Italy provide the opportunity for basic and compulsory education to all children, the national education system, still has many goals to achieve.

**Keywords:** education; gender equality; VET; school; European Commission.

## 1. Introduction

Gender equality remains a key objective of the EU Gender Equality Strategy, which aims to promote a Europe based on gender equality through social progress. This includes working at various levels to combat gender stereotypes and create equal opportunities for everyone, men and women, boys and girls, in all their diversity. According to the Gender Equality Index (2023), Europe is still far from reaching this goal. This is why teaching and education need to focus on the implementation of gender policies from an intersectional perspective. Statistics show horizontal and vertical segregation in the inclusion of men and women in educational and professional fields due to gender stereotypes perpetuated by school curricula, role models provided by teachers, other school staff, and educational resources, including textbooks (Guerrini, 2015). In this contribution, I have decided to provide a brief analysis of recent documents issued by the European Commission, which offer guidance on promoting gender equality, with a particular focus on the reality of the Italian school system, specifically regional vocational training programs. In these programs, most students are girls from socio-economically complex backgrounds, with high dropout and failure rates. Here, the teacher finds fertile ground to carry out activities aimed at addressing gender stereotypes so that female students are aware of their potential and capabilities. Gender equality education and the fight against gender stereotypes begin first and foremost with the teacher's challenge of being available and empathetic toward their students, supporting them in fulfilling their self-realization needs with the school's help as an educating community. The theoretical framework of reference of this contribution is linked to gender pedagogy (Burgio, Lopez, 2023) understood as the reflection on gender education undertaken by pedagogists, coordinators of educational services, experts in the field of training (Leonelli, 2011). The concept of gender, which took shape within the feminist debate of the Seventies (Cretella, 2018) has changed the perspective on the entire society by highlighting mechanisms of domination that were imperceptible until then. Thus, the existence of an order emerges within which hierarchies and power relations exist: the gender order (Scott, 1988). Once this cognitive framework has been clarified, gender violence can no longer be considered the consequence of a pathology, nor can it be considered a phenomenon attributable to hegemonic masculinity (Connell, 2009), but rather it should be interpreted as the product of a sexist culture with which we are accustomed to relating and living with since the early years of life (Ulivieri, 1995). This culture asserts itself in the most unsuspected places such as school (Biemmi, Chiappelli, Guirado, 2023). The concept of equality is in fact learned from the early years of life (Abbatecola and Stagi, 2017); an education based on the recognition of equality can therefore teach boys and girls to fight against gender stereotypes (Wrigley, 2021). In this regard, training teachers in a non-sexist perspective in subjects is the key to success in the fight against stereotypes. The massive presence of women in the education sector, from 99.2% in nursery schools to 59.7% in secondary schools (Guerrini, 2015), can lead to changes in meaning and a real symbolic revolution in knowledge and in the ways of processing knowledge (Piussi, 2003) only if the teaching staff possesses those reflective and self-reflective skills that allow them to critically read reality, to be aware of the processes that have determined their own formation and identity and to be able to establish an educational relationship based on the principles of recognition of the singularity of each person, of freedom and respect. Hence the need to invest in the initial training of teachers, to develop those reflective, communicative and relational skills to make the teacher a professional of education and training (Riva, 2008). In this paper, after a brief introduction that outlines the theoretical framework of reference, we proceed to the analysis of European and Italian legislation on the topic of stereotypes, prevention of violence, measures to promote gender equality. Finally, in the conclusions, future scenarios are discussed also in relation to studies carried out at an international level. The essay takes into consideration both quantitative data relating to the most recent research at a European level, and qualitative data that allow a deeper understanding of the problems analyzed. A mixed-methods approach is a research methodology in its own right. As stated by Creswell and Plano Clark (2011), a mixed-methods research design is a research design that has its own philosophical assumptions and methods of inquiry. As a methodology, it includes philosophical assumptions to provide directions for the collection and analysis of data from multiple sources in a single study.

## 2. The European Union and the Policies for Promoting Gender Equality and Overcoming Stereotypes

The European Union's strategy for gender equality sets political objectives and actions to make significant progress toward a gender-equal Europe by 2025. This strategy is grounded in legal frameworks, including the European Parliament's resolution of November 26, 2009, on the elimination of violence against women. The goal is a Union where women and men, girls and boys, in all their diversity, are free to pursue their chosen paths in life, have equal opportunities, and can equally and actively participate in political and social life. Key objectives include ending gender-based violence, challenging gender stereotypes, closing gender gaps in the labor market, achieving gender balance in various sectors of the economy, addressing gender pay and pension gaps, and achieving gender balance in decision-making and politics. In 2021, the Commission proposed binding measures on pay transparency to ensure that the principle of equal pay for equal work becomes a concrete reality. The lack of pay transparency was identified as one of the main barriers to closing the gender pay gap, which in 2020 was still around 13% in the European Union. Women earn on average 13% less than men. Regarding the long-term pension gap, it reached 30% in the EU (2018 data). In 2022, the European Commission adopted a new directive to combat violence against women and domestic violence. This directive is the first comprehensive legal tool at the EU level to counteract violence against women, criminalizing certain forms of physical violence, and providing global measures for victim protection, access to justice, and support. Another important outcome is the Directive on gender balance in corporate boards, aimed at breaking the glass ceiling in boards of listed companies. Equally significant is the European strategy for care, linked to new goals for early childhood education and care to improve women's participation in the labor market. Finally, in 2023, the European Commission launched a campaign to challenge gender stereotypes. The #EndGenderStereotypes campaign addressed gender stereotypes affecting both men and women in various areas of life, including career choices, caregiving responsibilities, and decision-making. Also in 2023, the Commission joined the Council of Europe Convention on the Prevention and Combatting of Violence Against Women and Domestic Violence, the Istanbul Convention, which will be further discussed in the following paragraph with regard to education.

### *2.1 The Council of Europe Convention on Preventing and Combating Violence Against Women and Domestic Violence (The Istanbul Convention), 11.05.2011*

From a regulatory perspective aimed at countering gender-based violence, Italy ratified the Council of Europe's Convention on Preventing and Combating Violence Against Women and Domestic Violence in 2012, known as the Istanbul Convention. This is the first internationally legally binding instrument aimed at creating a comprehensive legal framework to protect women from all forms of violence. The Convention also addresses domestic violence, which not only affects women but also other individuals, such as children and the elderly, who are equally entitled to the same protective measures. The Convention (Article 3) defines violence against women as: "a violation of human rights and a form of discrimination against women, encompassing all acts of gender-based violence that cause or are likely to cause physical, sexual, psychological, or economic harm or suffering, including threats of such acts, coercion, or arbitrary deprivation of liberty, whether in public or private life." In this context, it is important to define what pertains to education (Article 14). The Convention states that signatory countries must include in their educational curricula materials on topics such as gender equality, non-stereotyped gender roles, mutual respect, non-violent conflict resolution in interpersonal relationships, gender-based violence, and the right to personal integrity, appropriate to the cognitive level of students. Signatory states are also committed to promoting these principles in non-formal educational settings, such as sports, cultural, and recreational centers, and in the media. To date, the treaty has been ratified by 38 parties (37 states and the European Union). All EU member states have signed it, with 21 states having ratified it (Austria, Belgium, Croatia, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovenia, Spain, and Sweden).

## 2.2 European Parliament Resolution of March 12, 2013, on the Elimination of Gender Stereotypes in the EU (2012/2116(INI))

This document focuses on education and training, on the contents of school curricula imparted to girls and boys, identifying them as determining factors that influence gender differences and, consequently, choices and access to rights. While it is taken for granted that access to education is ensured in European Union countries compared to other parts of the world, it is important to emphasize that there is not yet gender equality in terms of access and full enjoyment of school systems and study opportunities. In some countries, access for girls from minority groups, such as Romani girls, migrants, asylum seekers, refugees, and those with disabilities, remains a significant problem. These documents are based on the idea that gender-based violence is not the result of a pathology nor can it be considered a phenomenon related to masculinity, but instead must be understood as the product of a sexist culture with which we are accustomed to relating and living from an early age. This culture is evident in the most unsuspected places, including schools (Biemmi, Chiappelli, Guirado, 2023). The resolution also emphasizes that the concept of equality is learned from the early years of life, and that education based on the recognition of equality can teach children to fight against gender stereotypes. Teacher training in a gender perspective within subjects is key to success in combating stereotypes. The significant presence of women in the education sector, from 99.2% in preschool to 59.7% in upper secondary school (Guerrini, 2015), could lead to meaningful changes in perception and a true symbolic revolution of knowledge and modes of knowledge processing (Piussi, 2003), provided the teaching staff possess reflective and self-reflective skills that enable them to critically read reality, be aware of the processes that have shaped their own formation and gender identity, and thus establish an educational relationship founded on the principles of recognizing individuality, freedom, and respect. This underlines the necessity of investing in teachers' initial training to develop the reflective, communicative, and relational skills necessary to make them professionals in education and training (Riva, 2008).

## 2.3 The Gender Equality Strategy 2024-2029

On March 6, 2024, the Committee of Ministers of the Council of Europe adopted a new strategy for gender equality for the 2024-2029 period. The gender equality strategy focuses on six key objectives: preventing and combating gender stereotypes and sexism; preventing and combating violence against women and girls and domestic violence; ensuring women's equal access to justice; achieving balanced participation of women and men in political, public, social, and economic life; ensuring women's empowerment and gender equality in relation to global and geopolitical challenges; and achieving the integration of gender in all policies with an intersectional approach. This strategy provides the framework within which each EU member state develops its own policy related to the fight against stereotypes, gender-based violence, equality, and inclusion in education, social, and professional life for both men and women in Europe.

## 3. Gender Segregation, Precarious Work, and Vocational Training

According to data collected by the European Institute for Gender Equality, segregation is when women or men dominate a specific field of work or study. For example, women in the arts and humanities, and men in construction and technology. A gender division between fields of study, combined with gender stereotypes or insufficient options for work-life balance, contributes to the conditions for gender segregation. Gender segregation in the labor market is partly the result of women and men choosing different fields of study in school. For those studying in atypical fields for their gender, the transition from education to employment is not always easy. For example, women who graduate in STEM subjects have fewer chances of obtaining their first job corresponding to their qualifications compared to their male peers. In 2014, one in two men with a STEM high school diploma found a job in a related field. However, this applies to only one in three women with the same education.

Note: * There are no data for Malta due to lack of comparable occupation data.
Sources: EU-LFS, calculations based on 2013-2014 microdata.

■ Science and engineering professionals     ■ Teaching professionals
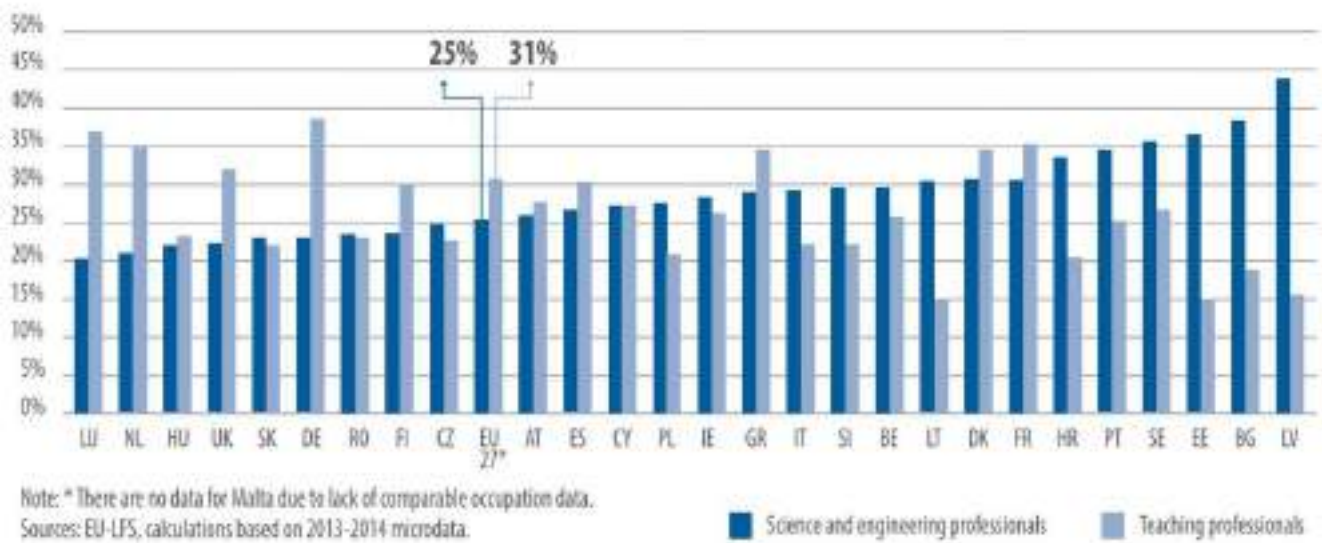
*Figure 1: share of women among science engineering professionals. Share of men among teaching professionals.*

# Share of women graduating from STEM programs in tertiary education, 2019

Proportion of female graduates in STEM (Science, Technology, Engineering, and Mathematics) fields at the tertiary[1] level of education.



No data    0%    10%    20%    30%    40%    50%

Data source: World Bank – Women, Business and the Law (2024)          OurWorldinData.org/global-education | CC BY
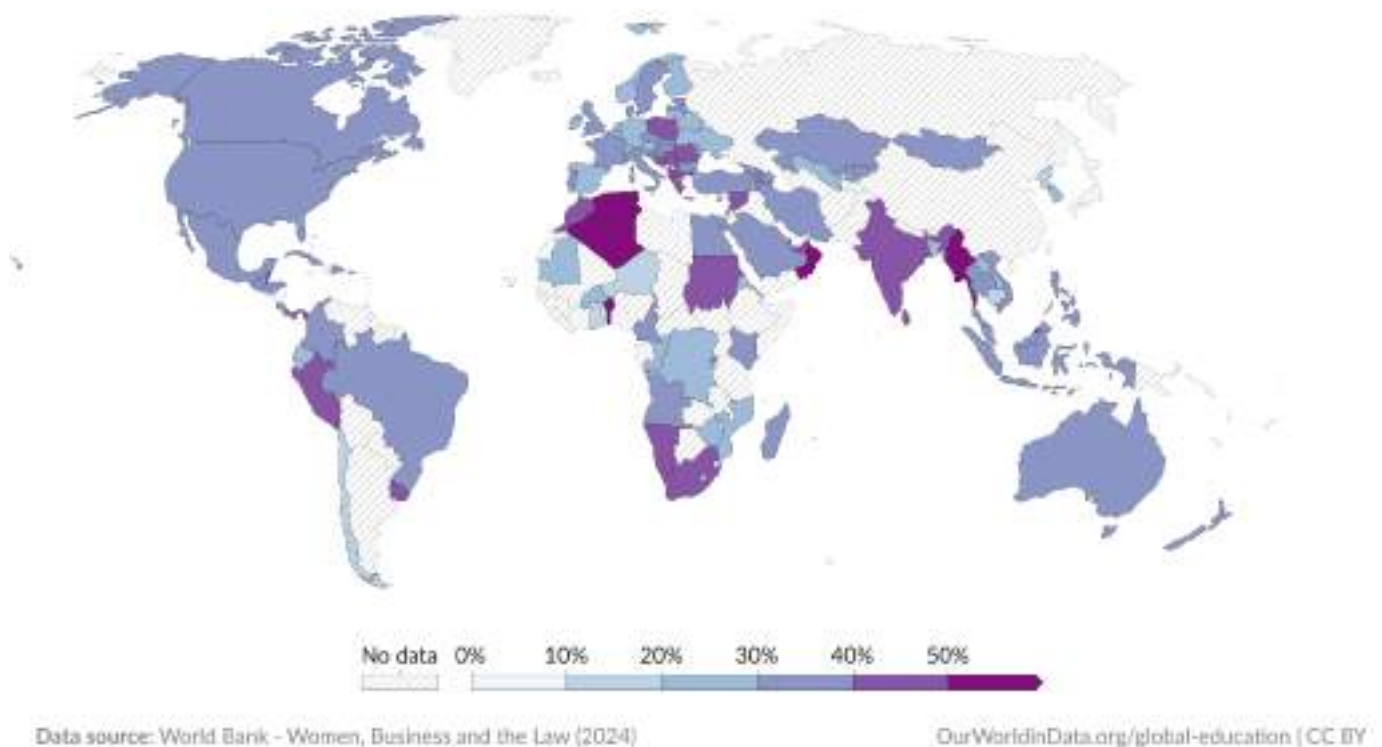
1. Tertiary education Tertiary education includes all formal post-secondary learning. It ranges from short-cycle vocational programs to bachelor's, master's, and doctoral degrees. These programs offer advanced theoretical and practical knowledge in specialized fields such as medicine, law, engineering, and the arts.

*Figure 2: Share of woman graduation from STEM program in tertiary education, 2019.*

Women with lower qualification levels are more likely to accept precarious jobs with short contracts, reduced working hours, and very low wages. This can affect their decision to work, especially if searching for or accepting a job incurs additional costs, such as transportation or childcare. Additional costs can have a greater impact on the employment of individuals who earn secondary income and those who care for them, especially if they have more than one child. The availability and costs of childcare services significantly hinder women's careers. Kimmel (1998) emphasizes how family-friendly policies, such as subsidies for childcare and parental leave, have a positive effect on the decision of women with children to work. Furthermore, women in precarious jobs, such as those with fixed-term contracts, also face social protection limitations. In many European countries, for example, there are eligibility rules for parental leave and related benefits, meaning that people with fragmented and non-continuous work may have limited or no rights to parental leave and benefits if they have a child (Reskin, 1988). Therefore, due to the need to care for a child, people may lose their job. Gender differences are built daily through the labor market structure, division of school orientations, family roles, and through continuous ritualization that makes them both taken for granted and immediately recognizable (Bianchi, Fabbri, and Romano, 2018). While education and training continue to reinforce gender stereotypes, boys and girls often follow educational and training paths aligned with these stereotypes, despite recent discussions on this topic leading to the creation of essential documents by the Ministry of Education (currently MIM). In 2015, the Italian Law 107 (the "Good School" law) came into force, specifying in Article 1, paragraph 16, that the implementation of gender equality principles is guaranteed through the three-year Educational Offer Plan (PTOF), promoting education on gender equality and the prevention of gender-based violence and all forms of discrimination in schools of every level to inform and sensitize students, teachers, and parents. To implement this, the Ministry of Education established a technical committee, which in 2017 published the National Guidelines, "Educating for Respect: for Gender Equality, the Prevention of Gender-based Violence, and All Forms of Discrimination." These guidelines, along with the Guidelines for Preventing and Combating Cyberbullying in Schools, are part of the National Plan for Education on Respect, promoted by the Ministry of Education to encourage educational and formative actions in schools, ensuring the acquisition and development of transversal, social, and civic skills, which are part of a broader concept of education for active and global citizenship. Vocational guidance, taking gender into account, provides measures to encourage girls to pursue careers in technology and science, but unfortunately, there are very few initiatives aimed at encouraging boys to consider careers in early childhood education, healthcare, or humanities.

A deeper understanding of existing job opportunities in the labor market would certainly facilitate better access to all vocational training courses. In this regard, the National Guidelines for Permanent Guidance are an important reference in the Italian landscape of vocational guidance for young people. This document aims to contribute to defining an integrated, unified, and responsible guidance system centered on the individual and their needs to prevent and address youth distress and promote full and active employment, social inclusion, and intercultural dialogue. The school system is central and represents an irreplaceable space where every young person must acquire basic and transversal skills for guidance, necessary to develop their identity, autonomy, decision-making, and planning. Guidance, in fact, must help individuals develop their self-actualization, make decisions about their personal and professional lives, and facilitate the connection between training demand and supply, and later between job demand and supply. Given that the socio-economic context has changed and the culture of guidance has evolved, it is inevitable that the traditional approach to guidance by schools, based on information often delegated to external experts, must also change. Schools must invest in the initial and continuous training of all teachers so that they can meet diverse needs and the demands of society and the labor market, as well as the new learning models of young people, including their difficulties and challenges. Since the Lisbon Strategy, all European documents emphasize key concepts such as "lifelong learning," "lifewide learning," and "lifelong guidance." Guidance is seen as "a set of activities that enables citizens of all ages, at any stage of their life, to identify their abilities, interests, and skills. This also implies making informed decisions about education and employment, managing one's personal life paths in learning and working situations in other contexts." In this regard, Ministerial Decree 328 of 2022 supports that, in line with the European

Union's policy, Italy has recognized the need for all member states' educational systems to aim at reducing the percentage of students who drop out of school early to below 10%.


## 4. Conclusions

Referring to some international research, we can state that parents' income is one of the most significant factors in choosing a school for their children. When parents' income is high, there is an intention to choose private schools, whereas when income is low, parents are more likely to choose public schools (Tarkhnishvili and Strielkowski, 2022). Studies on this phenomenon have been conducted in Georgia, India, Qatar, Ethiopia, and Israel (Leoncini, 2018). Private schools often offer more resources to extend learning in the afternoon when parents are busy (Hossain, Shohel, & Jahan, 2017). While public schools today offer the opportunity for basic and compulsory education to all children, the national education system still has many goals to achieve. According to Istat data for the 2011-12 academic year, 95% of enrollments in degree programs leading to teaching careers are women, as well as 83% in the linguistic area and almost 82% in the psychological area. Meanwhile, in the scientific sector, 67.4% of enrollments are male, as well as 76.7% in engineering. While women are more consistent in their studies, they remain tied to certain sectors, and there are still very low education levels in some countries worldwide concerning the female population. Globally, around 750 million adults and 102 million young people cannot read or write a simple sentence. Two-thirds of them are women, and there has been almost no progress in reducing this proportion, even though the global illiterate population has decreased. In Italy, the most significant negative figures are found in the provinces of Crotone and Brindisi. Specifically, Crotone has the highest percentage of males (6.4% of the population aged 9 and above) without any qualifications, while Brindisi holds the highest percentage for females (8.5%). Even in the choice of secondary school, there is a lower presence of females in the scientific-technological sector: 54.9% of males graduate from scientific high schools or technical institutes in the technological sector, compared to 25.5% of females. In 2020, the percentage of people obtaining their first university degree increased to 39.6%, and the percentage of master's degrees reached 24.4%. The best performance is seen in women, with over 47 cases out of 100 twenty-five-years-old obtaining their first university degree (compared to about 32 out of 100 men). Women also have a higher rate of completing long studies with a master's degree (29.2% compared to 19.9% of men). One can only hope, as Paola Cortellesi would say, "There is still tomorrow." The consistency of female education and the initiative of males in challenging traditional gender perspectives lead us to believe that, slowly, something will change.


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# Emergency and people with intellectual disabilities. Teachers' training in the LEBEL proposal

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## Abstract

The various contexts of life are marked by a high degree of unpredictability that, at times, can reach challenging levels capable of disorienting and destabilizing the routine of everyday life. Risk or emergency situations, such as natural disasters, traumatic events or particular health circumstances, raise a number of complex challenges for societies as a whole, but also specifically for those who experience a condition of vulnerability, such as people with disabilities. Within the framework of these considerations sits the international Erasmus + project "I learn and get beyond my limits" - LEBEL carried out by the Center for Studies and Research on Disability and Marginality of the Catholic University of the Sacred Heart (CeDisMa) in collaboration with four European countries (in addition to Italy, Turkey, Belgium, North Macedonia). The project aimed to produce teaching materials and train teachers and education professionals in emergency management for people with intellectual disabilities and autism spectrum disorders.

**Keywords:** emergency; risk and vulnerability; intellectual disability; autism spectrum disorder; inclusive education.

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[1] This contribution is the joint work of the authors. Paragraphs 1 and 2 are attributable to Silvia Maggiolini; paragraphs 3. and 4. to Elena Zanfroni.

# 1. The Complexity of Modern Emergencies

The nature and impact of emergencies have undergone profound changes in recent decades, reflecting the increasing complexity of modern life. No longer confined to localized or predictable events, contemporary emergencies encompass a broad spectrum of challenges, ranging from natural disasters to technological disruptions and global health crises. Ulrich Beck's theory of the "Risk Society" provides a critical lens for understanding these phenomena, emphasizing how modernization, globalization, and industrialization have introduced new, systemic risks that transcend geographical, temporal, and social boundaries. These risks are not merely incidental but are deeply embedded in the fabric of contemporary life, presenting unique challenges for governments, institutions, and individuals alike.

One defining characteristic of modern emergencies is their interconnected nature. A seemingly isolated event in one part of the world can quickly escalate into a global crisis due to the interdependence of systems and infrastructures. For example, the COVID-19 pandemic, which originated as a localized outbreak, rapidly evolved into a worldwide health emergency with far-reaching economic, social, and psychological repercussions. Similarly, climate change has amplified the frequency and severity of natural disasters, such as hurricanes, wildfires, and floods, disrupting communities and economies on an unprecedented scale. Beck's work highlights how these risks, while often invisible or underestimated, have the potential to disrupt societal stability and erode trust in institutions, underscoring the need for a more holistic approach to risk assessment and management.

Adding to the complexity is the role of technology in shaping modern emergencies. While technological advancements have brought significant benefits, they have also introduced new vulnerabilities. Cyberattacks, data breaches, and critical infrastructure failures exemplify how dependent modern societies have become on digital systems. Events like the Microsoft CrowdStrike incident, which caused global disruptions due to a faulty software update, illustrate the cascading effects of technological failures on transportation, healthcare, and other vital sectors. These scenarios reinforce the importance of developing resilient systems capable of withstanding and recovering from such disruptions.

The perception of risk also plays a crucial role in shaping responses to emergencies. Scholars like Paul Slovic argue that risk is not purely an objective phenomenon but is deeply influenced by emotional, cultural, and cognitive factors. Public attitudes toward risk can vary widely, often leading to discrepancies between the actual severity of a threat and its perceived importance. For instance, while climate change poses an existential threat, it is often downplayed in favor of more immediate concerns, such as economic instability or public health crises. Understanding these dynamics is essential for designing effective communication strategies and fostering a culture of preparedness.

Emergencies also reveal and exacerbate existing inequalities, particularly for vulnerable populations, such as individuals with disabilities, low-income communities, and marginalized groups. Research has shown that these populations often face disproportionate impacts during crises, whether due to limited access to resources, inadequate infrastructure, or systemic discrimination. Along these considerations, it is essential to consider the pivotal role of education in preparing individuals and communities for emergencies. Schools, as central hubs of community life, are uniquely positioned to disseminate knowledge and foster skills that enhance preparedness and resilience. Incorporating emergency response training into educational curricula, particularly for vulnerable populations, can significantly improve outcomes during crises. Moreover, professional development programs for educators and administrators can equip them with the tools to address the specific needs of diverse learners, including those with disabilities. These efforts reflect the broader shift toward inclusive and adaptive strategies in emergency management, as emphasized by contemporary scholarship.

In this way, emergencies can become an opportunity to build more equitable and resilient communities, where diversity is embraced as a strength rather than a challenge. It is also worth mentioning that the adoption of inclusive strategies to deal with emergency situations has also been recognized as a priority by major international organizations and, in this regard, the 2006 UN Convention on the Rights of Persons with Disabilities emphasizes the right to be involved in all phases of emergency management, from planning to response and reconstruction. This underscores the

urgent need for a paradigm shift in emergency management - one that prioritizes inclusivity, anticipates systemic vulnerabilities, and empowers all individuals, particularly those from marginalized and vulnerable groups, to actively participate in shaping resilient and equitable responses to the complex challenges of modern emergencies.

## 2. Disability in emergency scenarios between management challenges and inclusive education

Natural disasters and emergencies can have a devastating impact on everyone's life. During an earthquake, hurricane, flood or any other natural disaster, however, those with disabilities face additional, often unique and significant challenges due to their specific vulnerability. The intersection between disability and disasters highlights the need for a thorough understanding, especially by emergency professionals - but also by those involved in education, of the multiple factors that can intervene and for the definition of inclusive intervention plans hat address the diverse needs of individuals with disabilities.

These plans must consider not only physical accessibility but also communication barriers, sensory sensitivities, and behavioral challenges that may arise during high-stress situations. For instance, individuals with intellectual disabilities or autism spectrum disorders may struggle to understand evacuation procedures or adapt to sudden changes in their environment, emphasizing the importance of clear, simple, and accessible communication methods. Another example concerns how emergencies can impact changes in daily routines. People with this type of frailty often benefit profoundly from precise planning of daily time and the establishment of daily routines that allow them to reduce and manage anxiety and feel more secure in their surroundings. The sudden interruption or alteration of these routines during an emergency or natural disaster can trigger disorganized behavior and difficulties in adapting. The need for those around them, e.g. a family member, teacher or educator, to move quickly, make sudden decisions and interact with strangers, such as rescuers, can also increase the level of anxiety and cause avoidance, withdrawal or resistance behavior, which would increase risk and danger factors.

To mitigate these risks, it is essential to provide tailored training and resources to families, teachers and professionals, enabling them to respond effectively to the specific needs of individuals with disabilities during emergencies. This includes developing individualized emergency plans that consider personal communication styles, sensory preferences, and coping strategies. For instance, visual schedules, social stories, or portable sensory kits can serve as essential tools to help individuals with disabilities navigate the chaos and uncertainty of a crisis.

Based on these considerations, we can understand the pivotal role of the teachers and educators of the different school orders: they can play a critical role by incorporating spaces for reflection within their educational programming on crucial topics such as individual and group safety. These moments of reflection can serve as opportunities to foster a culture of awareness, preparedness, and inclusion among all students. By adopting a methodological perspective that aligns with the principles of Universal Design for Learning (UDL), teachers can ensure that these discussions are accessible and meaningful to a diverse range of learners. Through the UDL framework, teachers can design activities and lessons that provide multiple means of engagement, representation, and action to accommodate the varied needs and abilities of their students. For example, interactive activities like role-playing emergency scenarios, creating visual evacuation plans, or using digital tools for simulations can help students with different learning styles or functions profile engage with safety concepts, in ways that resonate with them.

Additionally, these reflective spaces can be an opportunity to encourage collaborative problem-solving and peer support, where students learn to recognize and respect the diverse needs of their classmates, including those with disabilities. This not only enhances safety awareness but also builds empathy and a sense of shared responsibility within the classroom community. Schools, as central hubs of community life, can also extend these practices beyond the classroom by involving families and community stakeholders in inclusive emergency drills or workshops, thereby promoting a holistic approach to safety and inclusion.

By embedding these discussions into the broader curriculum, teachers can go beyond simply preparing each student for emergencies - they can foster a mindset of inclusivity and adaptability that extends into all areas of life. This proactive approach not only ensures that students with disabilities are fully included in emergency planning but also helps create a more equitable and supportive learning environment for all, thus fully embracing the concept of widespread inclusion. Only by fostering a culture of preparedness and inclusion, we can ensure that the principles of equity, dignity, and respect are upheld, not just in times of crisis but in all aspects of everyday life.

## 3. The LEBEL Project: the role of teachers' training

In the context of the above considerations, the work related to the international Erasmus + project 'I learn and get beyond my limits' - LEBEL, which started in January 2020 and ended in November 2022, is of considerable importance. The project, conceived within the research team of AFAD - Disaster and Emergency Management Authority, i.e. the authority of the Turkish Ministry of the Interior that is responsible for managing disasters and maxi-emergencies, was thus developed over a two-year period thanks to the fruitful cooperation of organizations from four European countries (Italy, Belgium, North Macedonia, as well as Turkey) involved, in various capacities, in the promotion of inclusive actions and processes to support people with intellectual disabilities and autism spectrum disorders. The main objective was the development of operational and educational tools aimed at assisting people with autism and intellectual disabilities in the process of adaptation and survival in emergency situations and natural disasters. In particular, the project focused on the creation of educational resources and materials aimed at equipping these persons with the necessary skills to cope with the different phases of a hazardous situation. This included learning evacuation and self-protection techniques, the ability to communicate with emergency responders such as law enforcement and medical personnel, as well as understanding and implementing strategies to cope with and overcome various risks during and after an emergency.

It was deemed appropriate, at the project drafting stage, to reflect on the activation of two intervention plans:
-   Plan of preventive nature, aimed at raising awareness of these issues among all the network's stakeholders;
-   Plan of managerial nature, aimed at implementing inclusive strategies to respond effectively to crisis situations.

With regard to the first plan - the focus of this paper - special attention was paid to the school, as a potential crossroads for intercepting and involving pupils and families.

For this reason, an interesting and important aspect of the project was the design of inclusive training courses for teachers of schools of various levels. The teacher training program was designed to be both theoretical and practical, equipping educators with knowledge about the specific challenges faced by individuals with disabilities in emergencies and providing concrete strategies to support them. Topics included understanding sensory sensitivities, managing anxiety during evacuations, and fostering effective communication between students, families, and emergency personnel. By integrating these elements into their pedagogy, teachers could create safer and more inclusive learning environments that extend into crisis situations.

The training sessions began with an overview of the specific vulnerabilities experienced by students with intellectual disabilities and autism spectrum disorders in high-stress situations, such as difficulty processing verbal instructions, sensory overload, and heightened anxiety. Educators were guided on how to identify early signs of distress in students and implement personalized interventions to help them remain calm and focused during emergency scenarios. For instance, teachers learned to use visual schedules and pictograms as effective tools for communicating evacuation procedures in a way that is easily understood. Role-playing exercises were included to simulate real-life situations, allowing teachers to practice giving clear, simple instructions and providing reassurance to students who might become overwhelmed.

A significant portion of the program was dedicated to managing anxiety, which is a common challenge for students with disabilities in unfamiliar or chaotic environments. Teachers were trained in techniques such as deep-breathing exercises, the use of calming sensory objects, and strategies for creating "safe spaces" during evacuations. These methods were designed to help students regulate their emotions and reduce the risk of behavioral outbursts that could hinder their safety or the safety of others.

With regard to the second plan, the project created a number of tools to be implemented in the various phases of intervention and which constitute a valuable resource for addressing emergency situations effectively and inclusively, providing practical solutions that can be adapted to diverse contexts and tailored to the specific needs of individuals with disabilities. Among the main tools are:
Visual Vocabulary of terms related to emergencies and disasters. The vocabulary not only describes scenarios or technical terms related to disasters and emergencies, but does so through the integration of pictograms designed to be universally recognizable. These visual symbols, distributed under a Creative Commons license by ARASAAC, have been selected and modified to suit the emergency context. They enable everyone, including rescuers and first responders, to communicate effectively with people with language. difficulties.

Visual aids for specific relief areas. Social Stories represent a powerful tool not only for prevention but also for intervention during emergencies, especially when conditions are relatively stable. These structured narratives, often accompanied by images, offer step-by-step guidance on how individuals with disabilities can manage specific situations, such as waiting in a shelter, interacting with emergency personnel, or navigating an unfamiliar environment. By presenting scenarios in a clear and predictable format, Social Stories help reduce anxiety and empower individuals to take appropriate actions, fostering a sense of control even in stressful circumstances.

Useful recommendations for rescuers. In emergency situations, the effectiveness of the intervention of rescuers and medical personnel can make the difference between life and death. Every second counts, and an appropriate, timely and personalized response can not only save a life, but also ensure the physical and emotional well-being of the person rescued. However, each individual is unique, and this uniqueness is also reflected in the way each of us reacts to situations of stress, fear and pain. The international team involved in the LEBEL project developed two guidelines for rescuers with specific recommendations for people with autism and Down syndrome[2].

We can therefore understand how teachers, as pivotal figures in the educational ecosystem, have the power to drive transformative actions that extend beyond the classroom. By equipping educators with the knowledge, tools, and strategies necessary to respond effectively to emergencies in an inclusive way, the project lays the foundation for a culture of preparedness and resilience that embraces diversity and fosters equity. Investing in teacher training programs ensures that these values become embedded in educational practices, creating ripple effects that contribute to a more inclusive and sustainable society where no one is left behind, even in the most challenging circumstances.

## 4. Future research directions for promoting inclusion in all life contexts

Innovation, sustainability, social and civic responsibility, public engagement: these are the keywords that guided the project idea, first, and its concrete realization, then, of the course realized within the program 'I learn and get beyond my limits' - LEBEL. The challenge that has guided the work of the international research group from the early planning stages has been to offer its own contribution, with its own reflections and the realization of operational proposals, to draw academic, as well as public, attention to an issue that is in many respects still submerged and little explored.
Building on the project's success, future research should focus on further integrating inclusive practices into emergency management, education, and community resilience frameworks.

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[2] All materials are available at this address: http://afadotizmdown.ogu.edu.tr/moodle/.

One critical direction is the development and evaluation of advanced assistive technologies that can enhance accessibility during emergencies. Research could explore the use of artificial intelligence, wearable devices, and augmented reality to support individuals with disabilities in navigating complex scenarios, such as evacuations or communication with first responders. These technologies should be tested and adapted to different cultural and environmental contexts, ensuring their effectiveness across diverse settings.

Additionally, research should delve into the intersection of family dynamics and inclusion, examining how to better equip families to act as agents of support and resilience in times of crisis. This includes studying the effectiveness of family-centered intervention programs and identifying the resources families need to feel confident and prepared.

Finally, promoting public engagement and raising awareness about the needs of individuals with disabilities in emergencies must remain a priority. Future research should focus on developing community-based initiatives that bring together educators, emergency professionals, policymakers, and families to co-create inclusive solutions. By fostering collaboration across sectors, research can contribute to building societies that value and actively promote inclusion in all life contexts. In a perspective, therefore, aimed at the innovation and sustainability of the choices that concretely shape the inclusive logic, the synergic meeting of cultural actions and processual nature always outlines new horizons for the experimentation and consolidation of effective practices, which can be found in the different environments of life, for the benefit of any individual, thus overcoming the 'special' dimension of the different evolutionary needs.

In order not to close, but to open up new spaces for reflection, it seems appropriate to mention what Canevaro, an authoritative figure in Italian and international special pedagogy, already expressed in this regard, stating that: 'inclusion always travels', thus emphasizing the dynamic character by which it is characterized, and the impossibility of promoting it by focusing only on distinct and independent contexts.

Through this metaphor, it becomes clear how the processes aimed at ensuring the quality of life for each individual and for all translate into a continuous progression toward a constantly evolving goal, one that is continually redefined, achieves new milestones, and is enriched with new meanings, adapting to the social and cultural changes that traverse different contexts.

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*Gender-responsive teaching:*
*What strategies are teacher educators using for gender*
*mainstreaming implementation?*

# Gender-responsive teaching:
# What strategies are teacher educators using for gender mainstreaming implementation?

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## Abstract

Gender equality (GE) in education remains a global priority, yet its inclusion in teacher education programs is inconsistent. This study explored the integration of gender-responsive pedagogy (GRP), analyzing faculty teaching content and methods. Using a descriptive cross-sectional survey, data from 161 pre-service teachers were gathered through validated GRT scales. Results show that gender-related topics are moderately covered, focusing on gender-based violence and equal opportunities, while foundational concepts are overlooked. Teaching methods relied on lectures and projects, with limited use of interactive strategies. Findings revealed weak institutional commitment to gender, emphasizing the need for curricular reform, faculty training, and accountability to advance GE teaching.

**Keywords**: initial teacher education; gender equality; gender-sensitive pedagogy; pre-service teachers; 2030 Agenda for Sustainable Development.

# 1. Introduction

Gender equality (GE) is a fundamental issue of human rights and social justice, recognized as essential for sustainable development and democratic progress. While GE has been a longstanding focus of international and national policies, it has only gained global prominence as a strategic priority in recent decades. Organizations like the United Nations (UN) and the European Union (EU) emphasize its importance in ensuring equal opportunities. Pivotal initiatives such as the Beijing Declaration (UN, 1995), the Education for All (EFA) movement (UNESCO, 2000), and recently the 2030 Agenda (UN, 2015) through SDG 5 (Gender Equality) highlight education's role in achieving gender equality. Despite these initiatives, significant inequalities persist, necessitating further education to reduce them.

To achieve gender equality, as aimed in the 2030 Agenda, the entire educational system must change by adopting policies, plans and strategies that take gender issues into account and address biased gender social norms. The strategy adopted internationally to address unequal access to and inadequate education opportunities for all has been gender mainstreaming (UN-Women, 2022). Gender mainstreaming (GM) is not a policy itself but a means to achieving gender equality. The European Union (EU) conceptualizes GM as a 'dual approach', which involves mainstreaming a gender perspective in all policies, while also implementing specific measures to eliminate, prevent or remedy gender inequalities (EIGE, n.d). Applied to higher education teaching, GM refers to the process of including a gender perspective both in teaching and in the organizational structures (faculties and departments) using GE plans as instruments for its implementation. It is a teaching that considers sex and gender as key analytical and explanatory variables, which implies paying attention to the similarities and differences in the experiences, interests, expectations, attitudes and behavior of women, men, and disadvantaged groups as well as the causes and consequences of gender inequality to face them (Cardona-Moltó & Miralles-Cardona, 2022). Mainstreaming a gender perspective into teaching impacts study programs and teaching methods, enhancing education quality by addressing diverse student needs rather than assuming male experiences are universal. This process helps prevent gender blindness by recognizing socially imposed roles and responsibilities and fostering awareness of inequalities. However, despite being considered a core strategy for accelerating progress on gender equality (UN-Women, 2022), in practice, many countries face challenges in implementing the strategy.

One of the primary obstacles is the absence of gender-sensitive training within higher education programs. In teacher education, studies suggest that many educators have limited awareness of gender issues, which contributes to the perpetuation of stereotypes and inequalities in classrooms (Aznar-Martínez et al., 2025; Sanabrias-Moreno et al., 2022). Additionally, many teacher training programs fail to provide future teachers with the necessary skills to effectively implement teaching with a gender perspective. Research also points to significant resistance against integrating gender perspectives into university curricula, reflecting broader structural, cultural, and institutional barriers that hinder progress toward more equitable societies (Lombardo & Mergaert, 2013).

Few studies exist on teaching gender in teacher education, demonstrating that gender-related topics are poorly integrated into the curriculum (Aikman et al., 2005; Edwards et al., 2020). There appears to be a general knowledge gap and a low awareness of gender issues among teacher educators and institutions, a gap that needs to be overcome by providing gender training opportunities. Because fragmented approaches are the norm, future teachers complete their university preparation without having adequately developed the skills necessary to incorporate gender pedagogy into their future professional practice. In Spain, studies such as those of González-Pérez (2017), Rodríguez-Jaume and Gil-Gonzalez (2021) at Xarxa Vives Universities, Valdivieso (2016) at the University of Las Palmas, or Resa (2023) at the Complutense University of Madrid, among others, highlight indifference to including gender issues in university curricula and pedagogy, a case that seems to be common to all branches of knowledge in European countries (Atchison, 2013; Grünberg, 2011; Kreitz-Sandberg & Lahelma, 2021; Weiner, 2000; Zippel et al., 2016), as well as the broader global context (Bothwell, 2022; World Economic Forum, 2023).

*Gender-responsive teaching:*
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*mainstreaming implementation?*

To bridge these gaps, adopting gender-responsive pedagogy (GRP) is essential. Gender-responsive pedagogy is a transformative approach to learning and teaching that considers learners' unique needs, experiences, and capacities based on their gender (Chapin et al., 2020; Doroba et al., 2015; Mlama et al. 2005). It seeks to challenge and dismantle traditional gender norms and stereotypes that may limit individuals' potential and restrict their access to quality education. It is about being conscious of the intersection between gender and learners' needs to rectify the imbalances in society. Gender-responsive pedagogy brings in gender-sensitive teaching that focuses on what is taught, how it is delivered, and how it is retained in both male and female learners (Thege et al., 2020). Teachers trained in GRP are better equipped to plan lessons, manage classrooms, and evaluate student performance through a gender-sensitive lens (Kumar, 2024). The goals of GRP training include: (1) raising educators' awareness of gender issues and concepts; (2) providing educators with strategies to integrate gender into all aspects of teaching and learning; (3) encouraging problem-solving and innovation in addressing gender disparities in educational settings; and (4) enhancing institutional capacities to develop gender-transformative curricula and practices (Kumar, 2024; UNESCO, 2024). By adopting GPR, educators can act as agents of change, fostering an educational landscape that promotes GE and dismantles systemic barriers.

Much of the research to date related to GRP has been conducted in African countries and the strategies carried out there are inspired (FAWE, Forum for African Women Educationalists, 2020). However, in Spain, research on this topic remains lacking. The insufficient evidence about what teacher educators are teaching when they teach GE in teacher education demands further research. In this regard, this study investigated in a higher education institution in Spain (the University of Alicante, UA) how teacher educators embed gender responsive pedagogy into their teaching practices with pre-service teachers. Specifically, we focused on the following research question:

**RQ.** What content and methods do teacher educators use to address gender equality through their teaching assignments?

Identifying the content and methods used by teacher educators will highlight gaps and best practices in preparing future teachers for gender-responsive teaching at UA. The findings can inform the development of professional training programs that enhance teacher educators' ability to integrate gender equality into their instruction. Furthermore, assessing self-efficacy levels among student teachers will help design targeted interventions to strengthen their confidence in applying gender-responsive pedagogy.

## 2. Method

To answer the research question, this study employed a descriptive cross-sectional survey design (Bryman, 2016). The study adhered to the Declaration of Helsinki and EU Regulation 2016/679 (General Data Protection Regulation) and was granted exemption from review by the UA Ethics Committee (Approval Code: UA12162/2023).

### 2.1 Participants and context

The UA is a publicly funded university located in the Valencian Community, Spain. Established in 1979, it serves as a modern, multidisciplinary institution committed to teaching, research, and innovation. It has a student population of approximately 25,000, of whom about 1,200 graduate annually from the Faculty of Education, most of them being Spaniards (99%) and women (71%). The UA has aligned its policies with the 2030 Agenda for Sustainable Development and the European GE directives following the enactment of *Organic Law 3/2007* by the Spanish Government (2007). Since then, the institution has undertaken various initiatives to develop gender-related policies through GE plans and is currently operating under its *Fourth Equality Plan* (UA, 2022). Despite institutional efforts, the implementation of the plan remains limited, particularly regarding Axis 1 (Gender

Awareness and Training) and Axis 2 (Teaching with a Gender Perspective). Notably, although 67% of degree programs incorporate gender-related competencies, few offer dedicated courses on the subject or include the gender perspective in the subjects taught. Specifically, only seven out of 45 degree programs (15.5%) include gender-specific courses, with three programs offering compulsory gender-focused courses and four providing them as elective options. These courses are primarily concentrated in faculties such as Economics, Law, Education, and Philosophy, with minimal representation in other disciplines. On the other hand, although some educators claim to teach their subjects with a gender perspective, most teaching guides do not usually refer to gender in the objectives, content or methodology sections (UA, 2022).

The participants in this study were 161 undergraduate pre-service teachers pursuing degrees in Elementary and Secondary Education teaching degrees at the College of Education. They were selected purposely from an advanced-level course within their teaching degree programs. Of the 161 participants, 78 (48.44%) were in the Elementary Education track and 83 (51.55%) in the Secondary Education track. Their ages ranged from 19 to 44 years old ($M$ = 24.13, $SD$ = 5.67). The majority were female ($n$ = 122, 76%), while 24% were male ($n$ = 39). Nearly all participants were Spaniards (99%). Twenty-three percent of the participants ($n$ = 37) reported having received formal gender training (11 hours on average), while 77 percent ($n$ = 124) did not receive any. Thirty-three percent ($n$ = 53) observed institutional changes due to the implementation of gender policies at UA and 46% ($n$ = 74) perceived also changes in teaching practices. Overall, participants rated gender equality training as very important for their education as future teachers ($M$ = 9.06, $SD$ = 1.53). Although gender is considered a transversal competence in some degree programs, gender topics are often absent from coursework. However, students have the option to take a three-credit elective course on 'Education for Gender Equality.'

### 2.2 Measures

The study assessed gender-responsive teaching using the *Gender-Responsive Teaching* (GRT) index. It measures what gender content is taught and how it is taught. This index is a subscale of the Spanish version of the *Education for Sustainable Development of Gender Equality (ESD 5)* index (Miralles-Cardona, 2024). It consists of 13 items grouped into two factors: (1) Gender Content in Coursework (7 items) that assesses the extent to which faculty include gender topics in their teaching subjects, and (2) Gender-Responsive Teaching Methods (6 items) that measures the use of gender-inclusive teaching approaches. The participants were asked to answer two questions: (1) How often did faculty address gender equality topics during their teaching assignments? and (2) How often did faculty employ different methodological approaches to teach gender? Responses were recorded on a 5-point Likert scale (1 = *Never*, 2 = *Rarely*, 3 = *Sometimes*, 4 = *Often, and*, 5 = *Always*), with higher values indicating greater integration of gender into their teaching. Preliminary analysis of the GRT index using Spanish student teachers reveals that the instrument has internal consistency (Cronbach's *alpha* > .90) and it is valid for what it aims to measure, having shown evidence of its content validity, CVI .97 (Lawshe, 1995) and construct validity (Miralles-Cardona et al., 2024).

### 2.3 Data collection procedure

Data were collected during class time in the second semester of the 2022-2023 academic year from one of the mandatory courses of the teaching degree program. All of the participants gave informed consent after being advised of the voluntary, anonymous, and confidential nature of the study, as well as their right to decline participation at any time during the survey administration. The questionnaire was administered in-person to all students enrolled in the selected course. Students who chose not to participate returned blank surveys. Completion time was approximately 10 minutes. The questionnaire consisted of two parts. Part I contained Demographic Information (8 items) and Part II, the Gender-Responsive Teaching index (13 items.

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### *2.4    Data analysis*

Preliminary analyses involved conducting an exploratory factor analysis (EFA) of the GRT index to examine its underlying structure, alongside an assessment of reliability using Cronbach's alpha. Data distribution was evaluated through skewness and kurtosis values, while normality was assessed based on the Muthén and Kaplan (1985) criteria (-2 to +2 range). To address the research questions, a range of statistical methods were employed. Descriptive statistics (means, frequencies, and percentages) were used to summarize the data. Independent samples *t*-tests were conducted to compare TEGEP scores between participants with and without gender training, with effect sizes calculated using Cohen's *d*. All statistical analyses were carried out using SPSS (version 28).

## 3. Results

### *3.1 Exploratory factor analysis, normality check and reliability*

*EFA.* The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy yielded a value of 0.772, indicating that the sample was suitable for EFA. Bartlett's test of sphericity confirmed the appropriateness of the analysis, yielding a statistically significant result: $\chi^2(78) = 257.51$, *p* < .000. Principal component analysis was employed for factor extraction, followed by Varimax rotation. The results identified two factors within the index. The first factor, with an eigenvalue of 5.83, accounted for 44.83% of the total variance, while the second factor (eigenvalue of 2.11) explained an additional 16.26%, culminating in a cumulative variance of 61.09% (Table 1).

*Reliability.* The internal consistency of the GRT was assessed using item-total correlation and Cronbach's alpha for both the overall scale and its subscales. The overall Cronbach's alpha coefficient was high ($\alpha$ = .877), indicating strong internal consistency. By subscale, the Gender Content Taught factor showed a reliability coefficient of $\alpha$ = .887, while the Gender Approaches factor had a coefficient of $\alpha$ = .800, both of which are considered good reliability, according to Thorndike (1997). Item-total correlation values ranged from .288 to .796, supporting the scale's reliability.

*Normality check.* All items met the normal distribution requirement values of the skewness and kurtosis, which were within an acceptable range of -2 to +2, as suggested by Muthén and Kaplan (1985) (see Table 1). Regarding the Gender Content subscale, the highest mean corresponds to Item 4 'Gender-based equal opportunities' with a mean of 3.69, while the lowest corresponds to Item 1 'Foundations and principles of gender equality' with a mean of 3.14, on a five-point scale, thus placing them around the midpoint of the scale, which is 3. The item with the most homogeneous responses was Item 4 (*SD* = 0.86), whereas the most heterogeneous was Item 11 'Abuse in power relations based on gender' (*SD* = 1.23). For the Gender-Responsive Teaching Methods subscale, Item 15 'Project-based teaching' had the highest mean (3.17), while Item 13 'Lecture-based teaching' had the lowest (3.14). The item with the greatest response variability was Item 17 (*SD* = 1.34), whereas the most consistent responses were observed for Item 13 (*SD* = 1.16).

| | | Factor I | Factor II | *M* | *SD* | Skewness | *Kurtosis* |
|---|---|---|---|---|---|---|---|
| **What Is Taught** | | | | | | | |
| 1 | Foundations and principles of gender equality. | .790 | | **3.14** | 1.03 | -.132 | -.351 |
| 3 | Diversity and gender identity. | .729 | | **3.26** | 1.12 | -.411 | -.368 |
| 4 | Gender-based equal opportunities. | .796 | | **3.69** | 0.86 | -.104 | -.781 |
| 5 | Gender inequalities. | .738 | | **3.51** | 1.06 | -.116 | -1.19 |
| 9 | Social justice and equity. | .675 | | **3.51** | 1.09 | -.324 | -.671 |
| 10 | Gender violence. | .765 | | **3.60** | 1.16 | -.549 | -.389 |
| 11 | Abuse in power relations based on gender. | .829 | | **3.37** | 1.23 | .278 | -.749 |
| **How It Is Taught** | | | | | | | |
| 13 | Lecture-based teaching. | | .698 | **2.23** | 1.16 | .238 | -.611 |

| 15 | Project-based teaching. | .567 | **3.17** | 1.33 | -.254 | -1.13 |
| 17 | Online and/or technology-based teaching. | .716 | **2.89** | 1.34 | -.088 | -1.16 |
| 19 | Case Study-based teaching. | .714 | **2.94** | 1.25 | -.074 | -.883 |
| 23 | Research-based teaching. | .716 | **2.83** | 1.31 | .007 | -1.02 |
| 24 | Guided discovery teaching. | .763 | **2.66** | 1.23 | .112 | -1.05 |

KMO = .722
Bartlett test: $\chi^2(78) = 257.51$, $p < .000$
% Variance explained: 61.09%
*Alpha:* Whole scale = .877; Factor 1 = .887; Factor 2 = .800

Table 1: Exploratory factor analysis and descriptives for GRT index. Scale range 1–6 (Midpoint 3.50)

### 3.2 RQ. Gender-responsive teaching

As indicated by the average mean responses of factor 1, Gender Content Taught (Table 1), teacher educators incorporated gender-related issues into their teaching to a moderate extent ($M = 3.40$, $SD = 0.84$). However, certain gender-related topics were emphasized more than others (see Figure 1). The most frequently addressed topics were gender-based violence (Item 10), gender-based equal opportunities (Item 4), gender inequalities (Item 5), and social justice and equity (Item 9), with 57.1% and 54.3% of respondents, respectively, reporting that these topics were covered frequently and in sufficient depth during coursework. In contrast, the least frequently addressed topic was the foundations and principles of gender equality (Item 1), with only 28.6% of respondents indicating that it was covered frequently and only 8.6% stating that it was addressed extensively.
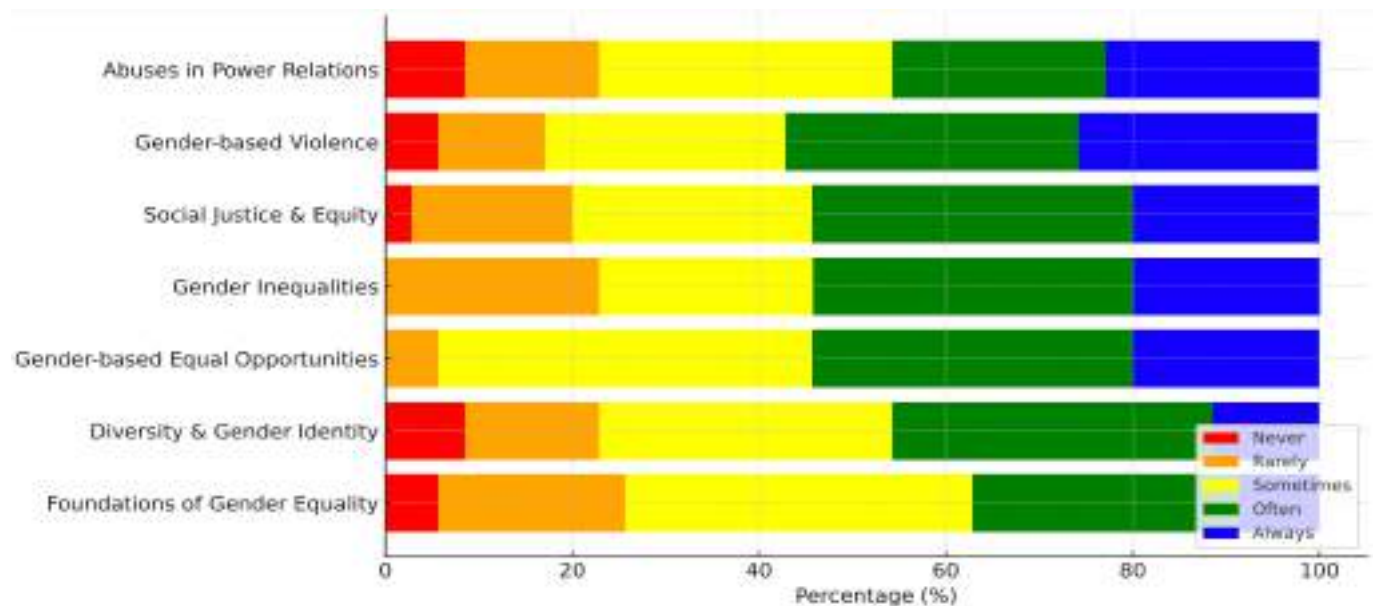


*Figure 1: distribution of responses for gender content taught.*

Regarding the gender-responsive teaching methods employed by teacher educators to teach gender-related topics, respondents reported that project-based teaching (Item 15) was the most frequently utilized strategy, with 48.5% indicating that their instructors used it often or always. Similarly, lecture-based teaching (Item 13) was also commonly employed, with 42.9% of respondents reporting frequent or very frequent use. In contrast, the least frequently used approaches were online and/or technology-based teaching (Item 17), research-based learning (Item 23), and guided discovery teaching (Item 24). Notably, 22.9% of respondents stated that guided discovery teaching was never used during their coursework, highlighting a significant gap in the application of more interactive and exploratory teaching methodologies. Figure 2 provides a visual representation of these findings.

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*mainstreaming implementation?*
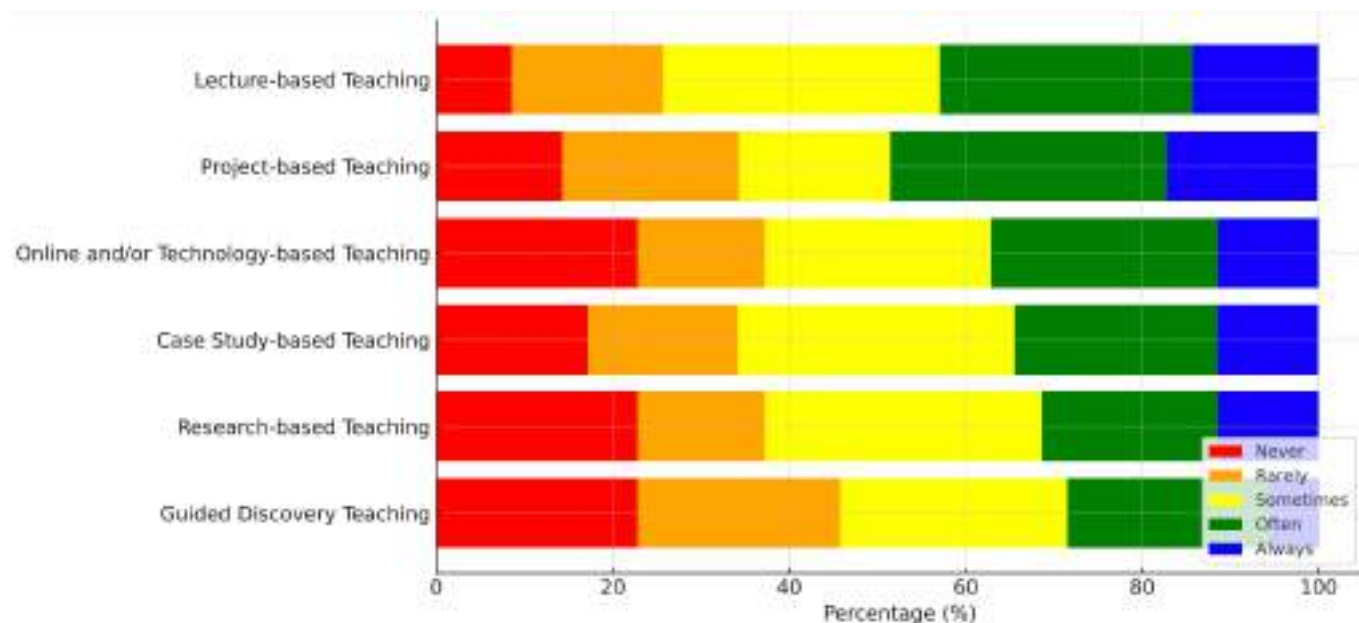


*Figure 2: distribution of responses for gender-responsive teaching methods.*

In summary, the findings indicate that teacher educators infuse gender-related content into their teaching to a moderate extent, with a tendency to prioritize issues that directly relate to real-world social problems such as gender-based violence over more theoretical topics such as foundations of gender equality. Likewise, the data suggest a preference for familiar teaching methods, such as project-based teaching and lecture-based instruction, rather than less commonly used, more demanding, and more time-consuming approaches, such as guided discovery teaching and research-based learning.

## 4. Discussion

This study aimed to investigate the extent to which gender-responsive pedagogy is integrated into university teaching at UA, specifically examining how teacher educators incorporate gender-responsive pedagogy into their instructional practices. The research aimed to address two key objectives: (1) identify the teaching content and approaches used by teacher educators to teach gender equality; (2) examine the impact of teaching methods and content on student teachers' self-efficacy in implementing gender equality (GE) practices.

To address the research question, the Spanish version of the GRT index (Miralles-Cardona, 2024) was used. This instrument consists of 13 items distributed across two subscales: Gender Content Taught (7 items) and Gender-Responsive Teaching Methods (6 items). Using this study's sample, the GRT index revealed a two-factor structure that appropriately captures the constructs measured, explaining 61.09% of the total variance. Furthermore, the index exhibited strong internal consistency, with an overall reliability coefficient of $\alpha = .877$ ($\alpha = .887$ for GCT and $\alpha = .800$ for GTA, respectively), indicating that the instrument possesses adequate psychometric properties for use in teaching contexts. This finding is significant as it provides a valid and reliable tool for examining the teaching content and gender-responsive methods educators utilize when teaching gender-related topics. Data collected using the GRT index revealed that gender issues were only occasionally addressed in university teaching. Among the seven assessed topics, none were perceived by students as being covered 'often', suggesting that gender topics were addressed only sporadically. However, a few themes—gender-based violence, gender-based equal opportunities, gender inequality, and social justice and equity—were reported by a majority of respondents (>50%) as being discussed at least 'sometimes'. Regarding the methods used to address gender topics, only project-based teaching and lecture-based instruction were reported as being used frequently or almost always by nearly half of the respondents (48.5% and 42.9%, respectively). In contrast, the

remaining methodological approaches were sporadically implemented. These findings are both revealing and novel, as they indicate that gender equality content is largely absent from lesson plans, hindering the development of gender knowledge and skills among pre-service teachers. The results align with previous literature, which highlights the precarious state of gender-responsive teaching (Cavaghan, 2017; Rodríguez-Jaume & Gil-Gonzalez, 2021) and supports studies emphasizing the existence of a curriculum that lacks commitment to gender (Aikman et al., 2005; Dumbuya, 2023; Grünberg, 2011).

These findings are consistent with existing literature, including studies conducted in Spain (e.g., Aznar-Martinez et al., 2025; Resa, 2023; Sanabrias-Moreno et al., 2022), other European countries (e.g. Engeli & Mazur, 2018; Grenz et al., 2008; Weiner, 2000), and globally (Bothwell et al., 2022; World Economic Forum, 2023), which underscores the limited impact of gender mainstreaming in higher education and teacher education. This study is innovative, as it is among the first published to explore not only the curriculum but also gender pedagogy, two key areas that require greater attention in teacher education programs.

## 4.1    Limitations
The interpretation of the findings must be considered within the scope of several limitations. First, the analyses were based on cross-sectional data, which does not allow for causal inference. Second, this study relies on student teachers' assessments, which may be influenced by personal biases and individual characteristics. Third, it was conducted with a non-representative sample of pre-service teachers, with a gender imbalance (predominantly female participants), which does not reflect the entire student body, academic levels, or education programs within the UA College of Education. Fourth, the findings do not include insights from teacher educators, who may hold perspectives that differ from those of the students. Finally, complementing this study with interviews from both student teachers and teacher educators, as well as classroom observations, could yield different or more substantive findings.

## 4.2    Practical implications
Given the limited research on gender-responsive teaching in higher education, there is an urgent need to transform both curricula and pedagogy to promote gender inclusivity (Aikman et al., 2005). The findings highlight universities as key stakeholders in addressing this issue, yet a clear lack of institutional commitment persists in integrating gender mainstreaming into faculty missions and policies. Degree programs, curricula, course syllabi, and pedagogical approaches remain largely disconnected from legislative mandates, despite existing legal requirements. Additionally, the insufficient gender training of faculty members further impedes the effective implementation of gender-responsive teaching. This gap not only slows progress but also reinforces misconceptions about gender equality and perpetuates stereotypical gender norms. To address these challenges, a comprehensive evaluation of gender equality plans in academic institutions is essential, along with a targeted assessment of teacher educators' training needs. Without adequate faculty preparation, gender mainstreaming efforts will remain ineffective. Beyond curricular and institutional reforms, future research should examine the necessity of sustained support and mentorship for teacher educators to ensure meaningful and lasting change.

## 4.3    Conclusion
This study highlights the challenges and gaps in implementing gender-responsive pedagogy in teacher education at the University of Alicante. The findings reveal that while gender-related content is occasionally integrated into coursework, it is neither systematically addressed nor sufficiently emphasized in instructional practices. Furthermore, the study demonstrates that pre-service teachers who received gender training perceive themselves as more competent in applying gender-responsive pedagogy compared to those without training. However, the absence of significant differences in some self-efficacy indicators suggests that insufficient training may not be enough to foster deep, lasting competence in gender-responsive teaching. Despite institutional

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commitments to GE, the limited integration of gender perspectives into teacher education curricula underscores the need for more comprehensive reforms. The UA must move beyond policy declarations and actively embed gender-sensitive content and methodologies into teacher training programs. Additionally, faculty development initiatives are essential to equip teacher educators with the skills and knowledge necessary to implement gender-responsive teaching effectively. Addressing these gaps requires a systemic transformation that includes curricular revision, faculty training, and institutional accountability to ensure that future teachers are fully prepared to promote gender equality in education. Without sustained efforts to integrate gender-responsive pedagogy at all levels of teacher education, the broader goal of achieving gender equity in schools and society remains out of reach.

## 5. Funding

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# Service Learning in teacher education for soft skills development

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## Abstract

It's essential today that teachers have a wide range of soft skills (SS), fundamental for personal growth. SS, infact, represent a dyamic combination of cognitive, metacognitive, practical and intellectual skills. They have a transversal nature and allow student to improve their performance in their studies and in the world of work. From this perspective, Service Learning can promote and improve learning process and the development of SS.

Recently, thanks to different SL projects, we have attempted to explore how this approach can contribute to enhancing responsible student learning and developing a wide range of skills required for teacher training. We present three projects started into the degree course in Primary Education Sciences (LM85bis):

- 2020/2022: Service e-learning project "Nobody left behind", to design and implement educational and enhancement courses for primary school pupils in Palermo. 869 students that attend LM85bis course were involved in this project, with the aim of creating educational paths for vulnerable students in Palermo. In total we provided 60,000 hours of distance learning, and all the activities favoured cognitive stimulation and the development of motivation for pupils' learning and the development of skills and deep awareness in teachers.
- 2022/2023: [P.R.] A.S.S.I. "Learning helps, serving teaches": aimed at promoting educational and training activities aimed at minors in Ballarò – Albergheria district of Palermo. There was initial distance learning (4 meetings, 16 hours in total), thanks to which students learned operational models, reflective and relational skills, metacognitive and research skills.
- 2024/2025: we introduced 2 cfu of SL activities in the first year of the course which counts 400 students. The "SL in Sicily" project aims at promoting the design and implementation of educational and enhancement courses for pupils of Sicilian primary schools. The project involved initial training and activities for approximately 400 first-year students.

**Keywords:** service learning; soft skills; teacher training; music education; innovative learning.

# 1. Background and theoretical framework

Society and context influence learning and vice versa. This is certainly not new, but a condition that certainly still exists. Therefore, ensuring adequate progression and improvement in learning and teaching is a necessity that must always be met. School, learning and social life are closely linked and dependent on each other (Dewey, 1899) and that is precisely why the role of teachers is becoming increasingly important and complex. They must be able to understand and answer the needs and requests of their students. To be able to do this, one must be a competent and well-trained professional.

Deep training, nowadays, is correlated by the concept of skills, both hard and soft skills.

It is no longer enough to only be a trained teacher, it is necessary to possess soft skills, in order to be able to provide students with a comprehensive and articulate education that is appropriate for their career, personal life, studies and work life (Matvienko & Popova, 2022).

This is why, for years, the University of Palermo has decided to focus its attention on the training of future school teachers.

Students of primary education degree courses, in fact, will be future teachers; they will be future people whose task will be to train pupils and students in turn. That is why it seems crucial to ensure that they are the recipients of adequate training. There is a strong need to provide them with a toolkit of relevant and suitable tools to be able to create an engaging and innovative learning and teaching environment in the future (Coggi & Ricchiardi, 2014).

Today's educational mission is to bring young students to understand how important it is to create, over time, a teaching-learning style that is meaningful for the learners.

To be able to do this, it is necessary to resort to didactic expedients that can make the training course more interesting.

Among the various existing didactic-pedagogical approaches, the University of Palermo, often, prefers the Service Learning one.

### 1.1 Service Learning: values and morals developer

It is becoming more and more widespread, and well known, fortunately, and today represents one of the most effective and surprising educational approaches within the education of the individual.

When placed within the training of future teachers, SL becomes a very valuable tool, as it provides a global learning experience.

As we said before, it is impossible to limit the idea of a complete education to knowledge alone, which is why among the many benefits and pros that SL brings, we mention above all the great capacity to develop moral values and soft skills.

A person, a teacher, a worker, a professional who possesses values and skills are already a step above the others.

It is necessary, therefore, that this concept of a global, moral and experiential education reaches the young students who will be future teachers (Bringle & Hatcher, 1996).

Between the values that Service Learning manages to develop in people who take part in SL initiatives, we mention mutual help, solidarity, responsibility and citizenship.

Incrementing and implementing SL initiatives within higher education, especially within courses such as Primary Education Science, means to spread the idea that teachers must be able to create an educational environment that is innovative and attractive for students.

Allowing university students to take part in Service Learning activities, means giving them an unforgettable experience that they will carry with them for the rest of their life and career (Flinders, 2013).

# 2. The commitment of University of Palermo

The University of Palermo (UniPa) has always committed to offering its students a learning and teaching experience that can make the learning process more interesting and innovative, stimulating

and engaging. During the last years, in fact, UniPa implemented many Service Learning activities (La Marca & Longo, 2022).

It seems appropriate to mention the one that took place between years 2020 and 2022, the e-Service Learning project "Nobody left behind". Its aim was to design and implement educational paths for primary school students located in disadvantaged neighborhoods of Palermo.

The project involved 869 university students enrolled in the degree course of Primary School Science (303 from the third year; 293 from the fourth year; 273 from the fifth year) in designing a teaching course appropriate for helping and supporting primary school students in continuing their education and schooling path despite the arrival of the Covid-Sars19 pandemic.

University students organized themselves and designed their own educational activities, thanks to all the competencies and skills, soft and hard skills that they learned during all these university years. And this is the real purpose of Service Learning: it is not only something you do to help others, SL is useful, first of all, for your personal growth and for your experiential and values knowledge base; students manage to develop an educational path not only thanks to their knowledge.

A total of 60,000 hours of online teaching were delivered, thanks to which university students grew and school students did not drop out. This is a great achievement (La Marca & Falzone, 2023).

Another important Service learning initiative that was implemented during these years is the project "[P.R.] A.S.S.I. Apprendere Serve, Servire Insegna". This project was organized during the academic year 2022-2023; its focus was implementing educational and training activities intended for children living in the popular Ballarò-Albergheria neighborhood of the city of Palermo. This project involved 38 students from the first year of the Primary School Science degree course and helped young students in developing skills such as social and relational skills, citizenship and metacognitive attitudes (La Marca, Martino et al., 2023).

## 3. The importance of soft skills: for teachers, for students, for children

We are, now, in the 21st century and everything is constantly changing; the keywords are dynamism, flexibility and transversality. To do so, you have to be skilled, you have to know, but you also have to know how to do anything.

Being skilled is no longer an optional extra: it is a requirement.

It is interesting to see how, over the years, the skills required have changed. The World Economic Forum does annual research that studies the evolution and trends of the skills most in demand in the world of jobs. They produced a list of the 10 top skills required and needed to face 2025 (see figure 1). Among the skills listed, we can read analytical thinking, critical thinking, creativity, problem solving and more. Equipping students with these skills as early as the university curriculum means taking care of their training in full.

It means, above all, getting ahead: you are training students who will be able to use these skills for themselves, but at the same time, you are training future teachers who will be able to pass them on to their future students.

**Top 10 skills of 2025**

- Analytical thinking and innovation
- Active learning and learning strategies
- Complex problem-solving
- Critical thinking and analysis
- Creativity, originality and initiative
- Leadership and social influence
- Technology use, monitoring and control
- Technology design and programming
- Resilience, stress tolerance and flexibility
- Reasoning, problem-solving and ideation

Type of skill
- Problem solving
- Self-management
- Working with people
- Technology use and development

*Figure 1: Top 10 skills of 2025.*

We strongly believe that it is necessary, for a positive change to occur, to work on and with the young students who will be future teachers. It means sowing seeds, giving rise to something that can evolve into a much better future. In this case, it is talking to students and teachers at the same time, because they are students now, but they will become teachers. It is like working in the present and the future at the same time. The musical training also helps to develop greater self-awareness and more balanced emotional management. In an increasingly competitive world, being able to recognize and regulate one's emotions is a fundamental quality for professional and personal success. Involvement in musical activities, which require commitment, patience and self-discipline, contributes significantly to the strengthening of self-efficacy, i.e. the perception of oneself as being able to cope successfully with difficulties. This is precisely why, during the first semester of the academic year 2024-2025, we organized a new activity with primary education students enrolled in the third year. The initiative was carried out during the hours of the music education course, with the aim of making students understand that practicing studies parallel to school, cultivating hobbies and being interested in other aspects, can benefit and improve their future path as teachers. Investing time in recreational, musical, social, artistic activities brings with it the very important development of soft skills that would not be able to be acquired just through school or university studies.

## 4. Music and soft skills: a student-led survey

As we said, among the activities that help develop soft skills, we mention the music practice; many scientific studies, in fact, confirm that music is an essential tool in improving and developing interpersonal, social and cognitive skills.
It has been demonstrated how the artistic expression of music, especially if practiced since childhood, facilitates the socialization process between individuals and makes the communication between humans more effective and immediate (Batt-Rawden & Stedje, 2020).
Thanks to practicing, playing or listening to music, you can develop your sensitivity, improve your memory, increase your creativity and concentration, and sharpen your active listening and communication skills (Diz-Otero et al., 2023).
The study of music not only enriches the educational experience but also plays a crucial role in the development of soft skills that are essential in every area of both professional and personal life. Although music is often seen as a subject for those who intend to follow a career in the arts, several

studies show that even those who do not become professional musicians benefit enormously from simply studying an instrument or practicing singing.

Music, in fact, is a universal form of communication that develops essential skills such as interpersonal communication, collaboration and creativity. Scientific studies confirm that music practice stimulates the brain in a unique way, improving cognitive and social skills of individuals, regardless of whether they pursue a musical career or not (Batt-Rawden & Stedje, 2020). Music learning also facilitates the development of emotional skills, such as stress management and resilience, qualities that are particularly important in a professional context, where the ability to adapt to new challenges is crucial.

One of the most remarkable aspects of studying music concerns the enhancement of active listening skills. Music requires an intensive focus and listening skills that transcend the simple listening: students who practice music are continuously stimulated to focus on others, to recognize shades and details, and to adapt their behavior in real time. These skills are crucial not only for professional growth, but also for the creation of more empathetic and cooperative interpersonal relationships.

It is precisely from these theoretical roots that the initiative proposed to the students from the third year of Primary School Science was born. The main idea was to make students understand how much good practice and knowledge of music can do, even if it will not become one's job or main hobby; it is already enough to study an instrument for a while. This represents a great opportunity and a great gift you can give yourself.

### 4.1 Data collection and panel constitution

The students, based on their knowledge, identified two suitable candidates for their interviews; the candidates' participation was also on a voluntary basis. We gave students a task: they had to interview two working people (relatives, friends, parents, colleagues). Neither of them had to be a professional musician, but one of them had to have studied music during their education. The biggest aim was precisely to accredit the idea that those who have studied music during their education are now equipped with more useful skills in the world of work.

The task that we assigned was on a voluntary basis, we received 100 interviews. The students were not provided with pre-created questions, but we gave them instructions to ask the interviewees what are the soft skills that they activate most during their work. It was also necessary to ask the person who studied music if, in his/her opinion, his/her musical studies had helped in developing the skills that he/she considers fundamental in his/her job today.

Following a screening and analysis phase, we eliminated some interviews and kept 84 of them. We continued with the analysis of the profiles interviewed and classified them by gender and profession. The panel of respondents (N=84), consisted of 63% males and 37% females.

## Gender Distribution



Women ■ Men
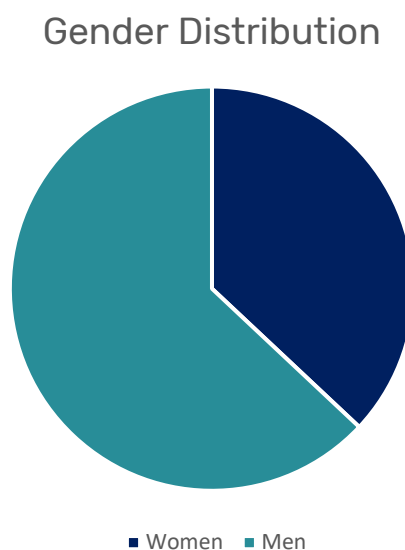
*Graphic 1. Gender distribution of respondents: F=37%; M=63%.*

The panel composition was very mixed: regarding the professions carried out by the respondents, encompassing many different professions, which is why we provide below a table with all the jobs and the number of frequencies (Figure 2). The richness of this wide range of professions results in a very cross-sectional data collection. It would perhaps have been limiting to interview candidates in the same profession, instead, thanks to the efforts of our students-future teachers, we are given a broad and heterogeneous overview of respondents.

| JOBS | FREQUENCIES |
|---|---|
| Doctor | n.7 |
| Italian teacher | n.1 |
| Architect | n.5 |
| Accountant | n.2 |
| Violin teacher | n.1 |
| Designer | n.2 |
| Restaurateur | n.2 |
| Computer scientist | n.3 |
| Nurse | n.6 |
| Trade unionist | n.2 |
| Employee in PA | n.5 |
| Lawyer | n.5 |
| University professor of chemistry | n.1 |
| Engineer | n.6 |
| Primary school teacher | n.6 |
| Plumber | n.2 |
| Craftsman | n.4 |
| Spanish teacher | n.1 |
| Professor of science | n.1 |
| Waiter/tress | n.2 |
| Gymnastics teacher | n.1 |
| Stationer | n.3 |
| University student | n.3 |
| Maths teacher | n.4 |
| Support teacher | n.2 |
| Cosmetician | n.2 |
| Prevention technician | n.1 |
| Religion teacher | n.1 |
| Educator | n.1 |
| Technology teacher | n.1 |
| Music teacher | n.1 |
| Teacher for adults | n.1 |
| Secretary | n.5 |

*Table 1: respondents' occupation.*

To facilitate our work, we have organised the 84 occupations of our interviewees into 6 macro categories plus 1:

1.  Healthcare field (nurses, doctors, etc.) = 13;
2.  Education and training field (teachers, educators, etc.) = 23;
3.  Construction field (designers, architects, etc.) = 9;
4.  Law and accountancy field (lawyers, accountants, etc.) = 8;
5.  Catering field (waiter, waitress, etc.) = 4;
6.  Engineering and computer science field (engineers, etc.) = 9;
7.  Other = 18.

## 5. Data analysis

All the questions and interviews were transcribed in their entirety by the students; thanks to this transcription, we were able to carry out a thematic analysis of each answer.

We decided to research and highlight the concepts and skills mentioned recurrently, with the aim of noting how often the same answers were repeated. The aim of the research was to highlight how amongst the respondents who had studied music, the importance of having acquired those soft skills was highlighted. To gain this information, we worked with the students and, working in groups, analysed each individual interview. We then highlighted and collected the recurring skills to get an overview of the most shared and widespread ideas. Each student then identified keywords within their interview and we made a shared word cloud (see Figure 2). This provided a visual and meaningful impact of the work done and the information gathered. We collected 207 different keywords, and they are all about the soft skills developed thanks to music.
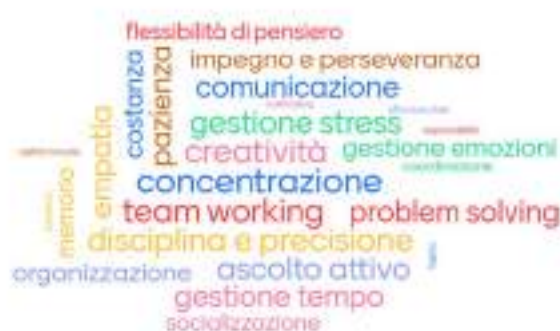


*Figure 2: Soft skills developed through music.*

It is interesting to analyse the keywords collected: they are very varied; they belong to rather disparate fields; there are some skills belonging to the artistic sphere, others more technical and still others social. Looking at the word cloud in question, where the size of the words is directly proportional to their frequency, those of concentration, teamwork and creativity appear in the foreground. In order to better organise the work, we therefore identified 24 thematic cores summarising the ideas collected and the skills that, according to the interviewees, are the most developed by music.

As a final step in the study of the results, we calculated the frequency and recurrence of each theme by making it a percentage figure, with the aim of calculating and identifying the skills most shared by the respondents.

Below are the top 10 skills most developed by the study of music according to our respondents (see table 2). On the podium, the winner is the skill of attention and concentration, followed by creativity and teamwork. All the skills that emerged during these interviews and this study are absolutely required and transferable to the profile of a good teacher. Our future students, in fact, must be able to be focused on their role, attentive to their class and the needs of their pupils. A very high level of creativity and imagination is also required, probably the most in-demand skill in the teaching profession.

The least shared skills, on the other hand, which come at the end of the list, are *responsibility* (1.19%), *multitasking* (1.19%), *self-confidence* (1.19%), *manual skills* (1.19%) and *logic* (1.19%). It is also interesting to note that dimensions such as the skill of manual dexterity, although it is the main and necessary aspect of practising music, do not appear among the most popular. This is probably because, for the respondents, it was more relevant and useful to implement skills such as *problem solving* (13.09%), *active listening* (15.47%) and *discipline* (17.85%), as they are more useful and required by their current jobs.

| | SKILL | FREQUENCY (%) |
|---|---|---|
| 1st | Concentration | 26.19% |
| 2nd | Creativity | 20.23% |
| 3rd | Team Working | 19.04% |
| 4th | Discipline | 17.85% |
| 5th | Stress Management | 16.66% |
| 6th | Active Listening | 15.47% |
| 7th | Patience | 14.28% |
| 8th | Communication | 14.28% |
| 9th | Problem Solving | 13.09% |
| 10th | Time management | 13.09% |

*Table 3: List of the top 10 skills.*

## 6. Conclusions and future perspectives

Thanks to the survey conducted, we were able to obtain further confirmation of the effectiveness and potential of music education. By exposing young people to the experience of musical practice, we are giving them an educational experience that will drastically mark, in a positive way, their future careers and lives.

Equipping our future teachers with all the required and necessary skills means preparing the ground for the future, for a better education. We are convinced, especially given the enthusiasm and amazement shown by our students, that it is necessary to spread the message that a good teacher is not just someone who teaches and explains well. A good teacher is the one who, first, is willing to put himself on the line, promoting long life learning and continuous and comprehensive training.

We sincerely hope that our students have understood the importance and importance of being ready for anything, ready to answer the needs of everyone and to the situations of work and personal life thanks to soft skills, which prove to be fundamental to be competent and prepared people and teachers.

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*Reflecting together online and offline:*
*A systematic review on the types of peer reflection activities in*
*teacher education*

# Reflecting together online and offline:
# A systematic review on the types of peer reflection activities in teacher education

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## Abstract

During an era that highly values the collective construction of meanings and offers multiple online tools to support enriching interactions, socially mediated reflection activities have emerged more consistently in teacher education. This systematic review aims to crystallize the different types of peer reflection activities portrayed in initial teacher education. Examining the social processes (exploration, engagement, co-construction, feedback), the environment (online, offline, blended), and the group size (pairs, small, medium, big) of peer reflection activities presented in 98 relevant research papers, three broader types of activities emerged bearing a unique combination of the three characteristics: outcome-driven, community-driven, and exploration-driven peer reflection activities.

**Keywords:** reflection; social reflection; information and communication technology; online communication; teacher education.

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[†] date of death: 16/11/2022

## 1. Introduction

Reflection is considered a critical goal in teacher education agendas, with a growing body of research exploring how to effectively encourage preservice teachers' engagement in reflection activities (Korthagen & Nuijten, 2022). Reflection's conceptualization and enactments interacted with and evolved within various epistemological shifts. One key shift derives from the expansion of digital technologies and the new social practices they bear (Buckingham & Willet, 2006). Teacher educators have embraced the infusion of information and communication technologies, broadening their methods to engage student teachers in reflection activities (Watanabe & Tajeddin, 2022). The new online environments offer enriched personal and social mindtools that not only enhance teachers' reflection but have also led to the reconceptualization of reflection towards a more interactional and extroverted direction.

Nevertheless, the technological medium per se cannot guarantee deep reflection and may evoke practices of immediate rather than thought-provoking use (Bates, Phalen & Moran, 2016). Furthermore, conducted online or offline, group reflection activities sometimes lead to concerning outcomes (Elhussain & Khojah, 2020, Erdemir & Yeşilçınar, 2021) denoting the importance of further research on the nature of socially mediated reflection activities. Considering the diverse frameworks, goals, and methods that guide group reflection activities in teacher education, a first step could be tracing and grouping the different characteristics of socially mediated activities in teacher education, in order to provide an insight into the methodological choices available to teacher educators for designing social reflection paths in different types of learning environments.

To this end, the present study aims to explore the types of reflection activities portrayed in teacher education research, focusing on peer reflection activities. To gain a comprehensive picture of these types, we focused on three characteristics of the activities: the social processes enacted, the environment in which they are conducted (online, offline, blended), and the group size of student teachers involved. Through a systematic review of the relevant literature, we attempt to trace peer reflection activities in initial teacher education and group them according to these three characteristics. The research question that guides the systematic review is:

- What typologies of peer reflection activities are portrayed in initial teacher education research regarding the social processes, the environment, and group size they entail?

## 2. Methodology

To examine the types of peer reflection activities in teacher education, a systematic review was implemented following the guidelines of the JBI Manual for Evidence Synthesis (Aromataris and Munn, 2020). The following eligibility criteria were defined for a paper to be included in the review:

- Publication type: peer-reviewed, empirical studies in the English language;
- Phenomenon of interest: studies aiming to explore teachers' aspects of reflection;
- Participants: studies involving preservice student teachers participants;
- Context: studies implementing and examining peer reflection activities.

We searched for relevant publications in four bibliographic databases (ERIC, Scopus, Web of Science, and ScienceDirect). The terms used in the search engines were "reflection" (reflect OR reflection OR reflective OR reflectivity OR reflexive OR reflexivity) AND "teacher education". The search was limited to publications after 1983 when D. Schön published the book "The Reflective Practitioner: How Professionals Think in Action" (Schön, 1983), which shifted teacher educators' attention toward developing reflective teachers. The bibliographic search was performed in 2022, resulting in 24.318 academic papers. After removing duplicates across the four databases (9.162 papers removed), a thorough selection process followed. The selection process included title/abstract screening (14.150 papers excluded), full-text eligibility assessment (444 papers excluded), and quality appraisal (454

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papers excluded). Ninety-eight (98) papers were deemed eligible for inclusion in the review (see hyperlinks in the Appendix). The majority of the 98 studies employed either qualitative (N=48) or mixed-methods designs (N=47), with only a small number (N=3) using a purely quantitative approach. The average sample size across the studies was 42 participants. The studies were conducted in America (N=33, mostly in the USA, N=30), Asia (N=30, primarily in Turkey, N=9, and China, N=6), Europe (N=28, mainly in the UK, N=7; Ireland, N=4; and Sweden, N=3), and in Australia (N=8). Six of the 98 papers examined two distinct peer reflection activities instead of one, leading to a total of 104 peer reflection activities displayed and studied in the included papers.

Information about the goal and the methods of each peer reflection activity was traced in the Introduction and the Methodology sections of the research papers. The textual data extracted were scrutinized for information concerning three characteristics of the peer reflection activities: the interaction process, the reflection environment, and the group size of the activity.

- Interaction processes. A thematic analysis was conducted to identify the social processes that permeate student interactions (Braun & Clarke, 2019). Following the abductive reasoning tradition, the patterns we initially searched in our data were based on the four principles of social constructivism that Barak (2007) proposed for science teacher education activities: *exploring* new venues, increasing *engagement*, *co-constructing* content, and providing/receiving *feedback*. As the analysis proceeded, data shaped the definitions of the four categories. In some activities, more than one of the four processes was evident. In these cases, the activities were categorized according to the most prevalent social process.
- Environment. The peer reflection activities were assigned to the *online*, *blended*, or *face-to-face* category, depending on the space in which the interaction took place.
- Group size. The peer reflection activities were assigned to the *pairs* (2 students), *small group* (3-6 students), *medium group* (7-30 students), or *large group* (31+ students) category, depending on the number of students who interacted.

Descriptive statistics were used to demonstrate the frequency of each characteristic in the peer reflection activities studied. In addition, a chi-squared test was conducted to explore possible correlations among the three characteristics. Lastly, exploratory Latent Class Analysis (LCA) was performed, which clusters data with similar characteristics. Through Latent Class Analysis, we examined tendencies in the grouping of the three characteristics, illuminating potential typologies of peer reflection activities. Jamovi open statistical software was used to carry out these analyses.

## 3. Results

### *3.1 Peer reflection interaction processes*

Feedback (33.7%). The thematic analysis demonstrated that the most frequent form of interaction displayed in preservice teacher reflection research is peer feedback (33.7%). The activities in this category were designed to encourage student teachers to critically reflect on their peers' practices or beliefs, to provide constructive feedback, and to receive feedback as well. An indicative example can be traced in the activity portrayed and studied in the paper of Manouchehri (2002):

«… they were asked to observe one another's teaching. Following each observation period, they provided feedback on each other's practice, and shared ideas for improving their teaching» (Manouchehri, 2002, p. 716).

Social engagement (30.8%). Almost in the same frequency with feedback, were the activities targeting students' cognitive and emotional engagement in reflection through social interaction (30.8%). Here, the sense of belonging to a community and the connection among students were prioritized by the authors of the sample to induce social motives to reflect. For example,

«The task proposed that students post their work, including ideas, concepts and artifacts, and comment and discuss on peers' work. This requirement was designed so that students could build connections with peers with a view to enhancing collaborative participation in the task over the five weeks» (Park, 2015, p. 11).

Co-construction (20.2%). Co-construction processes were prevalent in 20.2% of the activities studied, where students interact towards a common goal. The co-construction category included activities characterized by the embracement of collaborative approaches and intense negotiation of meanings, in order for students to reach a common conclusion or to shape together a teaching plan. In the following example, students co-authored a paper illustrating the profile of an elementary science teacher:

«(1) participants shared and collaboratively reflected on their journal entries and individual synthesis papers; (2) participants engaged in collective dialogue and negotiation, in light of the practical merit of reflection and on the structured and focused objective of profiling the portrait of an elementary science teacher; (3) participants used their collaborative reflections resulting from collective dialogue and negotiation to collectively write their synthesis paper on the profile of an elementary science teacher» (Subramaniam, 2013, p. 1860).

Exploration (15.4%). The least common social process to scaffold student teachers' reflection seemed to be the exploration of new venues in interaction with peers. The reflection activities entailed in this category emphasized explorative and individualized approaches. Specifically, students were given control to choose with whom and how intensely they would interact with peers, according to their personal interests and needs, for example:

«The central task of the successive cycles of the learning activity consisted of students tweeting during a relevant period in the term. They were free to decide the content of their tweets and choose their topics, their hashtags, and the users they wanted to interact with» (Pérez Garcias, et al., 2020, p. 4).

### 3.2    Peer reflection environment

Regarding the environment where the peer reflection activities took place, both the online and the face-to-face environments were frequently used to host and mediate reflective interactions. Specifically, 50 activities were performed face-to-face, 44 in online environments, whereas only 10 peer reflection activities took place in blended environments. Asynchronous tools were mostly used (91,4%) with forums, discussion boards, and blogs to prevail (72,4%). Activities also incorporated occasionally collaborative video annotation tools, teleconferencing, e-mail, chat, and digital repositories.

### 3.3    Peer reflection group size

Concerning the group size, slightly less frequent were the groups with up to 30 members (big groups, N=17) and the pairs (N=22), while the most common group size in the activities studied were the medium groups (7-30 members, N=29) and the small groups (3-6 members, N = 26). Less often, activities included interaction in groups with different sizes, combining pairs and small groups (N=5), medium and big groups (N=3), and small and medium groups (N=2).

### 3.4    Typologies of peer reflection activities in teacher education

To explore whether the three characteristics are combined to form certain typologies of peer reflection activities, we initially sought statistically significant correlations among the three variables. Chi-squared test results indicated statistically very significant correlations between all the pairs of variables (see Table 1), suggesting that all three characteristics of peer reflection activities are connected.

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| $x^2$ test | | p |
|---|---|---|
| interaction processes | group size | < 0.0001 |
| environment | group size | = 0.0013 |
| interaction processes | environment | < 0.0001 |

*Table 1. Correlations between the interaction processes, environment and group size*

We then proceeded to examine how the three characteristics might be interrelated, exploring potential groupings through Latent Class Analysis. The optimal number of classes to fit the model was defined as three classes (see Figure 1), that is, three broad types of peer reflection activities emerging through combinations of the three characteristics. The Latent Class Analysis model yielded an Akaike Information Criterion (AIC) of 707, a Bayesian Information Criterion (BIC) of 776, and an entropy value of 0.828, suggesting a reasonably fitting model with strong class separation.
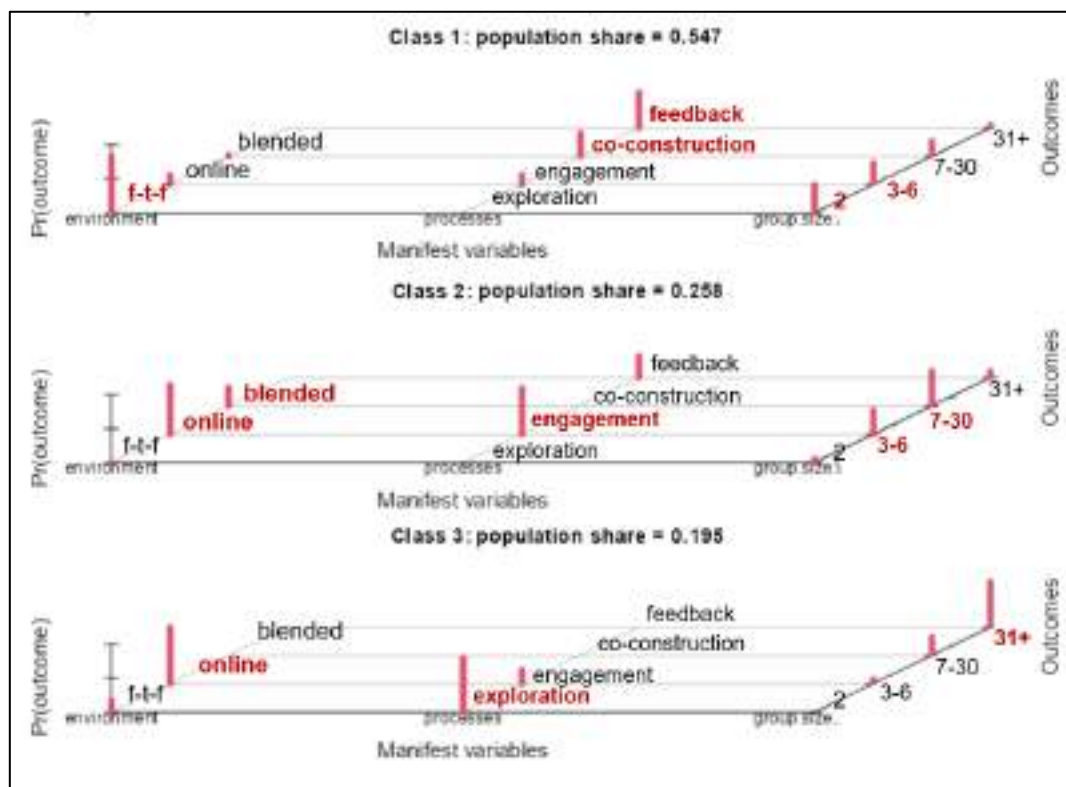


*Figure 1. Latent Class Analysis Plot: Typologies of peer reflection activities in initial teacher education (Class 1: outcome-driven activities, Class 2: exploration-driven activities, Class 3: community-driven activities)*

The first class, in which most activities tend to gather (54.7%), included face-to-face activities, mostly feedback and co-construction social processes, and groups with fewer members, especially pairs. The activities in this class tend to focus on reflection outcomes, be it the output of reflective feedback, or an artifact collaboratively created. Therefore, they could be characterized as "*outcome-driven activities*". The other two classes, on the contrary, portray more process-oriented activities, performed in bigger groups and often online. Specifically, the second class (25.8%) illustrated mainly activities performed in medium-sized groups and online or blended learning environments, where the "social engagement" process is prevalent denoting a focus on building connection among students to increase engagement in the reflection process (*community-driven activities*). Finally, the third class (19.5%) tended to encompass online peer reflection activities of exploration, performed in big groups (*exploration-driven activities*).

## 4. Discussion

This systematic review attempted to explore the types of peer reflection activities in initial teacher education. Specifically, we examined how different environments, group sizes, and interaction processes are combined in peer activities designed to encourage student teachers' reflection. Latent Class Analysis indicated three distinct types of activities: outcome-driven, community-driven, and exploration-driven peer reflection activities.

Outcome-driven activities were the most frequently reported category. Conducted in groups with fewer members who interact face-to-face towards a reflective output, they may mirror a more traditional set of reflection activities in teacher education. The reflective feedback permeates these activities, echoing the first types of reflective interactions described in teacher education: those of a mentor teacher and a mentee student teacher where the first provides feedback on the teaching practices of the second (Zeichner & Liston, 2013). Along with feedback, the outcome-driven category also incorporated all the activities with co-construction processes. Constructing meaning in collaboration with "others" is a contemporary teaching methodology that has evolved alongside social technologies, utilizing various online tools to facilitate the process (Scardamalia & Bereiter, 2006). The co-construction activities of our sample though were performed off-line, denoting a gap in making use of the technological affordances provided, especially considering that co-authoring online tools were absent from all the activities studied. Overall, results suggest that authors value face-to-face communication performed in small groups for outcome-driven processes that entail feedback and intense negotiation of meanings.

The promising prospects of technology were mainly used in the other two types of activities that emerged through latent class analysis: community-driven and exploration-driven activities. Community-driven activities prioritized strong connection bonds among peers so as to trigger social motives that will in turn increase cognitive and emotional engagement. In this category, the social engagement process was dominant and most of the blended reflection environments were observed. This combination of characteristics aligns both with higher education's aspiration to foster social motives in learning (Xie, King & Luo, 2023), and with blended learning's goal of extending engagement beyond in-class interactions (Halverson & Graham, 2019). Exploration-driven activities, on the other hand, were defined by the locus of control on student teachers regarding the type of peer interaction that best suited their individualized needs. The opportunity for student teachers to navigate their own reflection path resembles the principles of self-directed learning, in which students choose when and how they will make use of their peer network to scaffold their learning process (Brookfield, 2009). Exploration-driven activities were conducted mostly online in big groups, leveraging the affordances of new technologies for access to a large pool of information and (peer) opinions. Besides, self-directed learning, which we suggest pervades the activities of this class, is closely related to the deployment of information and communication technologies (Seaton, 1993). In both community and exploration activities, authors focused on the process that leads to reflection and took special care to reinforce it through the sense of belonging to an online community and through opportunities to digitally navigate among peers' posted opinions and artifacts.

## 5. Concluding remarks

In conclusion, the results indicated a balance between outcome-driven and process-driven peer reflection activities. The authors of the sample designed traditional offline environments to mediate the reflective *outcome* of student teachers but also exploited the potential of technology for community connection and self-directed exploration in order to improve the quality of the reflection *process*. The present systematic review provides evidence that teacher education research uses new technologies to host and explore alternative types of peer reflection activities (community-driven and exploration-driven peer activities), suggesting that social technologies enrich teacher educators' available tools toward more process-oriented peer reflection approaches.

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## Appendix

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| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
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| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
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| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | | |

# Exploring the Transformative Impact of Teacher Professional Development on Student-Centered Assessment Approaches

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## Abstract

Although the benefits of Assessment for Learning (AfL) are well recognized, its use remains limited due to the prevailing dominance of summative assessment and insufficient teacher preparation. This study explores how in-service professional development supports the adoption of formative, student-centered assessment practices, based on the perceived changes reported by principals and middle managers. Using data from 400 Italian schools, it examines the impact of training duration, delivery method, trainer profile, and staff involvement. Findings indicate a perceived decline in the use of numeric grades and increased implementation of feedback, rubrics, and self- and peer-assessment—especially when training is sustained, involves high participation of school staff, and is delivered through blended or online formats.

**Keywords:** teacher professional development; assessment for learning; formative assessment.

## 1. Introduction

A sustainable and inclusive education system that promotes meaningful, lifelong learning—as envisioned by UN SDG 4—recognizes the central role of learning assessment, particularly Assessment for Learning (AfL), in fostering active engagement, self-regulation, and metacognitive skills in students (Stiggins, 2005; Wiliam, 2011). Extensive research highlights AfL's positive impact on student achievement, motivation, and self-efficacy. Meta-analyses confirm the effectiveness of formative practices such as descriptive feedback (Hattie & Timperley, 2007; Wisniewski et al., 2020) and self-assessment (Panadero et al., 2017) in significantly enhancing learning outcomes (Klute et al., 2017; Lee et al., 2020).

Despite its proven benefits, AfL implementation remains challenging. Barriers often stem from entrenched professional identities and traditional assessment mindsets (Laveault & Allal, 2016; Looney, 2017). Teachers who rely on summative approaches may lack a clear understanding of AfL and find it difficult to reconcile the two paradigms (Berisha, 2024; Carless, 2005; Heitink, 2016). Moreover, ambiguity about AfL's objectives can lead to superficial or inconsistent application in classrooms (De Luca et al., 2012). The approach is also demanding it requires ongoing planning, data collection, and personalized feedback—difficult to sustain, particularly in large classes (De Luca et al., 2012; Andersson, 2018). Finally, limited professional knowledge and low self-efficacy further inhibit teachers' confidence in applying AfL effectively (Baidoo-Anu, 2023).

While professional development is widely recognized as crucial for the effective implementation of AfL (De Luca, 2012), limited research has examined how training programs specifically address the barriers that hinder its adoption. This gap is further complicated by significant variability in the design and delivery of professional development initiatives, as well as by the lack of clear, shared definitions of formative assessment—factors that reduce coherence and limit comparability across studies (Pastore, 2023; Von Hagen, 2025). This study seeks to contribute to the field by investigating the impact of Teacher Professional Development on teachers' assessment practices, with a focus on transformative change—specifically, the shift from summative-oriented conceptions toward more formative, inclusive, and learning-centered approaches.

## 2. Theoretical background

Teacher Professional Development (TPD)—structured learning activities aimed at enhancing teachers' skills, knowledge, and instructional practices—is widely recognized as a key driver of educational quality and improved student outcomes (OECD, 2014; Darling-Hammond et al., 2017). Understanding the factors that shape its effectiveness is therefore essential for informing policy and designing impactful programs.

Effective teacher professional development (TPD) is defined as intentional, sustained learning that results in measurable improvements in both teaching practices and student outcomes (Darling-Hammond et al., 2017; Sims et al., 2021). Research on TPD typically addresses multiple interconnected domains, including teachers' emotional engagement, knowledge acquisition, shifts in beliefs, changes in instructional practices, and student achievement (Guskey, 2002; Desimone, 2009). Key theoretical models emphasize the interdependence of these dimensions in facilitating teacher change. Clarke and Hollingsworth's (2002) Interconnected Model portrays this process as iterative and dynamic, unfolding across four domains—personal, practice, consequence, and external—through ongoing cycles of reflection and action. In contrast, Guskey (2002) proposes a more linear progression, where changes in instructional practice lead to observable improvements in student learning, which then prompt shifts in teachers' beliefs.

Building on these frameworks, this study explores how TPD supports a shift from traditional summative assessment to more formative, learning-oriented approaches (Nitko & Brookhart, 2014; Harlen, 2007). At the core of this transition is Assessment for Learning (AfL), a constructivist model that uses ongoing evidence to inform instruction and support student progress (Wiliam & Leahy, 2014; Flórez & Sammons, 2013). AfL practices include co-defining learning goals and success criteria, designing tasks that elicit rich evidence of understanding, and delivering feedback that promotes

improvement (Wiliam, 2011; Hattie & Timperley, 2007). It also integrates peer and self-assessment to strengthen students' evaluative thinking, self-regulation, and motivation (Nicol & Macfarlane-Dick, 2006; Van der Kleij et al., 2015).

Research has identified key design principles that underpin effective TPD, often described as "core features" or "design elements" (Desimone, 2009; Sims & Fletcher-Wood, 2021; Richter, 2024). These include a strong content focus, active and collaborative learning aligned with adult learning theory, modeling of effective practices, expert support, feedback and reflection opportunities, and alignment between theory and classroom application. Additional components such as clarity, practical relevance, cognitive activation, structured goal setting, and support for planning and monitoring have been shown to foster meaningful and sustained teacher learning (Timperley et al., 2007; Richter, 2024). The mode of delivery has become a key factor in TPD effectiveness, especially with the rapid growth of digital learning accelerated by COVID-19. Online and blended professional development (oTPD) offer more flexible, scalable models. Early studies show positive effects on teacher motivation, self-efficacy, and student learning (Stavermann, 2025), but research has lagged behind this expansion, highlighting the need for clearer design guidelines and evidence-based strategies (Lay, 2020).

## 3. Methodology

The study is framed around the central research question: How do in-service teacher professional development programs influence the implementation of AfL practices? To address this, three sub-questions guide the inquiry: (1) To what extent do PD programs promote a shift from summative to formative, student-centered assessment practices? (2) How do these programs impact the enactment of core AfL strategies, such formative feedback or self and peer assessment? (3) Which PD program characteristics—such as duration, delivery mode, trainer profiles, and active learning components—are most strongly linked to meaningful changes in assessment practices?

Aligned with the goals of exploratory research, this study seeks to generate hypotheses, refine conceptual frameworks, and inform future investigations (Stebbins, 2001; Swedberg, 2020). It investigates changes in student assessment practices resulting from teacher professional development initiatives independently implemented by Italian schools, capturing a variety of intervention models. The study employed a convenience sample of approximately 1,500 schools from the INDIRE Avanguardie Educative network—an association of institutions committed to pedagogical innovation and continuous professional growth (Nardi et al., 2024). Though not statistically representative, the sample was purposely selected for participants deeply engaged in school innovation, ensuring rich and relevant data. The study targeted school leaders and middle managers—such as department heads and assessment coordinators—as key informants, given their strategic roles in driving innovation, managing change, and supporting teacher learning (Day et al., 2010; Fullan, 2007; Avalos, 2011).

Data were collected online via a structured questionnaire on LimeSurvey between March and April 2023. Before full deployment, the questionnaire was pilot-tested with a small group of school leaders to ensure clarity, relevance, and validity (Creswell, 2014). The survey comprised 30 closed-ended questions organized into four sections: school context and features of training initiatives; training objectives and perceived needs; impacts on teachers' assessment literacy and practices; and self-reported changes in formative assessment practices before and after training. Items addressed training types (lectures, workshops, mentoring), delivery modes (in-person, online, blended), target audiences (teachers, students, families), and training goals (enhancing formative feedback, self- and peer-assessment, and validity of assessment tools).

Quantitative analysis combined descriptive and inferential methods to explore how PD affects school assessment practices. Descriptive statistics summarized school profiles, training formats and durations, trainer characteristics, and assessment strategies implemented pre- and post-training. Inferential analysis employed Pearson's Chi-square tests to examine associations between key categorical variables, including school level (primary vs. secondary), training duration, delivery mode, number of initiatives, teacher participation rates, trainer type, and assessment practices such as

rubrics, feedback, self-assessment, and peer assessment. Data processing was conducted using SPSS software.

## 4. Results

Out of 1,320 schools surveyed, 796 responded and 389 completed the questionnaire. The majority of responses were provided by school principals (60%), followed by deputy heads (14%), assessment coordinators (13.5%), and other middle management staff (12.5%). Over the three-year period examined, 77.5% of the schools in the sample participated in at least one training session on student learning assessment. Among these, 28% attended a single session, while 72% engaged in multiple sessions; notably, 66% participated in three or more training courses. More than half of the schools trained over half of their teaching staff, and more than a third of the institutions involved over 76% of their teachers in the training.
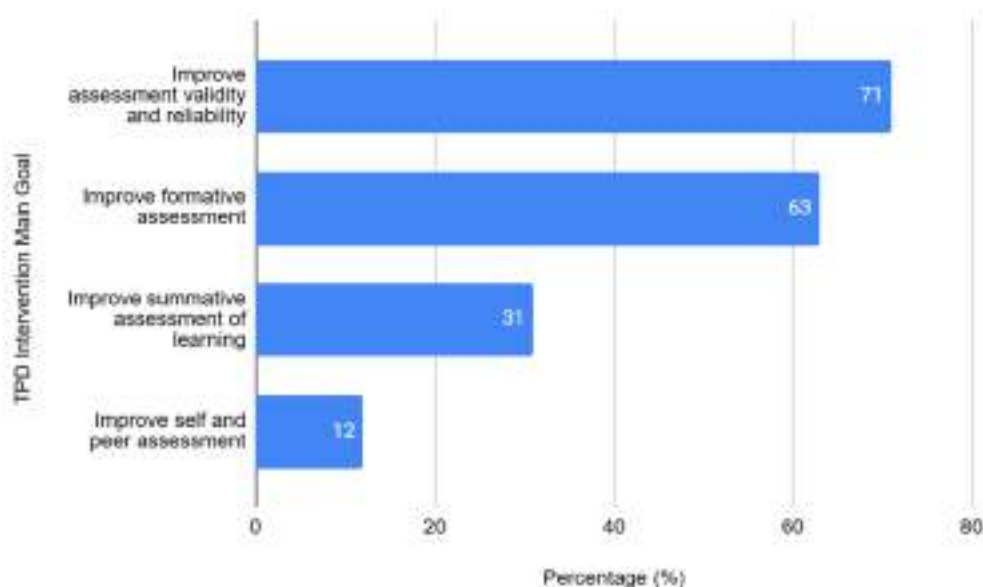


*Fig 1: Teacher Professional Development main goals.*

Teacher development goals focus on improving assessment validity and reliability (71%), strengthening formative strategies (63%), refining summative approaches (31%), and developing self- and peer-assessment (12%). Training duration varied, with 53% of schools offering sessions longer than 10 hours. Blended learning was the most common format (52%), followed by fully online training (37%), which was three times more frequent than face-to-face only (12%).

Trainers came from diverse institutional and professional backgrounds: university professors and researchers (31%), in-service teachers from the same school (29%), expert teachers from other schools (23%), and private agency trainers (20%). Additionally, 16% involved experienced teachers from professional networks. Lecture-based instruction was most common (61%), followed by workshops (50%) and action research (38%), highlighting a focus on reflective, practice-based approaches. The trainer's profile strongly influenced training strategies- Mentoring and tutoring were overall less common (5%–7%) but tended to be associated with school-based trainers. (p = 0.003), whereas lectures predominated when university professors led the training (p = 0.05).

To evaluate the perceived impact of the teacher training, respondents were asked to rate the prevalence of selected learning assessment strategies using a four-point Likert scale: Not at all, A little, To some extent, and A great extent. Figure 2 displays the aggregated percentages corresponding to the 'To some extent' and 'A great extent' response categories.
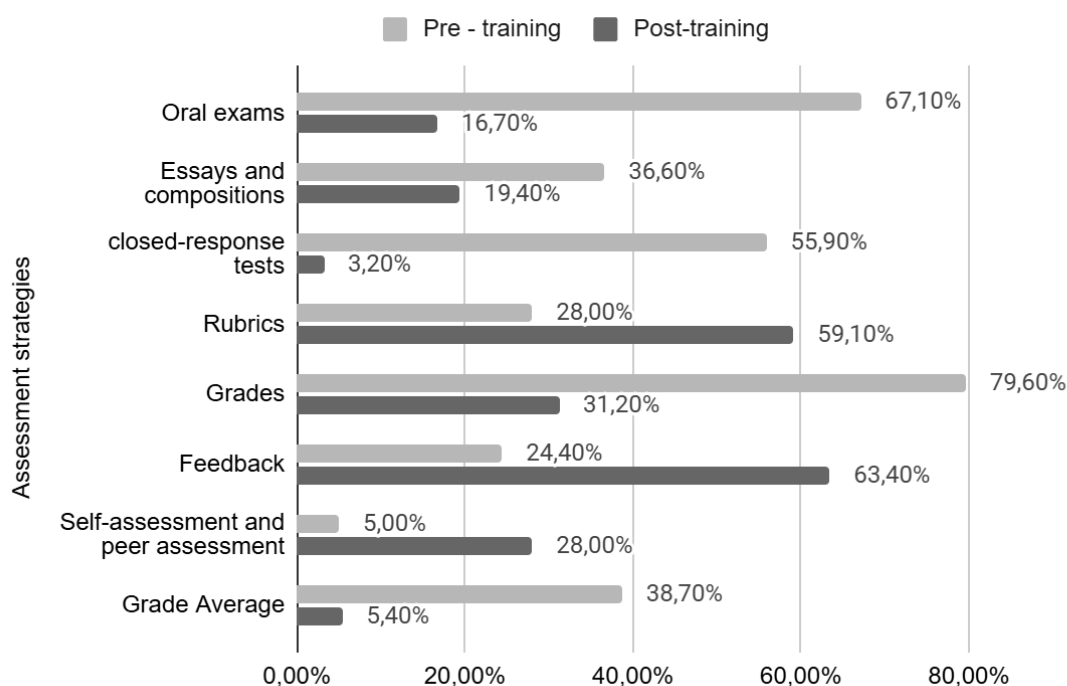
*Fig. 2: Changes in Learning Assessment Strategies Before and After Participation in Professional Development*

Overall, the data reveal clear shifts in assessment practices following the training. Summative tools such as grades and grade averages declined sharply, with grades dropping from 76% to 27.6%—a decrease of 48.4 percentage points. In contrast, formative and alternative strategies saw notable increases: rubrics more than doubled (from 28.0% to 59.1%), feedback rose by 39 points, and self-/peer assessment increased by 23 points. These trends indicate a move toward more formative, reflective, and student-centered practices, and suggest an evolving balance between traditional and innovative assessment approaches.

The study examined how training duration, delivery mode, and trainer profile relate to reported changes in assessment practices, revealing statistically significant associations. Schools with multiple training cycles showed a sharper decline in the use of numeric grades (from 34% to 8%, p = 0.015) and a corresponding increase in descriptive feedback (78%, p = 0.050). Additionally, a higher proportion of trained teachers was linked to reduced use of numeric grades (from 43% to 28%, p = 0.046), suggesting that broader staff participation contributes to more formative assessment approaches. The mode of training delivery appears to influence the extent to which certain assessment practices are adopted or abandoned. With respect to the use of numeric grades in ongoing assessment, schools that engaged in blended or online training reported a reduction of over 40% in their use, compared to only a 20% reduction among those that conducted face-to-face training. Similarly, schools that participated in face-to-face training reported an increase of +25.5% in the use of formative feedback, while those in blended and online formats showed greater gains: +34.1% and +38.3%, respectively.

Although self-assessment (SA) and peer-assessment (PA) were goals in only 19 cases, they were adopted by 93 schools (24%), suggesting TPD triggered broader reflective processes, making these strategies secondary outcomes. Among these 93 schools, training mode significantly influenced shifts, with blended learning used in 57% of SA/PA cases and fully online in 36.6%. In contrast, face-to-face (F2F) formats accounted for only 6.4% of these cases—substantially lower than the 12% recorded across all training initiatives. This pattern suggests a growing preference for flexible, accessible learning environments that support innovative, participatory assessment approaches. Differences also emerged based on trainer profile and audience composition: SA and PA were more

often included in programs led by university-affiliated educators or in-school teachers. These findings underscore the importance of delivery mode and training design in adopting reflective, student-centered assessment. However, due to the small number of SA/PA cases in face-to-face training (6.4% vs. 12% overall), it remains unclear if differences are statistically significant or reflect sample size limits.

# 5. Conclusion

This study investigates how teacher professional development (TPD) impacts the adoption of Assessment for Learning (AfL) across approximately 400 Italian schools, offering initial insights into key factors that can enhance formative assessment training. The data indicate a pronounced shift towards more formative, student-centered assessment practices following professional development programs, with a significant reduction in the use of summative tools such as grades and a marked increase in formative feedback, rubrics, and self- and peer-assessment. Research findings hold particular significance in the Italian context, where the adoption of self- and peer-assessment remains comparatively limited, with fewer than 30% of teachers employing these methods relative to the 42% international average (OECD-TALIS, 2018; Agrusti, 2023).

The study shows that longer and multiple training sessions significantly enhance the adoption of formative assessment. Schools with over 20 hours of training saw greater shifts from numeric grading to descriptive feedback and student-centered methods. Broader teacher involvement is also linked to stronger changes, aligning with Guskey's (2002) view that effective professional development involves gradual, collaborative change guided by clear goals and ongoing evaluation. Future research should explore how these principles translate into lasting systemic improvements.

The study finds that blended and fully online professional development are more effective than face-to-face training in promoting formative feedback and reducing numeric grading. Schools using digital formats showed greater shifts toward student-centered assessment, including increased self- and peer-assessment. These results align with evidence supporting the benefits of online learning in teacher development (Lay, 2020; Stavermann, 2025).

The study's generalizability is limited by a non-representative sample and reliance on school leaders' perspectives rather than teachers', underscoring the need for larger, teacher-centered research. The sample, drawn mainly from innovative schools, introduces self-selection bias and limits its representativeness of the broader Italian system. Nonetheless, it enables exploratory analysis across diverse contexts and provides a valuable foundation for further investigation into how contextual factors shape outcomes. Given the current scarcity of research on the role of context—such as school environment and teacher motivation—in influencing professional development effectiveness (Lay et al., 2020; Stavermann, 2025), future studies should specifically address these gaps to deepen understanding and inform more tailored interventions.

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# Non-cognitive competence and critical-creative skills. A critical review of the current perspectives

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## Abstract

In light of the current debate on the development of critical-creative transversal skills in younger generation and the nebulousness it brings, this work will focus on reconstructing and problematizing the main models within which critical-creative skills are currently systematized. These models — referable to the main three *life skills*, *character skills* and *soft skills* – have been interpreted starting from epistemological frameworks that support them and their training practices, highlighting, together with potentialities, also the main area of criticalities.

## 1. Critical-creative skills: the current debate

The development of transversal skills, including critical-creative ones, is at the centre of a lively and heated debate that asserts their importance and relevance at an international level, particularly in the education field (Chiosso, 2024, 2021; Heckman & Kautz, 2017; Schleicher, 2020). Practicing such skills is urgent and central for the development of intellectual components (strictly "cognitive"), and, especially, of socio-emotional and relational ones (Rimm-Kaufman & Hulleman, 2015). These "non-cognitive" components enable the individual to consciously and generatively face both complex personal challenges and those global challenges characterized by an unprecedented impact on the near future of humanity and the planet. In particular, among the main challenges, the *social*, *ecological*, and *technological* ones stand out (Pileggi, 2024). In light of their scope, they require from human beings a critical, conscious, and responsible management and orientation, which is possible through the promotion and exercise of those transversal or "non-cognitive" skills. It especially refers to young people, who will be called upon to personally manage the changes arising from challenging scenarios with critical and creative tools, along with their risks and potentials. These transversal skills require intentional and early training (Kautz *et al.,* 2014), as they are not innately and instinctively exercised by humans, but, instead, they must be awakened and developed through significant and motivating educational practices, to be planned and carried out in a systematic and coordinated way (Maccarini, 2021).

Studies on current global challenges (Ceruti & Bellusci, 2023) emphasize the importance of such skills, including *problem solving* (WHO, 1994), *resilience* (Luthans, Youssef & Avolio, 2007), *entrepreneurship* (EU, 2018), *conscientiousness* (OECD, 2014), and *collaboration* (P21, 2015), to better manage the associated problems and opportunities. They present a crucial critical-creative component, which in such studies is referred to as the ability to distinguish the problematic aspects and potential opportunities of challenges (*critical component*), and to act in an enterprising and innovative way, finding new paths (*creative component*).

Despite the current theoretical-conceptual reference models frequently refer to the critical-creative component of skills, they present a varied and nebulous scenario, characterized by multiple and differing perspectives.

In order to clarify the current spectrum of the main models of critical-creative transversal skills in the educational debate, this work aims to present a reconstruction based on a critical analysis structured into three main categories: the *epistemological paradigm* that establishes and supports each model, the *types of critical-creative skills* associated with them, and the *training practices* for promoting and practicing such skills in schools. Within this framework, it is possible to categorize transversal skills into three main theoretical-conceptual models: *life skills*, *character skills*, and *soft skills*.

## 2. The Life skills model

The "life skills" model can be reconstructed from the setting provided by the World Health Organization (WHO) and the studies on the theory of salutogenesis of Antonovsky (1979). Since the 1990s, such studies have recognized the importance for the individual's health of the personal skills and resources that an individual uses to manage challenging situations and experiences in the most effective way.

The internationally widespread approaches aimed at promoting and practicing life skills in new generations are predominantly of a psychological-sociological nature, referring in their main purposes to "Positive Psychology" (Seligman, 2002) and "Positive Youth Development" (Arnold & Gagnon, 2020). Within this framework, developing life skills in the process of training new generations becomes crucial in enabling them to build and determine their own well-being independently through the promotion of correct lifestyles (Moffitt *et al.*, 2011) and practices. These practices have an impact on self-awareness, which concerns one's own paths, first educational and later professional (Sánchez-Hernando *et al.*, 2022), with the aim to fully and positively integrate the individual into society (Hoffman, 2006).

Although the effectiveness of training practices aimed at the exercise of life skills emerges, as demonstrated by the literature and empirical studies in this field (Taylor *et al.*, 2017), there are still areas of problematic issues that are mainly related to the epistemological paradigm, which frames this skills model and its training methods.

It is a paradigm originally produced within the psycho-social and health sciences, and it predominantly values the biological-physiological aspects of the human being and their functional adaptation to the needs of society. Since it promotes the personal psycho-social care concerning the biological sphere of the individual's life in terms of "development" in a deterministic and naturalistic sense (Ndetei *et al.*, 2019), it serves as a background for educational experiences concerning risk and protective factors that, although fundamental for educating individuals in their entirety, remain partial.

## 3. The Character skills model

Given the broad framework of international and national studies mainly related to the psycho-economic and sociological areas (Maccarini, 2021; Folloni & Vittadini, 2016), "character skills" derive from studies on the human capital theory of Gary Becker (1964), John Whitefield Kendrick (1976) and Theodore William Schultz (1971), and to the studies of the economist and statistician James Heckman (2014, 2017). He defines "character" as the set of global and interconnected aspects that characterize the indivisible and unrepeatable profile of each human being. Character skills are promoted in light of the idea that the school system does not develop only the individual's "cognitive" sphere related to learning, but particularly focuses on the "character", that is to say, the set of flexible traits and states developed through training practices intentionally planned.

The multiple potential benefits of an early and universal promotion of such skills in new generations show positive effects mainly within the educational-professional sphere of the individuals' life, impacting their motivational factor (Fedeli & Munaro, 2022) and their social life. The increase in productivity following the development of such skills in students also has long-term positive effects on the overall coexistence of the country's individuals (Poggi, 2021), highlighting how investing in the human capital of each member of society can effectively improve economic well-being in its entirety. Despite this, it is possible to identify two main areas of problematic issues of the theoretical-conceptual paradigm that represents the basis of this model.

The first problematic area mainly concerns the human capital theory, which, by emphasizing the link between personal choice and the overall amount of the worker's innate and developed skills, focuses on the individual's ability to produce and generate income. There are few but reliable studies (Lanzi, 2007; Walker, 2012) that highlight a possible relation between the concept of human capital and that of *internal capabilities* of the philosopher Martha Nussbaum (2011), emphasizing the potential role of skills in the citizen's life to improve critical, empathetic and deliberative abilities. However, as this theoretical relation is not explicitly shown in current models and practices of character skills, we only have a theory offering a limited picture of the human being. On one hand, the human being seems to have a set of powerful means at his disposal to successfully emerge in the realms of personal life; on the other hand, the typically human ability to give meaning to reality, carving out that space of full freedom to interpret and judge one's own life experience, is not sufficiently valued.

The second area of concern emphasizes the importance of an ethical-value orientation for character skills so that they can preserve and enhance a fully human meaning in the subject itself and in relation with others (Maccarini, 2021). Such a model needs specific attention to the dimensions of ethical-value-based actions that need to be awakened and promoted especially in new generations to develop a conscious and responsible approach towards reality (Yang, Chan & Ma, 2020).

## 4. The Soft skills model

The "soft skills" model, from a first analysis of the underlying theoretical-conceptual frameworks, is characterized by a set of multiple nebulous and problematic epistemological perspectives. In fact, it is not possible to systematize and link all these perspectives to a paradigm with an easily identifiable matrix and definition (Iannotta & Scarano, 2023). The term "soft skills" is indeed a very broad concept, generally encompassing all the knowledge, abilities, skills, approaches, and professional and personal traits that are "transferable" to different activities. Both in the *epistemological* and *semantic* case, it concerns a breadth of perspectives that results from the corporate and industrial professional training field within which the definition of soft skills was born and developed. This field is characterized by dynamism, challenges, and changes that contribute to shaping the complex work behaviour of individuals in current societies (Biasi, Caggiano & Ciraci, 2019). Therefore, the development of "soft skills", alongside "hard skills" (i.e., the specific technical-scientific competencies), has long been required, as they are equally necessary and relevant in order to understand and successfully adapt to the demands of the work environment.

However, bearing in mind this problematic background, it is still possible to propose the reconstruction of three theoretical-conceptual paradigms that are the basis of the soft skills model: the *behaviourist paradigm*, the *cognitive-constructivist paradigm* and the *"virtue" paradigm*.

In its main studies, the first paradigm refers to (Cimatti, 2016; Giancol & Viteritti, 2019) a behaviourist epistemological matrix, mainly attributable to the thoughts of Edward Tolman (1948); Clark Hull (1952); Burrhus Frederic Skinner (1953); Robert White (1959) and Edward Jones (1989). Within this paradigm, soft skills are interpreted as those skills necessary to face the high level of competition in the workplace, which requires individuals to constantly improve their "employability" (Albanese, 2021). Among these skills, in particular, there are two main dimensions: *career management skills* (ELGPN, 2015), which contribute to the construction and update of the individual's professionalism, and one's own *social competences* and social skills that promote teamwork, communication, listening, negotiation, and networking (Cimatti, 2016).

The second paradigm is represented by studies with a cognitivist-constructivist nature (Altinay Aksal, Altinay Gazi & Isman, 2008; Savickas, 2014) that draw particular attention to Lev Semënovič Vygotskij (1974) and Jerome Bruner (1990), recontextualizing them. The main focus of this field of study is that mental process that is not immediately observable and measurable, which underlies the individuals' performance, enabling them to act in various circumstances with a strong conceptual and operational mastery of the knowledge acquired over time (Mangano, 2014). It is the component of thought that helps the process of defining and constructing the individuals' professional identity (Benadusi & Molina, 2018). This construction of the self has a first development in personal reflection and, subsequently, in the elaboration and co-construction of knowledge with others, developing in the individual an exploratory and critical thought about one's own experience and the shared culture.

The third epistemological paradigm belongs to the framework of the Aristotelian virtue ethics theory (*Etica Nicomachea*, I-VI), intersecting with the current perspective of the development in the human being of the value-based decision making (Grządziel, 2014; Pike & Lickona, 2021) that results from the studies of Jean Piaget (1972) and Lawrence Kohlberg (1969). In this paradigm, the exercise of intellectual and moral virtues is the core purpose of training soft skills in new generations (La Marca, 2019; Pellerey, 2017), as they give the individual the chance to question the meaning of reality, providing a personal perspective and making life choices in a responsible and authentic way. Through the developed skills, the individual is able to read and anticipate positive or negative signals coming from the outside and then act intentionally towards their personal growth.

## 5. Problematic areas transversal to the three critical-creative skills models

Based on the deconstruction of the main models for critical-creative skills, in the current scenario it is possible to highlight five areas of problematic issues that frequently appear in them in a transversal way.

- The first area concerns the concept of the individual that emerges from current perspectives, which place more focus on the productivity element at the expense of the more human dimensions (Baldacci, 2019).
- The second area refers to the concept of skills that is revealed, with adaptability being given more value than the socio-economic demands (Apergis & Apergis, 2020).
- The third area concerns the concept of the critical-creative part of skills, which shows a tendency towards short-term objectives, defined and pursued in a predominantly individualistic way (P21, 2015). The dimension of the critic is actually promoted as productive thinking compared to "theoretical" elaboration, and the creative aspect is understood as the resolution of specific problems and self-organization, flexibility, and adaptability to changing circumstances and new constraints (Cocco, 2018).
- The fourth one refers to the nebulousness of the concept of the paradigm underlying the idea of the individual to be formed and the skills themselves, reporting internal contradictions within the same models at both the interpretative level of current studies and the basis of the underlying perspectives (Tammaro & Iannotta, 2023).
- The fifth area concerns the practices and training processes aimed at the exercise of skills, which still shows problematic issues related to the intervention methods, the planning and structural elements of the activities, and the evaluation system adopted (Jacobs & Wright, 2021).

Current paradigms predominantly focus on the logical-cognitive and rational dimension of the human being at the expense of its sensitive dimension; but, for a comprehensive development of the subject, it is necessary to work on both dimensions. Therefore, the encounter with culture can be the privileged space where the sentimental part of the individual can be performed, promoting a *critical-creative understanding* of reality that is not purely "cognitive". It indeed allows individuals to discern and deeply research into the intimate core of their experience and reality, forming the human person to be in touch with their own feelings and enabling them to bring their uniqueness to transform it in a "new" way (Arendt, 1958).

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# Finding a successful teacher identity:
# the role of the mentor-mentee relationship

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## Abstract

This paper reports on part of an ongoing research study into the experience of pre-service trainee teachers of English as a foreign language in a large university in Hungary. In particular, it focuses on their relationships with their mentors during their short and long teaching practicums in public schools at the end of their six-year training. In the summer of 2023, 33 graduating trainees agreed to be interviewed online. An interview guide was used for the in-depth interviews and the transcriptions were analysed thematically to build descriptive categories. The key categories describe the trainees' relationships with their mentors and how these relationships affected their view of themselves as teachers. The trainees' ideas of what would make an ideal mentor are also discussed.

**Key words**: teacher training; mentor-mentee relationship; qualitative research; in-depth interview; EFL.

## 1. Introduction

In a time when many countries within Europe and beyond are experiencing serious problems keeping newly qualified teachers in the public education system (European Commission, 2023), it is important to understand what factors affect the development of trainee teachers during the most crucial period of their training: their teaching practice (Heinz, 2024). At the centre of their experience during their practice lies their relationship with their mentor teacher, the nature of which has a determining influence on their ability to successfully develop a teaching identity for themselves and may also play a decisive role in their decision on whether to remain in the profession beyond the completion of their degree. Given the importance of this relationship it seems worth investigating it in more detail.

The present paper draws on data from one phase of an ongoing research project investigating the experience of English as a Foreign Language (EFL) teacher trainees in Hungary. The first phase of the project involved 13 trainees doing their teaching practice during the Covid-19 pandemic (Prescott-Pickup, 2023). In the second phase the experiences of 33 trainees who were graduating in the summer of 2023 were investigated. Both studies used video-recorded in-depth qualitative interviews based on an interview guide (Patton, 2014). This paper seeks to describe the trainees' relationships with their mentors in order to identify those characteristics most associated with success or failure in the functioning of this vital partnership, and also to see how the nature of the relationship between mentor and mentee might affect the trainees' thinking about themselves as teachers. Specific problems which can lead to breakdown in the relationship will be highlighted, as well as the characteristics of successful relationships. It is hoped that the findings may be useful to both future mentors and to teacher educators generally.

In the last few decades pre-service teacher training in tertiary institutions around the world took a so-called "practice turn" (Reid, 2011) promoted by institutions such as the Council of the European Union (2014) and the OECD (2019). This has resulted in much closer partnerships between university training programmes and public schools with an emphasis on pre-service training done in schools. The focus of mentoring has therefore shifted from the university to the school, with the figure of the in-school mentor taking on an increased significance. The job of the mentor in school-based practicums has been conceptualized in various ways with earlier models taking the lead from the world of management. The situational leadership model of Bailey (2006) places the onus on the leadership behaviour of the supervisor fostering the individual development of the trainee, but a more holistic model has been advanced recently. Malderez (2024), an experienced mentor trainer familiar with the Hungarian context, identifies five key aspects of the mentor's role, which extend well beyond the purely technical side of teaching. In the Support role the mentor supports the mentee as a person; in the Acculturator role the mentor helps the mentee adjust to the culture of the school and the profession in general; in the role of a Model the mentor acts as a professional example; in the Sponsor role the mentor helps the mentee through providing knowledge or contacts; and in the Educator role the mentor helps the mentee to learn and learn how to learn to be a teacher. While the aim of the present research is to construct meaning from the trainees' point of view rather than to test hypotheses, such an in-depth view of the mentor-mentee relationship serves as a useful point of comparison.

Before describing the research in detail, it is important to briefly touch on the current situation of the public education system in which the trainees did their practice. The trend within public education in Hungary has been one of growing teacher shortages in many subjects (Juhász, 2021) and a rising average age of the teaching population (Eurydice, 2023). The shortage of teachers means that pre-service teachers are sometimes employed by schools to give lessons while they are also doing their practice. This applied to seven of the participants and the status of such trainees within their schools is obviously somewhat complicated.

On top of these problems, there is a stark divide in the country between schools in different regions in terms of resources, particularly with regard to access to digital technology (Huszti, 2020), and this became impossible to ignore during the enforced lockdowns caused by the Covid 19 pandemic (Czifra et al., 2021). Furthermore, in 2023 the Hungarian government announced a new law, named the Status Law (Magyar Közlöny,2023), which changed the legal status of teachers from public servants

to employees and imposed a number of extra duties upon them (TASZ, 2023). This led to a number of protests, resignations and sackings in schools around the country. The effect on teacher morale and also on the public image of teachers was mentioned several times by the participants in this study.

## 2. Research design

In the spring semester of 2023, all 133 graduating English as a foreign language (EFL) teacher trainees in a large Hungarian university were contacted by email and 33 agreed to be interviewed. The interviews were done on Teams and video-recorded with the participants' permission (a single interview was done face-to-face and audio recorded) from June to September. An interview guide as described by Patton (2014) with five main foci (general introductory questions, your story as a trainee, your experience during your long and short teaching practice, your intentions for the future, your feelings about the public education system) was used and further refined after the first few interviews. The interviews were transcribed automatically on Teams and then checked for accuracy using the video recordings. They ranged from 25 minutes to around 80 minutes.

A thematic coding approach (Saldana 2021) was used to analyse the interviews. The transcriptions were coded for patterns and then descriptive categories were built using an extended phrase or sentence as category label (Saldana 2021 p. 258). In this paper only those categories relevant to the trainees' relationships with their mentors will be discussed.

In the next section, data extracts from the interviews will be coded according to the order in which they occurred, so TT1 refers to the first trainee teacher to be interviewed, and page numbers refer to the interview transcript.

## 3. Results and discussion

Before examining the relevant categories, a brief description of the participants' training is necessary. All of the participants had completed a six-year MA training programme in which the whole of the final year is spent in a school, usually a public secondary school in the place where the trainee is living. In several cases this was the school they themselves attended as students. Before this two-semester long practicum, each participant had completed a short teaching practice (STP) in each of their chosen subjects, English and another subject, in a practice school affiliated to the university for the purpose. The trainees had to teach 15 lessons under the guidance of a qualified mentor. In their long teaching practice (LTP) they also had mentor teachers for their two subjects. Table 1 below shows the second subjects of all the interviewed trainees.

| | Hungarian | History | German | French | Media | Italian | Biology | Music | Russian |
|---|---|---|---|---|---|---|---|---|---|
| Trainee | 3, 5, 8, 9, 11, 12, 15, 26, 27, 33 | 7, 10, 19, 22, 24, 31 | 1, 2, 18, 25, 32 | 4, 13, 14, 29 | 16, 17, 20 | 23, 30 | 6 | 21 | 28 |

*Table 1: The other major of the trainees (in addition to EFL).*
Note: Each teacher trainee is numbered according to the order in which they were interviewed.

The first thing to say about the experience of the trainees is that in nearly all cases it was mixed. Most of the trainees had both good and bad experiences; however, only three reported that they had only good relationships with their mentors. Those trainees who enjoyed good relationships were very much aware that this was not always the case: "I got great mentors, which is very lucky because some people really are not that lucky" (TT9, p. 3, talking about her STP mentors). The following two quotes illustrate what can be thought of as two extremes on the range of possibilities: "I think my mentor teacher in History was the ideal one for me because she always wanted me to bring in my own ideas" (TT31); "And I also told her I don't want her to come to my lessons ever again because it's not helping

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me. It's the opposite, and she didn't want to accept it" (TT18). In between these two extremes there were many examples of good and bad relationships. In the next section, the category describing the causes of bad relationships will be described.

### 3.1 The causes of bad mentor-mentee relationships
Three main subcategories emerged from the trainees' discussion of problematic relationships with their mentors. Each of these will be described in turn.

### 3.1.1 The mentor's need for control
Being forced to teach in the same way as their mentor teacher was mentioned by several trainees and it was something they found very frustrating:

> «My mentor teacher was very dominating, she exactly told me what to teach and she called me on the phone and she was telling me literally hours and hours that what do I have to say during the lesson. And she expected the frontal lessons» (TT3, p. 4).

Even though she appreciated her STP History mentor as a teacher, Trainee 7 also felt like she was "not on the same page" (p. 4) with her and that "she tried to push her ways of doing things on me" (p. 4). Talking about her French LTP mentor, Trainee 4 said "I felt like he was very bothered with the fact that someone was interfering" (p. 10) and she thought that their different teaching styles was the cause: "This was his thing, and suddenly there was comparison" (p. 10). In a similar way, trainee 28 was told by her English LTP mentor, "please don't ruin my class. Please don't ruin the rules I've made for them or the habits I've made for them" (p. 9), and this upset her: "I had to do everything as I was told and I felt some things really bothering me" (p. 9).
Another way in which the mentor's need for control could affect trainees was not allowing them to teach alone. Both trainees 9 and 31 experienced mentors in their LTP who sat in on all their lessons. Trainee 9 asked her English mentor to let her teach alone but "he insisted on coming in and didn't get the message that I was not comfortable" (p. 5). For trainee 31, her Hungarian mentor told her what to teach and how, and "she just always wanted to be there somewhere, and she even interrupted my lessons sometimes" (p. 10). Unsurprisingly, this had a humiliating effect on her: "I felt so little" (p. 10). Being tightly controlled by their mentors prevented trainees from trying things out for themselves and developing their own teaching style. The freedom to experiment was one of the things they most valued in a mentor relationship, as will be seen.

### 3.1.2 Criticism that hurts face
While trainees valued constructive feedback, for example, trainee 33 appreciated the help of her STP Hungarian mentor: "he was really good at giving constructive criticism" (p. 5), being given only criticism was something that did not help them. Trainee 27 felt that she only received negative feedback during her English STP: "I want to get some positive feedback as well so I can have some motivation and go on and this never happened" (p. 7).
Being criticized in front of their students by their mentor could be even more damaging. Trainee 2 had a bad relationship with her LTP mentor in English: "I did not like my mentor teacher that much because she (pauses) she wasn't that supportive and she talked badly about me in front of my students." This disturbed her enough to report it to her university teachers, and although she had already decided that she would not be a high school teacher, it seems likely that this experience only reinforced her decision.
Trainee 29 had the same experience with her French LTP mentor and it was connected to wanting the trainee to teach in her way. She felt it was "kind of embarrassing in front of the kids" (p. 5) but "I could fight the lion" (p. 5), a metaphor which she used to describe how she dealt with her fears about teaching French.
A special case was that of trainee 18, who did her STP and LTP in the same school and was also employed to teach German to four groups when a full-time teacher left abruptly. The relationship with her mentor had started well in her STP but when she started teaching more groups than her mentor, the relationship changed. The trainee felt that her mentor "tried to sabotage my, I don't know, my

teaching practice" (p. 7), and the criticism she received extended to the other German teachers at the school, causing her to doubt her abilities: "sometimes I was just so confused because I had no idea whether I was so bad at German" (p. 6). After a difficult four-month period, the stress from which led to health problems, the situation was resolved with the support of her head teacher at the school.

This demonstrates the difficult conditions in which many of the trainees found themselves because of the tensions within the education system. Trainees who are also paid teachers in a school have a dual identity which can lead to problems with their colleagues and threaten their professional development.

### 3.1.3 Not feeling supported

Several of the trainees reported feeling that they did not receive enough help from their mentors, particularly during the LTP. For example, trainee 16 reported having to hunt down her English mentor teacher: "at the beginning of the year, I had to chase her because she didn't want    to deal with me" (p. 7). Trainee 24 did not feel supported by either of her LTP mentors: "I could feel that they are not interested in my work and they are not mentoring … but it was just like doing the things, so the needed things. They signed my papers and so it was not so improving" (p. 10).

Altogether 13 trainees mentioned not getting enough support from one or more of their mentors. This could lead to trainees feeling overwhelmed and unable to cope, damaging their self-confidence.

### 3.2 The characteristics of good mentor-mentee relationships

Only three subcategories will be described relating to positive mentor-mentee relationships, but these were the three clearest to emerge from the data.

### 3.2.1 Getting meaningful support

All the trainees appreciated getting support, but in particular they appreciated useful feedback that helped them with their teaching. Trainee 33 has already been mentioned. Trainee 11 struggled with discipline in one English group in her LTP and used a psychological trick her mentor suggested: "it was my mentor teacher who helped me with this. So she had this idea, this coloring thing" (p. 3). Trainee 21 was also given some techniques to help her control her English class by her mentor in her STP. Trainee 1 felt she had been given good practical support by her English STP mentor: "We managed to work together very, very well. He managed to really show me the ropes of how it is to be done" (p. 4).

Trainees also appreciated their mentor giving them moral support when they needed it. Trainee 23 mentioned that her LTP Italian mentor "supported me during my difficult periods that I had from time to time" (p. 4), and trainee 25 noted that while her German mentor focused on teaching matters, her English mentor concentrated more on her wellbeing during her LTP. Trainee 31 had a very close relationship with her LTP History mentor, who encouraged her to experiment but also supported her emotionally: "So she asked me every day, how do I feel, am I too tired to teach this class today, and she even visited me in my home and she brought me some chocolate when I felt low" (p. 11).

### 3.2.2 Being given the chance to experiment

The chance to try out their own ideas was something that nearly all the trainees mentioned as being important for them. It was highly appreciated by trainees who experienced it, but it was also frequently mentioned as being a vital characteristic of a good mentor: "they shouldn't just, like, stick to their old or own ideas, but they should let the teacher trainee experiment and try out new things" (Trainee 32, p.11).

Finding out for themselves what works and what does not is a vital step in the development of any learner, and this is no less true for teaching. Trainee 5 talking about her LTP mentors: "They also gave me freedom and autonomy in my decisions and it meant a lot to me that they trusted me with this" (p. 8). Trainee 21 said her LTP mentors "let me try my own ideas. My creative ideas and, and I appreciated that" (p. 5), and many others echoed the sentiment.

### 3.2.3 Being treated as a colleague

Another important subcategory was the impact that being treated as a colleague by their mentors had on the trainees. Psychologically it was very important for them to be acknowledged as a fellow

practitioner and this emerged strongly in the data for those trainees who experienced it and also as a quality of the ideal mentor: "a good mentor teacher is someone who kind of treats you as a colleague" (Trainee 12, p. 7)

Trainee 5 mentioned that many teachers in her LTP treated her as a colleague: "and that not only felt good, but also helped me, you know, take on this teacher role, which was difficult for me at the beginning" (p. 8). Trainee 28 appreciated that she could work together with her Russian mentor in her LTP as opposed to being tightly controlled by her English mentor.

The reception of the school in general was important for many trainees. Trainee 15 found it difficult to balance her multiple identities of trainee teacher, paid lesson giver and former student in her LTP school: "it was first hard to find a balance between being an, almost a colleague and a real, real colleague and still a trainee and a former student" (p. 6). However, "the other colleagues helped me to settle down in this community" (p. 6). Trainee 33 in her LTP mentioned the same thing: "I really like the atmosphere of the school because I felt like that the colleagues and the other teachers there looked at us teacher trainees like we were also colleagues" (p. 6).

## 4. Conclusions

Of the 33 participants in this study, 18 had decided not to become a teacher in a public school, and only three intended to be a teacher for more than the following year (the period needed to acquire full teacher status). This underlines a fundamental problem in the Hungarian education system, a problem which is shared across Europe. A recent report states that 35 countries in Europe face a shortage of teachers and only three have a surplus (European Commission, 2021). The sample size in this research is small, but given the current situation, the fact that so few of the participants intended to pursue what they had been training to do for six years is highly concerning, as is the frequency of problematic mentor-mentee relationships.

Given the need for more teachers to enter and remain in the profession for a sustained period, the influence of mentor teachers during trainees' practicums is crucial in allowing and encouraging trainees to develop their own teaching identity and assisting them in becoming effective classroom practitioners. While the difficult conditions for teachers in Hungary (the same report lists Hungary as having the highest regulated teaching hours, 26) will continue to be a significant factor in trainees' decision-making, creating a better quality of mentor-mentee relationship will undoubtedly have a positive effect, and having a clearer understanding of the mentee's point of view is an important step towards that end.

Of course, in a short paper it is not possible to explore the richness of the data in great depth; nevertheless, it is hoped that even these limited findings have the potential to help both parties be more successful in their partnership, a partnership which is absolutely vital for the future of education. It is also hoped that the present study will add to the growing literature on pre-service training in many countries and begin to fill a gap in such research in the Hungarian system.

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# Analyzing poor academic performance of Albanian pupils in PISA

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## Abstract

This paper aims to analyse poor academic performance of Albanian Pupils in PISA over the last two decades in light of the reforms and legislative changes in the Albanian School System. The main conclusion is that educational reforms in Albania have been frequent, unstudied and in response to the immediate needs of the moment, without a clear vision. They have influenced, directly or indirectly, the quality and number of those who choose to became teachers as well as in the quality of learning in pre-university education. The Ministry of Education and Sports lacks any document, strategy or study that analyses the factors that have negatively affected the academic achievements of pupils in PISA, as an instrument that indicates the quality of education that children receive in Albania.

**Keywords:** PISA; teachers; performance; schools; pupil's performance.

## 1. Introduction

PISA has become the principal source of data on the performance and quality of education systems, as measured by student achievement outcomes, for the OECD indicators reports (Froese-Germain, 2010). According to the OECD, one of the key features of PISA is progress monitoring, while one of the indicators on the quality of politics is the oversight of student progress. Using students' assessment results to inform decision making must be part of educational strategy to increase student achievement (Murnane *et al*, 2007).

Albania took part in the very first administration of PISA in 2000, and also of PISA 2009, 2012, 2015, 2018, 2022 (OECD, 2024). In total, during the period of 2009-2022, Albania has been part of this external evaluation six times (Fig. 1). According to the obtained data, in 2022 year, 6 129 students from 274 schools completed the assessment in mathematics, reading or science, thus representing about 28 400 of 15-year-old students (21,58 % of the total population of 15-year-olds); average results of 2022 were lower compared to those of 2018 in mathematics, reading and science (OECD, Albania, fact sheets). In the span of 22 years, Albanian students' score in maths have taken steps backwards - the results were down by 13 points, while in science the scores are exactly the same. If there is any room for consolation, after 22 years the reading results are only 8 points higher.



ALBANIA: PISA Results through years

| | 2000 | 2009 | 2012 | 2015 | 2018 | 2022 |
|---|---|---|---|---|---|---|
| Reading | 349 | 385 | 394 | 405 | 405 | 358 |
| Mathematics | 381 | 377 | 394 | 413 | 437 | 368 |
| Science | 376 | 391 | 397 | 427 | 417 | 376 |
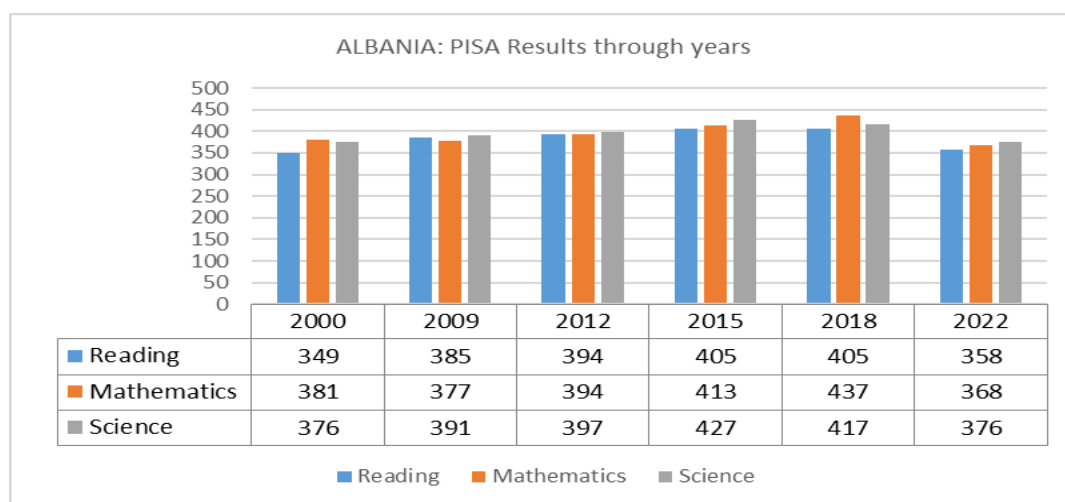
*Figure 1: Albania: PISA results through years.*

The data reveals a persistent trend of low achievement among Albanian students. Also, different documents, produced by or under surveillance of Ministry of Education and Sport (MoES), state the same situation: in PISA 2012 Albanian pupils scored lower than pupils from any European and Asian country (Wort *et al*, 2019); The International Program on Students' Evaluation that comprises one of the most prestigious international studies on the measurement of students' academic performance demonstrated that the results were rather low (MoES, 2008).

## 2. Methodology

The paper employs a mixed-methods approach. The qualitative method utilizes document review to analyse the structure of basic education, external evaluation systems to assess teacher and principal performance, and financial models of intervention. The quantitative method investigates the average grade (AG) of upper secondary school of a sample of 36 students & candidate students in Bachelor for preschool teaching at X University, which compares the number of candidates with the number of actual students' attendees for two consecutive years. This method is used to analyse the quality of students that have chosen to study teaching in an institution of higher education named as X, for ethical reason.

The study ensures that the information collected and used does not contain any identifiable personal data, for ethical reasons.

## Research questions

What are some of the educational reforms introduced during the period 2000-2022?
What role do those educational reforms play in the quality of learning in Albania?
Have low PISA results influenced the policies of Albanian stakeholders?

### 2.1 Qualitative method

*Structural reforms of basic education*

On national level, one of the most important political reforms, upon the transition from communism to the post-communism, was free movement which lead to massive migration of rural population to urban centers. This migration made schools overcrowded, particularly in Tirana, where gymnasiums faced severe space limitations, sometimes accommodating more than 52 students/class. According to the MoES (2008), general secondary education continues to experience infrastructure-related problems such as overcrowded classrooms in urban areas with significant demographic impact. To address the overcrowded conditions in upper secondary schools, the pre-university education system was restructured (Table 1).

| Period | Structure Reforms, years - based, of pre-university system |
|---|---|
| until 2012 year Law No 7952, date 21 June 1995 | Primary education lasts for 4 years (grades I-IV); lower secondary education lasts for 4 years (grades V-VIII); upper secondary education, typically lasts for 4 years (in the case of part-time education or evening education, the duration is extended to 5 years). |
| 2012-2015 Law No. 69/2012 | Primary education lasts for 6 years (grades I-VI); lower secondary education lasts for 3 years (grades VII-IX); upper secondary education, typically lasts for 3 years (gymnasium) including grades X-XII. |
| 2015 – until now Law No. 69/2012 | Primary education lasts for 5 years (grades I-V); lower secondary education lasts for 4 years (grades VI-IX); upper secondary education, typically lasts for 3 years (gymnasium) including grades X-XII. |

*Table 1:Pre-university education and structure reforms.*

*Reform on admission of students in higher education*

The process of student admission to public and private HEIs is centralized and overseen by the Council of Ministers. Each year, the Council of Ministers decides on the minimum AG required for admission to universities. This AG is calculated as the simple average of annual final grades in all subjects over the course of upper secondary education and Grades from the State Matura exams. In addition to the general AG criterion, some HEI may require students who apply to certain programs (such as medicine or architecture) to take an entrance examination. For the study programs bachelor in teaching, all Albanian HEIs apply only the AG criterion for admission. This is primarily due to the declining number of young people who chose to become teachers.

During 2018-2021, there were 2 decisions made by the Council of Ministers regarding the minimum AG required for admission to teacher bachelor programs. For the 2018-2019, the minimum AG required for admission to a teacher's study program was set at 7 out of 10; for the 2020-2021, this minimum AG was increased to 7.5. However, the latter decision comes with a caveat emptor: individuals can be accepted into the bachelor's program with a minimum AG of 6.5. It's important to note that this exception applies only if the individual does not opt for a Master's program that leads to teacher's graduation (Table 2).

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| Period | Reform of admission at university teaching study programs based on AG |
|---|---|
| *Academic year: 2018 –2019* Decision of Ministerial Council, No. 216, 20.4.2018 for accepting students in HEI | Point 3. For candidates who apply to be admitted to study programs in the field of teaching, for the academic year 2018-2019, the AG calculated, according to this decision, should be 7. |
| *Academic year: 2020 –2021* Decision of Ministerial Council, No. 436, 3.6. 2020, for accepting students in HEI | Article 1, point c: In the bachelor's study programs that give access to the second cycle "Master's" programs in the field of teaching, the AG of upper secondary school must be 7.5. Rule no. 3: For those who intend to become teachers, the admission AG in these branches will continue to be 7.5, but for other students who intend to continue studies for another profession such as translator, psychologist, social worker, Cicero, historian, geographer, etc., this acceptance AG must be at least 6.5. Those who will apply to these study programs will be provided by the Educational Services Center with a special matriculation number, which does not allow them to follow the second cycle master's programs in the field of teaching. |
| *Note*: This decision, indirectly, does not impact individuals choosing to pursue teaching in preschool, as per the law, which mandates that teaching in preschool requires studies only at the Bachelor's level. | |

*Table 2: Upper High Education AG required for admission to Bachelor study programs in teaching.*

*Professional development policy for teachers and principals in service*
According to the Law No. 69/2012 (LAW), teachers and principals must be trained at least 3 days/year; trainings must be organised according to the "demand-offer" system, based on the demands of educational institutions and offers from training agencies that can be public or private, and accredited by the MoES. State responsibility to provide professional development for teachers in service is represented by local educational offices. Durrës is one of the main urban centres in Albania and has 53 basic schools, out of which 21 are located in city and 31 others in the villages (Durrësi, Local Educational Offices, 2023). Organization of the Local Office of Durrës that is up to the level of Regional Educational Directorate and covers a wide geographical area has only 9 employees (Order No. 234, Date 19.4.2019). Individual responsibility for professional development, based on the "demand-offer" system has a price in labour market: 1 credit=10 to 20 euros. Almost all HEIs provide such courses, which are designed in compliance with the human resources and economic benefits of the HEIs, not of the needs of an individual teacher or of a school as a whole.
But, actually, there is an increased emphasis on school leaders. Based on the LAW, operates the Center for School Leadership (CSL). Since October 2018, CSL functions as an independent structure in terms of administration, information, and training programs management. Until 2018, a person without a master's degree in education from a HEI found it very difficult to be employed as a school principal, especially in upper secondary education level. Since 2018, everyone (in-service, both principals and teachers) is invited to apply for a training: One of the main tasks of CSL is to develop, lead and monitor the process of initial training for in-service principals/ vice- principals and aspiring principals.

*External evaluation systems to assess teachers and principal's performance*
External evaluation is used in school systems to gain insight on how to succeed. External evaluation in teaching profession takes only the form of inspections conducted by educational inspectors. MoES, General Directorate of Pre-University Education has published a checklist of what to inspect in the course of inspections. This checklist has 102 criteria for teachers and the answers for each of them should be either yes or no; when the object of inspection is the school principal, this check list has 47 criteria (General Directorate of Pre-University Education).

## 2.2 Quantitative method

*The quality of students-in-entrance*
Another characteristic of Admission Management Process in Albanian HEIs, is that it is structured in some rounds. In the first 2 rounds, each candidate can choose up to 10 study programs from the overall list of HEIs which lists both, private and public institutions. Usually, the most desired study programs are medicine, nursing, economics and law. In the first round, the system selects candidates with the highest AG. Teaching is kept as a back-up option by most of the candidates, in case they do not manage to get a place in other study programs. In developing a basis for the above argument, the starting point was a sample of first and second year students that are attending a program study in "Bachelor in preschool teaching" in X University. The AG of upper secondary school for the first year students was 7.68, and for those in the second year of the same study program was 7.4. In total, the number of students were respectively 9 and 7. Also, data were collected for candidate students that applied in the first and second rounds. Those data contained the same features: the AG of upper secondary school, and the number of applicants. Fig.2 shows the AG of upper secondary school candidate students applying for a bachelor's program in preschool teaching at a university over two consecutive academic years, 2022-2023 and 2023-2024; it also displays the AG of upper secondary teacher-students who actually enrolled in the preschool teaching program.
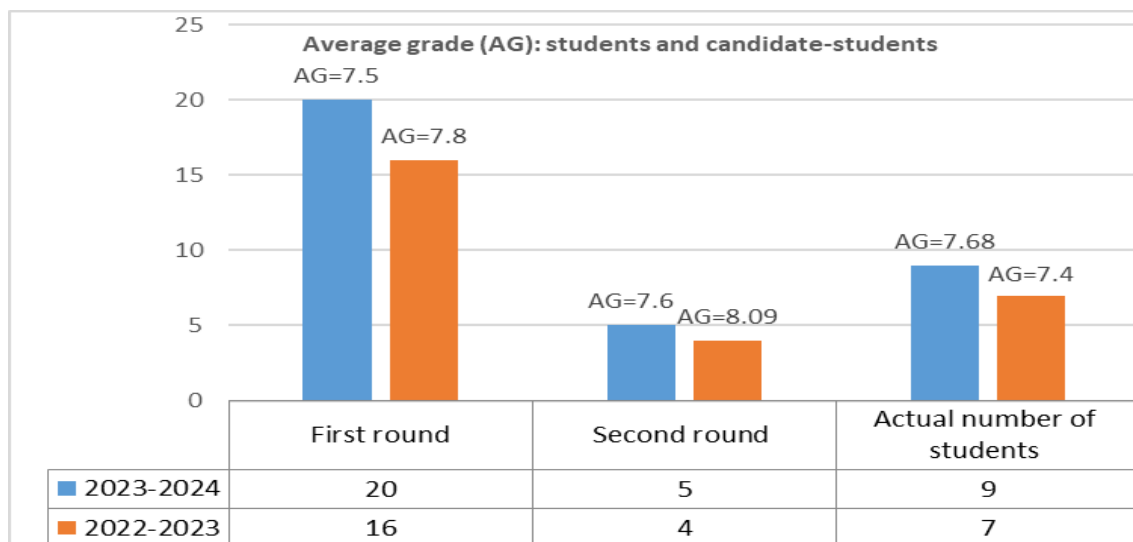


*Figure 2: AG of upper secondary school of candidate students and of teacher-students over two consecutive years.*

## 3. Conclusions

**3.1** Reforms in Albanian education system have been frequent, unstudied and in response to the immediate needs, without a clear vision, or a connection of a problem with another. There is not an element in any of the reforms that can be found in another, as a sign of a continuous long term policy. During 2012-2015, the structure of basic education levels changed twice. Despite the extremely high attendance rate, these changes were not grounded in studies and design processes to assess their impact before implementation. Instead, the primary objective of policymakers was simply to alleviate overcrowding in the existing gymnasiums. Furthermore, these changes found teachers, who were qualified and certified to teach at certain grades of basic education, completely unprepared, which influenced directly and indirectly the quality of teaching. The second reform examines the decisions regarding admission criteria in higher education for study programs Bachelor in teaching. Between 2018 and 2021, two notable decisions were made. Initially, the

minimum upper secondary education AG required for admission to a teaching program was set at 7.5, thus exceeding the threshold for other study programs while aiming to maintain student quality. Later, the requirement was adjusted to the minimum AG of 6.5 for admission to a teaching program. However, this change came with the stipulation that these students would not be eligible for a Master in Teaching - they cannot become teachers at pre-university education level. The ongoing changes in admission policies for teaching programs in higher education have exacerbated an existing negative trend - young people are increasingly disinterested in becoming teachers - and also contribute to the uncertainty among prospective students contemplating a career in teaching. While the decisions attempt to balance academic standards with access to education programs for students with varying levels of academic achievement, they do not necessarily improve the system. Data analysis on the number of candidate students compared to the enrolled students for both academic years reveals a higher application rate in the initial phase. These figures underline the challenges and uncertainties surrounding the decision-making process for aspiring teaching professionals. Also, the number of students attending the program is always lower than in the application process because at the end candidate students prefer other study programs. This reform has directly influenced the number of individuals choosing to become teachers. On the other hand, at first glance, there is a perception that the quality of those entering the teaching profession - measured by the AG at admission to the study program Bachelor in teaching - is improving. However, in reality, these grades do not always reflect the same level of competencies for all the system. Usually, students who choose to become teachers often come from schools whose quality varies significantly, depending on their geographic location.

**3.2.** State responsibility to provide professional development for teachers in service is represented by local educational offices, but the number of the employed is very low compared to the number of the schools under responsibility. In this regard, to fulfil the legal requirement for annual training, teachers often view the market as a means to meet this obligation, treating it as a task rather than an intentional effort toward professional development. The MoES has not issued any document indicating the need for teacher professional development based on student outcomes in specific schools or, more broadly, on PISA results. Additionally, in Albania teaching salaries are determined solely by years of experience. Professional growth or student achievements do not influence salary increases, rendering the mandated credits and legal requirements largely formal. This approach may hinder genuine professional development and improvement in student performance.

**3.3** CSL aims to certify current and prospective school principals. While it may not necessarily be a political move to reward party supporters, it does raise concerns that all individuals employed within the system may soon receive principal certification, as promised principal. The Albanian education system focuses on the professional development of principals from a top-down approach. However, the PISA results call this approach into question, suggesting that a more nuanced strategy may be needed to effectively address the complexities of school leadership. From the other side, the absence of robust external evaluation systems to assess teacher and principal performance does not allow to collect data on the needs and wants of students, teachers and schools.

**3.4** The variance of results in mathematics is weakly associated with the socio-economic status of Albanian students, as measured by the PISA index of economic, social and cultural status (ESCS): 4.5 %, rank 76/79. (OECD: PISA 2022), but I need to question this statement, simply because the best schools in Albania are located in the center of urban areas where communities are wealthier and better educated. Also, the best teachers are employed in those schools.
The economic development is centred round the urban areas of Tirana & Durrës: in 2021, around 63% of Albania's population lived in urban areas. In rural areas, people have very few economic opportunities. There is lack of education and training opportunities (Federal Ministry for Economic Cooperation and Development, 2023). In a Public Report of MoES (2021) on the achievement of students in State Matura for the year 2021, the first best four schools on national level (out of 38

listed) were located in the urban area of Tirana. Furthermore, in Albania is in use the *school performance card*, which mean that in the end of the scholastic year, schools are ranked based on 14 indicators (MoES, 2023, School Performance). One of them is "Percentage of graduates who meet AG criterion, to pursue studies in HEIs". In Tirana, out of 35 public upper secondary schools listed, 4 with the lowest values for this indicator are located in rural area of Tirana, such as Zall Herr, Shengjergj etc., while the best ones are located in the city center. So the explanations are two: 1. The Albanian national standards for schools' evaluation are not correct or at least are not at the level of those of PISA. 2. In the Albanian education system, cheating during an exam - whether at the classroom, national, or even international level - is not an uncommon occurrence, especially in smaller towns where everyone knows each other. Turning a blind eye when a student cheats during class is something that doesn't penalise the teacher, particularly when it comes to an international exam, which is both a matter of prestige and a reflection of the leadership of the education system, given my understanding of how the system works from the inside. The same thing happens with schools whose students are selected to participate in the PISA assessment: 'S. Frashëri' Gymnasium of Tirana is one of the best schools in the country, yet it is selected to take part in the PISA test almost every time Albania is scheduled to participate.

According to MoES, since 2008 the PISA demonstrated that the results of Albanian pupils are rather low, while compared to the load indicators for the OECD countries, the learning load of Albanian students is currently very high. 16 years after this statement, the results continue to be low.

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# Problematic behaviors and classroom management. Teachers' representations

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## Abstract

The current school system faces numerous challenges, including a growing difficulty among teaching staff in effectively educating and engaging new generations. Research highlights how many students struggle to acknowledge the school's educational and formative role. These challenges often manifest as delays, dropout, or school interruption, as well as in overt expressions of discomfort, ranging from aggressive behaviors to a broader and more hidden sense of juvenile malaise. Within this evolving context, it is crucial to examine how teachers' perceptions and representations shape their approaches to managing student behavior deemed inappropriate. To investigate this issue, an exploratory survey was conducted to understand the implicit constructs that influence teachers' thinking and, consequently, their daily practices in interpreting and addressing inappropriate behaviors among students across various school levels.

**Keywords:** problematic behaviours at school; classroom management; Inclusion; teacher's role; educational challenges.

## 1. Problematic behavior in the classroom between old and new educational challenges

Among the terms most commonly employed to examine today's educational and school contexts, "complexity" appears to be the most fitting word to capture a reality that, over time, has faced significant challenges, reshaping traditional models and frameworks.

This growing complexity is deeply rooted in the profound cultural, social, and organizational shifts that have redefined the landscape of education over the past few decades. From a cultural perspective, the globalization of knowledge and the increasing interconnection between different societies have significantly influenced the values, priorities, and expectations placed upon educational systems. The rise of digital technologies has not only transformed how knowledge is accessed and shared but has also redefined what it means to be an educated individual in the 21ˢᵗ century. Schools, once primarily focused on transmitting knowledge, are now tasked with cultivating critical thinking, adaptability, and intercultural competencies—skills that are essential in a rapidly changing, globalized world.

Therefore, it can be stated that nowadays the paradigm of "complexity" can be taken as the key to better understand the reality of schools, overwhelmed by a plurality of challenges, which have become increasingly complex over time. Specifically, many studies (d'Alonzo, Monauni, 2021; Tomlinson, 2016; Tomlinson, Murphy 2015) highlight, as part of the daily experience of many teachers, the perception of an increasing difficulty in building an appropriate educational context for learning.

The roots of this perception can be traced to several interrelated factors. Firstly, there has been a significant improvement in the ability to identify and diagnose specific learning difficulties and other challenges at an earlier stage. Advances in psychological, pedagogical, and medical research, coupled with the increased availability of assessment tools, have allowed educators and specialists to detect issues such as dyslexia, ADHD, autism spectrum disorders, and other conditions more effectively.

However, this focus on diagnostics also highlights the increasing diversity of student needs within classrooms. Modern schools are now microcosms of broader societal complexities, reflecting a wide range of cultural, religious, and social backgrounds. Migration, globalization, and the ever-changing societal landscape have brought together students with varied linguistic skills, cultural traditions, and value systems. For instance, students from immigrant families may face language barriers or cultural adjustment challenges, while others may struggle with socio-economic difficulties, family instability, or trauma. These factors create a plurality of needs that require nuanced and flexible approaches to teaching and classroom management.

Moreover, another notable aspect, particularly within the Italian educational system, is the specificity of its teacher recruitment process. In Italy, it is possible to temporarily assume a teaching role even in the absence of specific pedagogical training. This lack of mandatory pre-service preparation significantly complicates the effective management of critical situations in the classroom. Teachers often find themselves unprepared to address the diverse and complex needs of their students, which can amplify challenges related to problematic behaviors or learning difficulties. The absence of a solid foundational training in pedagogy, classroom management, and inclusive practices means that many educators are left to navigate these issues through trial and error, which may inadvertently exacerbate the challenges faced by both students and teachers.

Despite advancements in identifying and supporting diagnosed difficulties, there appears to be a parallel rise in behaviors that are deemed problematic but fall outside the scope of formal diagnostic categories (DSM 5-TR, 2022). These kinds of reactions, often described in psycho-pedagogical literature as "problematic," include issues such as persistent

disengagement, oppositional behavior, bullying, or classroom disruptions. Unlike diagnosed conditions, these attitudes are not necessarily rooted in neurological or developmental disorders but are influenced by a complex interplay of environmental, social, and psychological factors.

These situations give rise to significant challenges for educators, who are tasked with addressing a wide spectrum of needs while maintaining an inclusive and functional learning environment. Traditional behavior management approaches, such as punitive measures or zero-tolerance policies, are increasingly recognized as insufficient and, in some cases, counterproductive. Instead, there is a growing emphasis on adopting restorative practices, fostering emotional regulation, and building strong teacher-student relationships to address the root causes of problematic behaviors.

To address these challenges effectively, it is crucial to identify educational approaches and strategies that are both innovative and reflective of the evolving societal context. Such strategies must not only respond to the complexities of modern classrooms but also prioritize the cultivation of meaningful, high-quality teacher-student relationships, which are fundamental to any learning process.

Fostering these relationships requires educators to embrace practices that emphasize empathy, active listening, and mutual respect, creating an environment where students feel supported and understood. At the same time, leveraging contemporary methodologies, such as social-emotional learning frameworks and culturally responsive teaching, can empower educators to navigate the diversity and difficulties of their classrooms with confidence and care. By focusing on the relational foundation of education, schools can better equip students to overcome challenges and thrive in an increasingly complex world.

Furthermore, it may be useful to frame the issue of problematic behaviors within broader theoretical constructs such as ecological systems theory (Bronfenbrenner, 1979), which emphasizes the multiple, interacting layers of influence on student behavior. Likewise, contributions from attachment theory (Bowlby, 1988) and emotional intelligence frameworks (Goleman, 1995) offer valuable perspectives on the emotional and relational dimensions of behavior in school settings.

## 2. The role of representations in teacher's daily work

In analyzing the factors that contribute to understanding and managing classroom complexity, alongside the construct of individual and professional well-being, it becomes increasingly relevant to focus on the role of teachers' representations. These latter, encompassing perceptions, beliefs, and expectations that teachers hold about themselves, their students, and the broader educational context, gradually develop into entrenched mental frameworks. As Bandura (1997) suggests, these mental frameworks play a pivotal role in shaping teaching practices and influencing the overall effectiveness of both teaching and learning. The dynamics underlying the construct of social representation serve as crucial elements for analysis and discussion to better understand how certain school practices develop.

Social representations, as shared systems of beliefs, values, and norms that are collectively constructed and individually internalized, shape how teachers perceive and approach their educational environment. These representations influence not only how teachers interpret their roles and responsibilities but also how they engage with students, colleagues, and the broader school context. In the educational setting, social representations act as a framework through which teachers make sense of complex situations, guiding their decision-making

processes and shaping their pedagogical choices. For instance, a teacher's representation of what constitutes an "effective" or "inclusive" classroom environment will directly affect how they design learning activities, interact with students, and address challenges.

These representations can also influence the development of implicit biases or stereotypes, which may, in turn, impact the fairness and equity of teaching practices. Analyzing these dynamics provides valuable insights into the mechanisms by which certain practices become established and perpetuated within schools. These considerations are fundamental because they highlight how any attempt to innovate educational proposals or design fully participatory environments must inevitably engage with deeply rooted individual cognitive mechanisms. Teachers' mental models, formed through years of personal and professional experiences, cultural influences, and institutional norms, shape their perceptions of teaching and learning. These cognitive frameworks serve as a lens through which educators interpret new ideas, assess their feasibility, and decide whether and how to implement them in their classrooms. Specifically, the perceptions and representations that teachers hold play a pivotal role in shaping how they manage problematic behaviors in the classroom.

Teachers' perceptions of problematic behaviors often determine the strategies they employ. For example, a teacher who perceives disruptive behavior as a sign of defiance or intentional disrespect may adopt punitive or authoritarian measures to enforce discipline. On the other hand, a teacher who views the same behavior as a manifestation of unmet emotional or social needs may choose to investigate the underlying causes and apply restorative or supportive interventions. These contrasting approaches highlight how underlying representations can significantly influence the effectiveness of behavior management strategies.

There is a further element to be considered within this reflection. The production of new social representations acts as a balancing factor between tradition and innovation, between practices tried and tested in the past and new methodological perspectives, in a perspective of change that is not in total contrast to what has already been consolidated. The introduction of new ideas, devices and working perspectives frequently leads to the temporary destabilization of thoughts sedimented over time. It is therefore important to promote a pedagogical reflection on these issues that can accompany teachers in this process of change, linking innovation to a ground of pedagogical continuity and thus contributing to changing social representations around a given thematic focus.

In this regard, it is crucial for each teacher to be able to have dedicated spaces in which to exercise his or her own reflexive thinking/practice about daily experience in order to combine his or her own perceptions with those of other colleagues working in the same classroom. Structured opportunities, such as peer discussions, mentoring programs, or professional learning communities, can provide teachers with a supportive environment to share experiences, challenge one another's perceptions, and collaboratively develop new strategies. These spaces allow for a critical dialogue that not only facilitates individual growth but also contributes to the collective evolution of teaching practices and social representations within the institution.

In this way, reflexive thinking/practice becomes a tool for navigating the balance between tradition and innovation. It provides a framework for teachers to engage thoughtfully with new ideas, ensuring that they are implemented in a way that is contextually meaningful and pedagogically sound. Furthermore, it supports the development of a growth mindset (Dweck, 2017), encouraging educators to view challenges as opportunities for learning and adaptation rather than obstacles to overcome.

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## 3. Managing the problematic behaviors: an exploratory survey about teachers' perception and representations

In the light of the above considerations, it is therefore clear that there is a need to question the role that the teacher assumes in the classroom in terms of posture, ability to manage the group and establish effective educational relationships, in addition to mere didactic and methodological preparation. Especially, in recent years, the topic of problem behavior in the classroom has gained increasing attention, not only within schools but also in academic debates and educational policies. Teachers' difficulties in managing these critical situations are now recognized as a crucial factor that can significantly affect the school climate and the well-being of pupils and educational staff. The demand for classroom management training courses, especially in relation to educational and relational strategies for coping with complex and challenging situations, is also growing steadily, reflecting the pervasiveness of these issues at all levels of the school system.

The perception of what problematic behavior is can vary widely among teachers, depending on personal experiences, cultural expectations and school regulations. Often, this challenging attitude is associated with disruptive outbursts, aggression, rule transgression, or opposition to authority figures such as teachers.

However, there is also a growing recognition that this kind of actions may reflect states of psychological distress, emotional suffering, or implicit demands for attention and care. This ambivalence in the definition and perception of critical behavior implies a significant challenge for educators, who must balance the need to maintain order in the classroom with the goal of supporting students' emotional well-being.

The exploratory survey conducted by the CeDisMa fits into this context. The questionnaire used, structured in 17 multiple-choice items, was designed to detect the participants' perceptions and representations of problem behavior in the school environment. To ensure broad participation and easy accessibility of the tool, the Google Forms platform was used. The collected data were subsequently analyzed using descriptive statistical techniques to identify key trends in participants' responses. In addition, qualitative analyses were carried out to examine the open-ended responses and identify emerging themes regarding the definitions of challenging behavior and management strategies adopted by teachers.

The sample consisted of 308 subjects, with a clear majority of female teachers (93.2%). This result reflects a predominantly female representation in the teaching profession, which is consistent with broader trends in education, particularly in early and primary schools, where female educators are historically overrepresented. Moreover, the largest group consists of individuals aged 46-55 years (31.8%), followed closely by those in the 36-45 age range (30.8%). This indicates that most participants belong to mid-career professionals who have substantial teaching experience and are likely to be well-established in their roles. The smallest group is those over 55 years old (15.3%), indicating a lower presence of educators in the late-career phase.

The composition of the sample was homogeneous in terms of age and years of service, while presenting some inhomogeneity in terms of gender and educational qualification. This heterogeneity makes it possible to explore a wide range of perceptions and professional experiences, offering a diversified representation of opinions and educational practices in relation to the management of problematic behavior.

The high percentage of university degree holders (77.3%) also highlights the growing professionalization of the education sector, with formal academic preparation becoming increasingly necessary. In terms of teaching experience, the data indicates a fairly balanced distribution: the largest group (26.6%) consists of teachers with 6-10 years of experience,

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suggesting a significant portion of mid-career professionals who have gained knowhow but are still in a phase of professional growth and adaptation. Interestingly, 63.3% of the respondents reported observing more problematic behavior among male students.

The results reveal a number of common perceptions among education professionals. The majority of participants indicated 'rule breaking' as the most frequent problem (101 choices) in managing classroom, followed by 'oppositionality/provocation towards the teacher' and 'violent actions' (60 choices). These kinds of attitudes were also perceived as the most complex to manage and the ones causing the most distress among teachers, who were asked to express their perceptions in relation to certain problematic behaviors by evaluating the three parameters of frequency, complexity and discomfort.

However, significant differences emerged with regard to other types of behavior, such as 'self-harming behavior' (8 choices), which, although less frequent, was rated as extremely complex and a source of considerable distress. With respect to the latter, it is worth emphasizing that 91 teachers expressed great discomfort caused by it. In terms of coping strategies, teachers reported a variety of approaches, including the use of punishments, asking others to intervene, involving the class in collective discussions, and having individual conversations with the pupil to understand the underlying causes of the behavior. Interestingly, there is an emerging preference for non-punitive educational approaches that emphasize dialogue, listening and mutual understanding, rather than the adoption of rigid disciplinary measures. This trend suggests a movement towards a more empathetic and reflective approach to managing problematic behavior that considers the emotional complexity of students.

A key aspect to consider when analyzing classroom dynamics is teachers' perceptions of the underlying factors contributing to arise critical behaviors among students. The data highlights a strong emphasis on emotional and communicative difficulties, suggesting that many behavioral challenges observed in the classroom are rooted in students' struggles with emotional regulation and social interaction. Although the survey cannot be considered representative, also due to a non-probabilistic sample, the data reported initiates an initial interesting reflection on a subject that has become very important over the years, not only in terms of classroom management strategies, but also in terms of the design of learning processes.

These findings align with the theoretical perspective that behavior is often a communicative act, as suggested by psychoeducational models such as those of Fedeli (2020) and Lambruschi & Piro (2024), which highlight the importance of interpreting student behaviors as signals of unmet needs. Similarly, the emphasis on non-punitive strategies echoes the principles of restorative practices and social-emotional learning (CASEL, 2020; Burrus, J., Rikoon, S.H., & Brenneman, M.W., 2022), supporting the idea that relational approaches foster a more inclusive classroom climate.

## 4. Emerging reflections and new horizons

The survey results, presented in partial form in this contribution, suggest several implications for teacher training. Firstly, the need emerges to develop training programs that go beyond the mere transmission of immediate coping strategies for managing challenging situations and that promote a deeper understanding of the underlying psychological and social dynamics. The ability to critically reflect on one's own educational practices, to share experiences with other teachers and to adopt a flexible and adaptive approach to classroom

management represent fundamental competences that should be at the core of educators' initial and ongoing training.

A crucial element in addressing challenging and problematic behaviors in the classroom is the development of teachers' reflexivity, which allows educators to continuously analyze their perceptions, beliefs, and strategies. Reflexivity is not just a theoretical construct but a practical skill that enables teachers to shift from reactive responses to proactive, student-centered approaches. When teachers engage in reflexive practices, they can better recognize how their own biases, expectations, and emotional responses shape their interactions with students, influencing classroom dynamics and behavioral outcomes. For this purpose, structured opportunities for professional reflection should be incorporated into teacher training, both at the pre-service and in-service levels. Reflective practices, such as peer discussions, and case study analyses, encourage teachers to examine their decision-making processes and consider alternative approaches to managing classroom challenges. Moreover, collaborative learning environments, where teachers can share experiences and insights, contribute to the creation of professional communities of practice (Wenger, 1999) that support continuous learning and adaptation. The concept of the community of practice has been studied in particular by Wenger, Lave, and a group of other scholars who have explored the influence of the social matrix on learning processes and, in general, of learning as a process of social participation. According to these studies, learning cannot be reduced to a purely individual endeavor; rather, it must be understood as a phenomenon that involves a process of co-participation and co-construction of knowledge, in which social dynamics and cognitive processes not only influence each other but also merge in a meaningful way.

This has fundamental implications for identity formation: learning together and thanks to others means modifying oneself, as individuals become part of a collective. Within this collective, one assumes a role, contributes ideas, and simultaneously acquires new skills and adopts different behavioral models that emerge and take shape through meaningful relationships with others (Wenger, McDermott, Snyder, 2002).

It is therefore evident how this type of approach can influence the way a group of teachers takes responsibility for and makes decisions following the emergence of problematic behaviors exhibited by students in a classroom.

This article is part of these reflections and also tries to identify possible future research directions. In particular, the data collected show how teachers perceive emotional fragility and communicative difficulties as major contributors to problematic behaviors. This reinforces the need for teacher training programs to integrate reflexivity with emotional intelligence (EI), ensuring that educators are not only aware of their own perceptions and biases but also equipped with the skills to recognize and respond to students' emotional and communicative needs. Emotional intelligence plays a crucial role in fostering empathetic, responsive, and inclusive classroom environments, where teachers can de-escalate conflicts, support emotional regulation, and create stronger teacher-student relationships.

In addition, the challenge of managing problematic behaviors in the classroom cannot be addressed through isolated interventions. A holistic approach, that integrates reflexivity, emotional intelligence, trauma-informed practices, sociocultural awareness, and technological advancements, is essential. Future research could examine comprehensive training models that combine these elements, assessing their effectiveness in reducing teacher burnout by providing educators with sustainable behavior management strategies; in improving student outcomes, particularly for those with behavioral and emotional difficulties; in enhancing teacher-student relationships, fostering a more inclusive and responsive educational environment.

By continuing to explore these areas, researchers and educators can build a knowledge base that supports teachers in navigating the complexities of modern classrooms, ensuring that training programs remain dynamic, evidence-based, and responsive to the evolving needs of students and educators alike.

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# Teaching and learning challenges and professional development

# Attitudes of Humanities Students and Aspiring Teachers Toward Quantitative Educational Research: An Introductory Study

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## Abstract

This study explores the attitudes of humanities students, aspiring teachers enrolled in a master's degree program focused on teaching, towards educational research methods courses. Using Papanastasiou's (2005) scale, the study compared attitudes between students who attended traditional lectures and exercises and those who participated in practical research labs. The results indicate that students involved in research labs demonstrate more positive attitudes and a greater awareness of the value of educational research. However, both groups share common anxieties about the challenges associated with research. The study highlights the need to integrate more practical opportunities to foster a positive view of research among future humanities teachers.

## 1. Introduction

Despite the acknowledged importance of educational research in the preparation of competent teachers, negative attitudes towards research often emerge among future teachers. They often perceive educational research as complex and uninspiring (Papanastasiou, 2005) and find it difficult to understand its relevance to their professional practice. Indeed, indicating a potential deficiency in the initial training they receive, pre-service teachers also encounter difficulties in translating the findings of scientific research into tangible improvements in their pedagogical approaches (Margiotta, 1999; Impedovo et al., 2016).

European policies have sought to enhance the role of universities in promoting scientific research, with the objective of consolidating the European Union as a global leader in knowledge. In response to this situation, European universities have incorporated research courses into their academic programmes. Nevertheless, there is considerable variation in the level of commitment and the quality of training in this area, particularly in initial teacher training programmes (van der Linden et al., 2012). The incorporation of research training is regarded as a pivotal element in fostering a critical and reflective approach to educational practice (Hall, 2009), enhancing professional knowledge (Ponte et al., 2004), furnishing evidence on efficacious teaching strategies (Hattie et al., 2019) and facilitating the translation of research findings into tangible improvements (Papanastasiou, 2005).

The literature review reveals a noticeable lack of studies focusing on Humanities Masters students enrolled in teacher education programmes. In particular, there is a lack of research that thoroughly investigates differences in attitudes towards research among these students, especially those without previous training in pedagogy and education. Furthermore, there is a paucity of research that explores the impact of different teaching methods applied in educational research courses on students' attitudes towards the discipline (Earley, 2014; Matos et al., 20-23). This gap in the literature highlights the need for further research to better understand how to effectively support and engage humanities students in educational research, particularly in the context of initial teacher education.

The present study seeks to address the above shortcomings by investigating the influence of an educational quantitative research course on students' attitudes. It aims to contrast the attitudes of two groups of students: those who only participated in lectures and exercises (from now on, as an exercise group) and those who additionally engaged in hands-on workshops on authentic case studies (from now on, as the laboratory group). The research questions that inform this study are as follows: What are the differences in attitudes towards the study of educational research between students in the exercise group and students in the laboratory group? What are the differences in attitudes towards the practical application of educational research in professional contexts between students in the exercise group and students in the laboratory group? Are there significant differences in attitudes towards educational research, both positive and negative, between students in the exercise group and students in the laboratory group?

The hypothesis that guides this research is that developing an appreciation of research requires not only time and theoretical study, but also, and more importantly, the practical application of research on real educational cases. The objective of this study is to provide valuable insights that can be used to enhance the design of educational research courses, with the ultimate goal of training teachers who are better prepared and motivated to integrate research into their future professional practice.

## 2. Research literature

An analysis of the literature shows that most publications on the teaching of educational research focus mainly on scientific and educational fields, such as mathematics, natural sciences and linguistics (in the context of teacher training), or on social science disciplines, such as sociology, psychology and education, where the teaching of educational research methods is considered an essential part of the curriculum. On the contrary, there is a considerable paucity of studies devoted to teacher education programmes in the humanities, highlighting a significant gap in the literature regarding the preparation and support of these students in the acquisition of educational research skills.

The results show that students in initial teacher education often have negative attitudes towards educational research methods, which are perceived as distant from their future study and career prospects (Papanastasiou, 2005). This lack of interest is further confirmed by Earley (2014), who reports a low propensity of students to consult research sources, especially when they do not perceive their practical benefits.

Another important aspect concerns students' perceived lack of connection between research methodology courses and their professional aspirations in teaching (Matos et al., 2023). Students often believe that research is a complex and time-consuming activity (Moberg, 2019). Mante et al. (2018) highlighted that during initial teacher education, prospective teachers from humanities backgrounds had more negative attitudes towards research than their counterparts from science backgrounds. This suggests that greater exposure to research during previous studies may foster more positive attitudes (Butt et al., 2013). Indeed, postgraduate students tend to have more favourable perceptions of research, perhaps due to greater exposure and practice during their studies, as noted by Maqsood et al. (2019).

Many students experience anxiety about research methods courses (Bolin et al., 2012), and negative attitudes can hinder learning and affect performance in subsequent modules (Papanastasiou, 2005). However, positive attitudes towards research can improve internal motivation, while active involvement in research projects tends to reinforce these attitudes (Earley, 2014).

The literature review shows that there is a lack of specific information on the attitudes towards educational research of students in humanities master's programmes with teaching-oriented curricula. Therefore, this study aims to contribute to the understanding of such attitudes and to explore whether practical activities, such as laboratory, can positively influence students' perceptions of educational research. The ultimate aim is to address the gaps identified in previous literature reviews (Earley, 2014; Matos et al., 2023) and develop educational interventions to improve these attitudes.


## 3. Methods and instruments

This study investigates the influence of an educational research course on students' attitudes towards educational quantitative research using an adapted version of Papanastasiou's (2005) Attitudes Towards Research (ATR) scale. The scale was modified to better reflect the context of the teaching-oriented Master's programme by organising the items into three main categories: attitudes towards the study of educational research, practical application of research in the professional field, and positive and negative attitudes towards research.

1. Attitudes towards studying educational research: this dimension analyses students' perceptions of the relevance and usefulness of research in their academic careers and assesses their interest in learning research methods.

2. Attitudes towards the application of research in the professional field: this dimension explores the link between educational research and students' future professional practice, looking at how they view the use of research in solving teaching problems and improving teaching practice.

3. Positive and negative attitudes to research: the third category distinguishes between positive attitudes, such as interest and emotional involvement, and negative attitudes, such as anxiety, fear and perceived difficulty, towards educational research.

The adaptation of the scale included a reformulation of the items to emphasise students' perceptions of the relationship between educational research and their educational and professional future. The items were changed from generic to personal wording to encourage more authentic responses based on individual beliefs. The questionnaire used has 22 items, compared to 32 in the original, excluding items related to mathematics and statistics, which are not relevant to the course.

A five-point Likert scale from 'strongly disagree' to 'strongly agree' was used to measure responses. Prior to completion, participants provided demographic information such as gender, age, native language, occupation, career aspirations, and participation in other research methodology courses.

## 4. Participants and results

### 4.1 Participants
Twenty-nine out of 37 students enrolled in the Educational Research course voluntarily completed a self-administered questionnaire at the end of the course (response rate: 78.4%). Participants' mean age was 24.1 years (SD = 3.1); 86.2% were female (n = 25) and 13.8% male (n = 4). Most students (89.7%) aimed to become secondary school teachers, while the remainder (10.3%) considered alternative careers. None had prior experience with research courses or educational research. Based on course activities, students were divided into two groups: the exercise group (62.1%), who attended lectures and exercises only, and the laboratory group (37.9%), who also participated in a practical research lab. This grouping enabled comparison of attitudes toward educational research between the two groups.

### 4.2     Reliability and normality analysis of the sample
To assess the reliability of the questionnaire, Cronbach's alpha was calculated. The overall internal consistency was excellent ($\alpha$ = 0.936 for all 22 items). Reliability for individual subscales was also satisfactory: attitudes toward research study ($\alpha$ = 0.787), attitudes toward research in teaching ($\alpha$ = 0.959), positive attitudes ($\alpha$ = 0.892), and negative attitudes ($\alpha$ = 0.929).
Given the small sample size (<50), the Shapiro-Wilk test was used to check data normality. Results confirmed a normal distribution (p = 0.257).

### 4.3     Analysis of total questionnaire responses by laboratory and practice groups
To examine differences in attitudes towards educational research between the laboratory and exercise groups, we conducted a series of t-tests. Overall, the laboratory group showed significantly more positive attitudes (M = 3.87, SD = 0.27) compared to the exercise group (M = 3.02, SD = 0.82), with a t-value of 3.292 and a p-value of 0.003. The 95% confidence interval for the difference between the means ranged from 0.321 to 1.38, allowing us to reject the null hypothesis of no difference.
When looking specifically at attitudes toward studying educational research, the laboratory group again scored higher (M = 4.06, SD = 0.25) than the exercise group (M = 3.08, SD = 0.75). This difference was statistically significant, with t(27) = 4.113 and p < 0.001, and a 95% confidence interval between 0.490 and 1.466.
Similarly, attitudes toward the teaching profession were more positive in the laboratory group (M = 4.13, SD = 0.60) than in the exercise group (M = 3.05, SD = 1.10), with a significant difference indicated by t(27) = 2.956, p = 0.006, and a confidence interval from 0.328 to 1.821.
Positive affective attitudes toward research also differed significantly between groups. The laboratory group reported higher scores (M = 3.90, SD = 0.63) compared to the exercise group (M = 2.87, SD = 1.07), with t(27) = 2.892, p = 0.007, and a confidence interval ranging from 0.300 to 1.767.
In contrast, negative attitudes toward research did not differ significantly between the two groups. The laboratory group's mean was 3.40 (SD = 0.82), while the exercise group's mean was 3.03 (SD = 1.21). The t-test yielded t(27) = 0.879 with a p-value of 0.387, and the confidence interval (−0.489 to 1.222) included zero, indicating no significant difference.
These findings suggest that participation in the practical research laboratory is associated with more positive attitudes toward educational research, while negative attitudes remain similar regardless of group.

## 5. Discussion

The questionnaire results reveal clear differences in attitudes toward educational research between students who participated in the practical laboratory and those who only attended exercises. While both groups share some negative perceptions, the differences highlight the complexity of students' views on educational research, consistent with previous studies (Papanastasiou, 2005; Moberg, 2019; Maqsood et al., 2019).
The laboratory group showed a higher overall mean attitude score (3.87) compared to the exercise group (3.02), indicating greater awareness and appreciation of educational research. This score is

slightly higher than those reported by Papanastasiou (2005). Moreover, the laboratory group's responses were more consistent, as reflected by a lower standard deviation (0.27 vs. 0.82), suggesting more homogeneous opinions likely influenced by their hands-on research experience, as supported by earlier research (Papanastasiou, 2005; Moberg, 2019; Maqsood et al., 2019).

Specifically, the laboratory group rated the importance of educational research significantly higher (4.64 vs. 3.22), reflecting stronger motivation and conviction about learning and applying research methods. They also perceived research as more useful (4.45 vs. 3.00), exceeding expectations from previous studies. Interestingly, the laboratory group showed a slightly lower tendency to consult research articles than the exercise group (3.09 vs. 2.78), a finding aligned with Earley's (2014) observations.

Both groups agreed that educational research is underutilized in their pedagogical studies, pointing to a gap between theory and practice. This underscores the need to better integrate research concepts into teacher education curricula to bridge this divide.

In the area of 'Research and the profession,' the laboratory group expressed a stronger inclination to apply research in their future teaching practice (4.45 vs. 3.00), despite some reported difficulties in accessing scientific literature (Maqsood et al., 2019). Both groups recognize the value of research in teaching, but the laboratory group's greater confidence supports Ponte et al.'s (2004) idea that sustained exposure to scientific foundations improves attitudes toward research.

Regarding emotional responses, the laboratory group demonstrated more positive feelings about educational research than the exercise group. However, both groups experienced similar levels of anxiety and negative emotions related to research, highlighting the emotional challenges students often face, as noted by Bolin et al. (2012) and Papanastasiou (2005).

Overall, these findings suggest that while practical laboratory experience fosters more positive and confident attitudes toward educational research, significant barriers remain. Anxiety, perceived difficulties in engaging with research, and challenges in consulting academic papers continue to affect students. Addressing both motivational and emotional aspects is essential to support future teachers in developing a balanced and resilient approach to educational research.

## 6. Conclusion

This study confirms and expands on findings from the literature regarding the attitudes of humanities students towards educational research. As highlighted by previous studies (Papanastasiou, 2005; Earley, 2014; Matos et al., 2023), students in initial teacher education programs often hold negative attitudes towards educational research methods, perceiving them as distant from their professional aspirations and of limited relevance to their future careers. This perception is particularly pronounced among humanities students, a group that has been underrepresented in the literature compared to those in scientific and social science disciplines.

The results of this study indicate that incorporating practical laboratories into educational research courses can positively influence these attitudes. Students who participated in the laboratory showed greater awareness and motivation towards research, confirming the importance of active and direct engagement, as suggested by Earley (2014) and Moberg (2019). This practical experience appears to foster more cohesive opinions and a more positive attitude, although challenges related to anxiety and perceived complexity remain, as noted by Bolin et al. (2012).

A crucial finding is the widespread perception of a lack of integration between pedagogical course content and educational research. Students perceive pedagogical courses as overly theoretical and insufficiently connected to concrete examples and case studies, which may limit the effectiveness of learning and motivation (Matos et al., 2023). Strengthening the links between scientific literature and teaching could help develop a more scientific and critical approach, similar to that found in disciplines such as psychology, science of education, and sociology (Papanastasiou, 2005).

Among the main limitations of this study are the small sample size and the homogeneity of the groups, factors that may have affected the validity and generalizability of the results. Additionally, variability in context and differences in students' understanding of the questionnaire items may have introduced further uncertainties in the data collected. To overcome these limitations, future research

should adopt a mixed-methods approach, integrating in-depth qualitative analyses such as interviews or focus groups to enrich understanding of students' perceptions of educational research (Maqsood et al., 2019; Moberg, 2019).

Despite these limitations, the study highlights the potential of hands-on laboratory activities to foster more positive and engaged attitudes toward educational research among humanities students. Even brief and limited exposure to research, supported by a small number of academic publications in their field, can have a significant impact on teacher training, as also suggested by Ponte et al. (2004).

To improve the effectiveness of educational research training, it is essential to design integrated and interdisciplinary curricula that combine practical experience, emotional support, and explicit connections to scientific literature. Only in this way will it be possible to prepare future teachers who are more aware, motivated, and capable of using research as a fundamental tool in their professional practice.

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# Global awareness and professional teacher competence through student mobility from Norway to Zambia

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## Abstract

This paper is part of the project "Teacher in a Globalized World", where we, through qualitative interviews, analyse the long-term effects at least five years after their student mobility from Norway. At Western Norway University of Applied Sciences, teacher students have been privileged to study Global Knowledge, a 30 ECTS subject, as part of their teacher education. How do five Norwegian teachers describe their professional development and global perspectives as teachers many years after a three-month stay in Zambia as part of the subject Global Knowledge? Some key findings include the importance of relationships, intercultural communication, the positions as Norwegians and global awareness as professional teachers today.

**Keywords:** student mobility; Norway; Zambia; global awareness and professional teacher.

# 1. Background and introduction

This article is part of the project "Teacher in a Globalized World. Long-term Impact of International Practicum on Teacher's Professional Development" (LIP), which includes five teacher education institutions in Norway. Through a minimum of five qualitative semi-structured interviews each, we investigate the long-term impact on student mobility. This paper is based on the experiences of former teacher students from Western Norway University of Applied Sciences and their long-term impact after a three-month stay in Zambia.

The Norwegian educational core curriculum is based on core values such as human dignity, identity, and cultural diversity, critical thinking and ethical awareness, the joy of creation, engagement, and the urge to explore, respect for nature and environmental awareness, as well as democracy and participation (Kunnskapsdepartementet, 2020). Can student mobility be a strategy to equip teachers to be professional teachers following our curriculum?

Since the first government white paper on internationalisation in higher education in Norway was published (St.meld. nr. 14 (2008–2009)), the national educational authorities have emphasised the importance of internationalisation and student mobility. While the first white paper in 2008 argued for student mobility from the Global South as part of a global responsibility to reach our shared goals, which allowed us to invite about ten students from Zambia each year to our program, the arguments in 2020 (Meld. St. 7 (2020–2021)) emphasised student mobility from Norway to enhance global awareness, motivation, work relevance and personal growth (Bergersen et al., 2022, Massao & Bergersen, 2024). It is argued that exposing students to an international setting abroad can increase (a) students' intercultural competence, (b) students' global awareness, and (c) the quality of the educational programme. (Meld. St. 7 (2020–2021)). As a result of Norway's policy on internationalisation in higher education, we developed a tailor-made subject, Global Knowledge, for students to acquire intercultural competencies, professional skills, and global awareness.

Through the elective subject Global Knowledge (30 ECTS), Norwegian and Zambian teacher students, preschool teachers, and social workers have yearly from 2008 to 2016 done a course with four weeks of theoretical and practical preparations, a three-month internship in Zambia/Norway and two weeks of reflections and summing up after their stay abroad. As a shift in Norwegian policy, Zambian students were no longer granted, and the program continued with Norwegian students only from 2017 to 2025. Some of the long-term impacts of student mobility on Zambian teachers in Norway are published in Bergersen & Muleya (2019). This project is based on interviews conducted with Norwegian students at least five years after they spent time in Zambia. All participants completed the course alongside Norwegian and Zambian students in the same classroom.

The learning outcomes in Global Knowledge are, among others, (a) To develop global awareness through global perspectives, (b) To be able to communicate interculturally and reflect on your background and (c)To be able to implement experiences abroad professionally. While in Zambia, they undertake 4 to 6 weeks of teaching practice, fieldwork, and empirical data collection for their projects and attend lessons and discussions with local lecturers, students, and mentors. Research on the impact of student mobility has emphasised surveys and interviews with students shortly after they mobility abroad (Bergersen et al, 2022; Vande Berg et al., 2012), as illustrated in the different articles in Bergersen et al (2022) about student mobility among teacher students in Norway and my research on former Global Knowledge student after their stay in Zambia (Bergersen, 2013; 2017; Bergersen & Massao, 2022) and Zambian students after their stay in Norway (Bergersen, 2017, Bergersen & Muleya, 2019). Generally, students express personal growth and a reframing of their perspectives. Still, in this project, we aim to delve deeper into the impact of their international stay as teachers after a few years, when the initial excitement has waned. Do they shift perspectives from the individual to the school and societal levels over time, as Zambian students did in research on the short-term and long-term impacts of student mobility?

My research question is*: How do five Norwegian teachers describe their professional development and global perspectives as teachers 7-12 years after three months in Zambia as part of the subject Global Knowledge?*

## 2. Methodology

We employed a qualitative interview research design (Creswell & Creswell, 2018). Researchers from five Universities in Norway developed a joint, semi-structured interview guide comprising 15 questions to facilitate comparisons and independent research from each institution. As a team, we have conducted 25-30 interviews following the same interview guide, with the following main topics: descriptions of the most critical impact of the stay and teaching practice abroad, how the stay has influenced the teaching about global and intercultural questions, and how they think their stay in Africa has made them better professional teachers. We asked them to provide examples of substantial experiences they recall today as essential and describe if and how they have reframed their perspectives.

This paper is based on five individual interviews with Norwegian teachers and former Global Knowledge students who spent three months in Zambia. In February 2023, I conducted five digital interviews via Zoom, each lasting between 45 and 90 minutes. The selection criteria were former teacher students with teaching experience in Africa and at least five years of teaching experience in a Norwegian school. Only five former students were qualified, and fortunately, they all agreed to be interviewed and share their experiences with me. As a lecturer for the same teachers, I had to consider ethical aspects and a power imbalance during the interviews. I highlighted listening to their interpretations and experiences as thick descriptions. Consequently, some of the interviews lasted longer than planned.

The respondents are five female teachers with five to ten years of experience. They had their mobility to Zambia from 2012 to 2016, and all of them had fellow students from Zambia in their program in Norway. They are all in their late twenties to mid-30s and teach Languages (4), Social sciences (3), Religious studies (3), Maths (2), and Physical Education (3) from grade 6 to grade 11. The interviews were recorded and transcribed into text. The anonymity of the participants is valued, and contextualised quotes are reformulated and translated into English.

In our joint project, we analysed our data using Wilson's (1993) model of international experiences adjusted to teachers and professional development. Wilson's model identifies substantive knowledge and perceptual understanding as key components for gaining global perspectives, as well as fostering personal growth and intercultural connections to develop *self and relationships*. I have revised the model to make it more relevant to teachers and student mobility today. In a proposed new model, gaining *global awareness* encompasses key elements, such as perceptual understanding and ethical responsibility. *Developing global responsibility as a professional teacher* requires intercultural communication and professional development. See Table 1 for more details.

| Global awareness/ Professional teacher | Perceptual understanding | Ethical responsibility |
|---|---|---|
| Intercultural communication | Context and social structures | Power, position and dignity |
| Professional development | Reframing perspectives | Prejudice, SDGs, decolonial |

*Table 1: global awareness and professional teacher*

Based on Wilson (1993) and my revised model, the data were analysed, and two key areas of teachers' *global perspectives and awareness* were identified: their position as Norwegian students in Zambia and new reflections on Norwegian cultures. In analysing *professional teachers' competencies*, key areas were relations and communication, global responsibility as a teacher, and acknowledging diversity.

## 3. Theoretical framework

Recently, Norwegian research (Klein, Bergersen & Larsen, 2022) suggests that Norwegian teacher students experience personal growth and increased reflection shortly after their student mobility to African countries. Global awareness and more profound reflections on power imbalance and white privilege are rare, with a few exceptions (Bergersen & Massao, 2022; Juul-Wiese & Adriansen, 2019; Massao & Bergersen, 2024). This paper incorporates decolonial perspectives (Mbembe, 2022; Mignolo, 2021) to shed light on colonial structures, power imbalances, and the question of whether and how students can disrupt a colonial mindset and Western hegemony (Quijano, 2000). The Colonial Matrix of Power (CMP), as described by Quijano (2000, p. 256), is a system of power that represents the extension of Western domination through four interrelated domains: economy, authority/politics, gender/sexuality, and *knowledge*. The CMP is often forged into educational concepts, such as modernity, humanity, development, and democratic ideologies; in a neoliberal way, Western ways of knowing continue to occupy the master, superior, and central positions. Decolonial theories of position and white privilege (DiAngelo, 2011) are also added to analyse Norwegian students' roles in Zambia and their reflections as teachers many years later. In another project using decolonial lenses, Massao and Bergersen (2024) emphasise the voices of colleagues in Zambia who receive Norwegian students and their critical perspectives on privileged white Norwegian students, as well as how student mobility can be a form of what Lessenich (2019) describes as *global recreation colonialism.*

A didactic and educational perspective has been added, incorporating Klafkis's (2014) theory on Bildung, which emphasises self-awareness, independence, citizenship, and solidarity as key elements for both learners and teachers. This also aligns with critical pedagogy and Freire's (2000) theory, which emphasises thinking with and not for, and how false generosity from North to South often reproduces colonial structure even when intentions are good. Reframing perspectives and being aware of ethical and global injustices as professional teachers, the pedagogy of discomfort (Boler & Zembylas, 2003) and the willingness to view education as a risk (Biesta, 2014) are also integral to the theoretical framework presented in this paper. According to Portera (2021), a "cultural" shift in the minds of teachers and students is necessary for acknowledging diversity. Do our students acknowledge diversity and pluriversal knowledge (Mbembe, 2022; Naudé, 2019) and act as globally responsible teachers after teaching experiences in another context?

## 4. Findings and discussions

Empirical data from five respondents are analysed using a revised model of global awareness and responsibility as a professional teacher, along with my research question and theoretical perspectives.

### 4.1. Global perspectives and awareness as teachers

In analysing the transcripts of data from five interviews, two main areas will be presented as key to how they portray their reflections on global awareness as teachers some years after they left Zambia. The first is their position as Norwegian students in Zambia, and the second is their new reflections on Norwegian cultures and pluriversal worldviews.

They all recalled experiences and reflections on being different from the majority, and some reflected on their privileged position as white and Norwegian. Some quotes can illustrate their reflections. Like teacher 1: "One of the things I still remember as important is *the experience to be different.* That helps me to understand how minorities can experience being in Norway". Teacher 5 also mentions being different, but she had another reflection: "We could visit nice hotels, and I felt bad that we were privileged to do something very few Zambians could afford to do". Teacher 3 remembered how schools were more hierarchical, with

strict roles and respect, and her experience reflected this: "I learnt to be humble and less know-it-all as I used to do. That gave me a deeper understanding of my position as a Norwegian student and differences in how we communicate".

Both teachers 3 and 4 explicitly mentioned being a white student in Zambia, and teacher 3 described her experiences like this:

> «I can still recall my bodily experience to be white and different. I felt guilty for having access to so many materialistic things and being so privileged when I was there, but I still, 10 years later, reflect on global injustice and how I, as a teacher, can make a difference. Returning to Norway was difficult; after opening your eyes, you can't close them when you reflect on global injustice and how we in Norway behave. »

Similarly, teacher 4 described her reflections on being white:

> «I still remember the discomfort of being white; they called us Muzungu, and we discussed what that meant, positively and negatively. To be white and different, you could never hide; all you did could be seen. On the other hand, we felt we were looked up to and were responsible for being good role models even though we didn't want them to copy us. »

This aligns with DiAngelo's (2011) and Bergersen and Massao's (2022) discussions of how white privilege is often neglected or denied as relevant to majority members. However, as experiencing being a minority, awareness of positions and white privileges might appear essential and can lead to the reframing of perspectives and disclosing global injustice.

Another key finding is how they, after many years, reflect on Norwegian cultures and worldviews. They all mention how their perspectives have shifted from viewing Norwegian society and culture as superior to reflecting on how this harmonious image is cracking in contrast to another culture. The teachers reflected on how Norwegian society emphasises materialism and self-centeredness in contrast to collectivistic hospitality and humanity. Some quotes can illustrate their reflections today: Teacher 1: "Norway is so materialistic; I try to consume less and repair things as they did". Teacher 4 incorporated a more decolonial aspect and global awareness by saying, "I feel a bit sick being here at the top of the "money mountain", knowing we have and still do exploit the resources in Africa." Teachers 4 and 5 reflected on what we can learn from other cultures when teacher 5 mentioned: "The hospitality we met is rare to find in Norway, the Ubuntu philosophy and how much they care of us all. We are too self-centred in Norway", and teacher 4 followed up with:

> «The importance of hospitality for society is to take time to see people around you. Also, to see the importance of respect as care, to acknowledge wisdom and knowledge in contrast to the freedom and minimum of rules in school and society for Norwegian learners. »

The same teacher also reflected:

> «Seeing corruption in Zambia made me more aware of the corruption in Norway as well. Still, we don't talk about it here. »

From the teachers' reflections, reframing their perspectives allows them to see Norway, Zambia, and global student mobility as more than just individuals communicating in classrooms. At least three teachers can reflect on how societies are structured, how core values such as togetherness in Ubuntu (Naudé, 2019) contrast with Western rational hegemony (Mbembe, 2022; Bergersen, 2017), and how the colonial matrix of power (Quijano, 2000) continues to create global injustices. How do such insights and global awareness influence their role as teachers in Norwegian classrooms?

## 4.2. Professional teacher competencies

All five teachers emphasised intercultural communication as one of the most essential competencies they achieved and skills they use as professional teachers today. Teacher 2 expressed:

«Communication and relations are key elements of being a professional teacher. I did not learn much about it in my teacher training, so I am glad we had both intercultural communication theories and practice in Global Knowledge. As a teacher, I utilise this competence daily. »

Teacher 4 recalls: "I still remember the importance of communication, dress code and respect in different cultures and how we discussed this in the classroom in Norway with the Zambian students before and after we travelled," and teacher 3 said: "I learnt the importance of communication, verbal and non-verbal and how to dress and I am not wearing any short skirts anymore as a teacher since I know many can be offended". Teachers also reflect on how they need intercultural communication competence to cooperate professionally with all parents, colleagues and learners in multicultural schools. As teacher 1 said: "We have experienced being in a new context, not understanding their local language or norms, so we are more aware of our body language and time spent to explain things properly".

Intercultural communication is a key element of being a professional teacher. It is more than communication, dress code, and awareness of a Norwegian low-contextual communication style. Being globally aware of the power imbalance, social position, and access to free speech at both individual and societal levels is an essential skill for any teacher. Experience firsthand in a Norwegian classroom with fellow Zambian students and later in Zambia during their three-month stay, being ignored as a young female student, and observing how hierarchical structures are reproduced through communication has given them cause for some critical reflection. Teacher 1 emphasises the importance of not taking democracy, gender equality, a welfare state, and the ability to speak in public for granted.

Have their experiences in Zambia been eye-opening in terms of being globally responsible, ethical, and a changemaker? From analysing their answers, it becomes clear that few teachers can provide adequate examples of didactics built on Bildung, as Klafki (2017) refers to it, which emphasises solidarity, self-awareness, and global citizenship, potentially leading to learners and teachers becoming change agents for a more socially just and sustainable world. Teacher 4 said:

«I use my world perspective to help my learners to think more globally than locally to reduce their self-centredness. I discuss coloniality with my Grade 6 learners, and it is my responsibility as a teacher to disclose our colonial history. »

Teacher 1 emphasises: "It is important for me as a teacher to give my learners different perspectives and be aware of sustainable development. We all have different experiences, and tolerance is the key." She addresses both global awareness and the importance of embracing diversity, implementing this in Norwegian classrooms in line with decolonial perspectives (Mbembe, 2022) and the need to disrupt universal and Western hegemony. Teacher 3 pointed out, "In the Social Sciences, I always emphasise that we need to think globally to develop and learn from each other's knowledge and perspectives." The same teacher pointed out the danger of generalising and prejudice:

«Diversity and differences in cultures are also within a country, rural versus urban, gender and socio-economic, both in Zambia and Norway. It is crucial to view personalities as separate from culture, both as a teacher and a learner. Learners are usually very tolerant, so discussions with fellow teachers are also crucial if we want to make changes. »

In their daily work as teachers in Norway, they recall theories learnt from the subject Global Knowledge, discussions in the classroom with Zambian students and experiences from their three-month stay in Zambia, as teacher 4 mentioned:

«I use my competence from Global Knowledge and my stay in Zambia in all I do with my learners, in my choice of examples, global awareness and political consciousness, not only in language and social studies but as a teacher in general. My embodied knowledge of our ethical responsibility in a global world cannot be ignored as a professional teacher. All teachers should have international students in class and stay in another country for at least three months. »

When the teachers provided examples during interviews, they realised that their student mobility had changed them more than they were aware of. As Teacher 1 said, "We are part of a bigger world, and we all play a part. My role is to use my knowledge and experiences to make a difference for a better future." Unfortunately, none of the teachers' intercultural competence had been acknowledge by their headteachers, so implementation of change might take time.

## 5. Summing up and conclusion

To be a professional teacher in Norway, core values are emphasised, with cross-cutting areas including life skills, democracy, citizenship, and sustainable development. These correlate well with Klafki's (2014) Didaktik and Bildung theory, emphasising the aim of education to enable learners to make their own decisions, be responsible citizens, and develop solidarity skills.

Both teachers and learners should be able to recognize and react when oppression (Freire, 2000) and social injustice appear. Experiencing a different society, learning environment, and context through student mobility might give teachers the competence to practice more just education. My findings in this research are in line with the discussion in Bergersen & Massao (2022) that Norwegian students seem to use student mobility for personal growth and to acquire intercultural communication and competence skills, while Zambian students, after a stay in Norway, emphasise theoretical knowledge, learning strategies and to learn from Western epistemology. If student mobility from Norway to Zambia has no long-term impact on a teacher, we might continue to reproduce colonial structures, as discussed in Massao and Bergersen (2024) and promote global recreation colonialism (Lessenich, 2019). In the project with long-term impact on Norwegian teachers, all five participants reflected on the importance of being prepared before their stay in Zambia, including discussions with Zambian students in Norway and incorporating mobility into 30 ECTS subjects, which included practice and fieldwork for three months. Despite this, not all teachers critically reflected on their position as privileged Norwegians. They argue that we should be humble and show respect through appropriate communication in personal encounters. Still, mainly, those teaching in social sciences were able to reflect on a global and societal level and answered differently from short-term studies (Bergersen et al., 2022).

According to their voices, the long-term impact of five teachers' three-month stay in Zambia suggests that a few gained global awareness and professional teaching skills, as outlined by Klafki (2014), Freire (2000), and the core curriculum (2020), through student mobility and the subject of Global Knowledge. Teachers found it challenging to discuss their stay in Zambia independently of the subject. Some argued about the need to have theoretical knowledge before, during and after their three-month stay in line with Vande Berg (2012), to understand the global structures or the colonial matrix of power (Quijano, 2000) and understand the need to discuss racism, white privileges, exploiting and global responsibility in their classrooms in Norway to disrupt unconscious colonial mindset (DiAngelo, 2011; Mignolo, 2021).

Higher education institutions in Norway are responsible for involving both the sender and receiver academically with appropriate preparations, follow-up, and reflection after student mobility to reduce the reproduction of colonial structures and construct universal knowledge (Massao and Bergersen, 2024) that makes a difference as teachers. As Portera (2021) argues, teachers' and learners' mindsets need to change to embrace diversity as a necessary and valuable resource. I argue that all educators and educational institutions must disrupt their colonial mindset and recognise that education is never neutral (Freire, 2000), including ethical considerations regarding student mobility.

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# Informal Support Teacher Networks: training and self-training between Communities of Practice

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## Abstract

The connection between teacher training, both initial and in-service, and the quality of education has been extensively discussed, particularly since the enactment of Law 107/2015. The emphasis has primarily been on formal training, which, however, has proven inadequate in terms of both utilisation and content. When examining the nature of teachers' knowledge and the dynamics within schools, the significance of informal training becomes evident. As knowledge derived from practice is often implicit, situated, and dynamic, communities of practice and informal exchanges among teachers play a crucial role in sharing and constructing this knowledge. This necessitates a reconsideration of the structure of educational institutions, the enhancement of intermediate functions of teachers, and the contemplation of new professional roles to support this restructuring. This paper aims to propose an investigative methodology that can assist pedagogical research in exploring informal digital networks among teachers as well.

**Keywords:** support teacher; communities of practice; initial training; in-service training; netnography.

# 1. Introduction

Communities of practice and learning are social spaces in which individuals engage in the organisation and dissemination of high-quality knowledge, accessible to all participants. Within these communities, members have the opportunity to learn from one another's experiences, fostering a collective process of knowledge construction. The concept of a community of practice is grounded in a vision of learning as a social and experiential process, characterised by dynamic interactions through which participants negotiate meanings and develop shared understandings.

According to Wenger (1998), three key elements define a community of practice: the domain, the community, and the practice. A community of practice is not merely an informal gathering or a network of professional contacts, but a structured social entity with a shared identity built around a common area of interest. Members actively engage in joint activities, address relevant issues, share resources, and cultivate relationships that promote mutual learning. What sets communities of practice apart is the sharing of specialised practices and a repertoire of resources-including experiences, narratives, tools, and strategies for problem-solving. Such collaborative learning processes require time and consistent interaction in order to fully develop and consolidate.

Within these communities, teachers can harness their tacit knowledge through two fundamental processes: storytelling and critical reflection. Storytelling plays a central role in helping educators structure and make sense of their professional experiences. By sharing narratives, teachers disseminate practical knowledge and co-construct shared meaning within the group. This narrative process also contributes to shaping and consolidating professional identity, reinforcing individuals' self-perception and their roles within the community.

Critical reflection is equally vital to the development of educational practices. It enables teachers to analyse their actions, decisions, and underlying pedagogical assumptions in depth, while exploring the theories and models that influence their approach. Reflective practice supports the identification of personal beliefs, the questioning of habitual routines, and the ability to respond to unanticipated situations. Professional dialogue within these reflective communities is fundamental to knowledge exchange and co-construction.

The advent of the internet has significantly expanded opportunities for developing online communities of practice (OCoPs), enabling interaction and collaboration regardless of geographical boundaries. These virtual spaces allow educators to engage in voluntary collaborative learning, reflect on their practices, and access emotional and professional support from peers. Digital tools such as blogs, messaging platforms (e.g., WhatsApp), and educational environments (e.g., Google Classroom) play a key role in facilitating the exchange of ideas and the co-construction of knowledge. Through these platforms, teachers can share resources, discuss innovative approaches, and adapt strategies to their specific teaching contexts. Mobile devices further enhance flexibility, enabling continuous participation in community activities on the go.

Despite the growing relevance of online communities of practice, the existing literature remains limited in analyzing how teachers interact within these virtual environments. For example, Macià and Garcia (2016) examined the impact of online CoPs on professional development but focused primarily on the university context. Further research is needed to explore the dynamics of teacher interaction across various educational levels within online communities.

In contrast to traditional Communities of Practice-where membership typically requires explicit or implicit validation from existing members, reflecting the notion of legitimate peripheral participation (Lave & Wenger, 1991) online communities are generally more open and accessible. Entry usually involves minimal barriers, requiring only internet access and the appropriate platform. The use of computer-mediated communication (CMC) allows for scalable, asynchronous, and multi-directional interaction, often resulting in larger and more geographically dispersed memberships than those found in conventional CoPs.

However, the implications of community size for the formation and sustainability of CoPs remain a subject of scholarly debate (Roberts, 2006). While a larger member base can enrich the community's collective knowledge and expose individuals to diverse experiences, it may also hinder the establishment of shared meaning and a unified sense of purpose. Interactions may become sporadic

and unsustainable, and difficulties in developing or maintaining a shared repertoire can lead to disengagement. These factors may impede identity formation and, in some cases, lead to the dissolution of the community. Nevertheless, as members become more proficient in the use of CMC, they are increasingly able to express emotion and non-verbal cues, thereby narrowing the communicative gap often associated with digital interaction.

A common feature of online communities is the uneven level of participation among members, with a small core group contributing frequently while the majority engage sporadically (Baym, 1999; Finholt & Sproull, 1990). This imbalance can challenge the emergence of vibrant online CoPs, as more active members may become disheartened by the low involvement of others. However, online environments may be better equipped to manage this dynamic. Even if individual contributions from less active members are limited, their aggregate input can still be significant due to their sheer numbers. Moreover, the persistent nature of CMC ensures that these contributions remain visible, thereby enhancing the perceived level of engagement. Nonetheless, the actual impact of "light" participation on the effectiveness and sustainability of online communities warrants further empirical investigation (Zhang & Watts, 2008).

This study explores the use of WhatsApp as a professional development tool for teachers. WhatsApp offers an accessible, user-friendly platform that facilitates immediate and informal communication among members. Teachers use it to share experiences, discuss pedagogical strategies, solve problems collaboratively, and provide mutual support. In the context of communities of practice, WhatsApp interactions often reflect the same dynamics as offline networks, with the added advantage of flexibility and constant availability.

To fully harness the potential of both online and offline communities of practice, educational institutions must acknowledge their value and actively support their development. This involves investing in appropriate resources—including funding, technological infrastructure, and training opportunities—and creating environments that foster collaboration, socialization, and knowledge sharing. Online communities of practice offer powerful avenues for professional growth, equipping educators to navigate evolving educational challenges. Future research should continue to explore the dynamics of these communities, focusing on the behaviors, motivations, and barriers that shape teachers' participation. As digital technologies become increasingly embedded in educational practice, a comprehensive approach that integrates both in-person and virtual interactions is essential to fostering inclusive, sustainable, and effective learning ecosystems.

## 2. Methodology

Therefore, this study was also conducted using the netnography method (Özüdoğru, 2014). In this study, messages shared by special education teachers (or future teachers) on WhatsApp, a mobile chat application, were considered. WhatsApp messages for 12 months: from April 2023 to April 2024, were included in the data for the study. WhatsApp is a mobile application programme. WhatsApp Messenger is a cross-platform smartphone messaging system that uses existing internet data plans to connect users' learning communities. Users interacting online are visible at all times. They can have synchronous and asynchronous conversations within their social networks. Users can send photos, voice recordings and videos. From a technical viewpoint, this programme can be considered as a social network, where people have quick access to a variety of information. WhatsApp allows users to connect with anyone who has a smartphone, an active internet connection and has downloaded the application. In addition, users can create groups, and add and remove people. Participants have equal rights in this programme (Bouhnik & Deshen, 2014). Content analysis was used in this study to analyse the WhatsApp correspondences that served as the data source. Content analysis can be seen as an attempt to condense qualitative data in order to identify and make sense of consistent aspects within the large amount of data obtained, according to Patton (2002). Initially, open coding was used, which resulted in the identification of fifteen codes. In this context, the messages were read one by one and coded. The codes were then reviewed, leading to the creation of subcategories and a reduction in the total number of codes (four main categories and eleven subcategories). These codes were organised into

overarching themes in the next step. These themes were then subjected to final refinement and interpretation. Comparison with the literature validated the emerging themes. In addition to comparison with the reference literature, the frequency with which the categories appear allows us to understand the pattern of interests, needs and problems identified by teachers over a short or longer time. And also how the wider school context influences these.

### 2.1 Research Objectives

This study focused on the use of WhatsApp as an online community of practice by teachers (or future teachers) for their professional development. Therefore, in the context of communities of practice, the sharing among teachers on WhatsApp, the subject of this study, was investigated. Teachers have been observed to use online learning applications extensively for their professional development (Macia & Garcia, 2016; Cranefield & Garcia, 2016; Lantz-Andersson, Lundin & Selwyn, 2018).

The question we asked ourselves was: how can the online community of practice be studied? Do we have the elements to infer teachers' professional development?

### 2.2 Research Sample

The data collection was based on WhatsApp chat created by students of the course for supporting teachers of the VIII cycle from different universities. The group includes former students from previous cycles (VI and VII) as moderators and 126 students. The choice of the group was not probabilistic but of convenience. Indeed, it was not easy to enter the group to abserve the internal dynamics. Before analysing the chat interventions, the participants were informed about the research. They were asked to answer questionnaire to provide contextual information.

This study only considered written interventions in the WhatsApp chat. These were analysed using content analysis and served as the primary data source.

## 3. Results

Therefore, this study was also conducted using the netnography method (Özüdoğru, 2014). In this study, messages shared by special education teachers (or future teachers) on WhatsApp, a mobile chat application, were considered. WhatsApp messages for 12 months: from April 2023 to April 2024, were included in the data for For data collection, a WhatsApp chat created by students enrolled in the "TFA Sostegno" course of the eighth cycle from various universities was analyzed. The group included moderators who were former students from previous cycles (VI and VII, in particular). Before beginning the analysis of chat interactions, participants were informed about the research, and they were asked to complete a brief questionnaire to provide contextual information. The majority of the group (98%) responded to the questionnaire. The chat group consists of 174 participants. The majority identified as female (86%), with the remaining 14% identifying as male. In terms of age distribution, 38% were between 40-49 years old, 33% were 30-39, 20% were 50-59, 7% were 21-29, and the remainder were 60 years or older. Most participants had attained a Master's degree (68%), while 30% reported having completed postgraduate studies, and only 2% held a high school diploma. Regarding teaching levels, 70% of participants teach (or are enrolled to qualify to teach) at the primary school level, 4% at preschool, 18% at lower secondary school, and 8% at upper secondary school. In terms of teaching experience, 48% had been teaching for at least 4 years, 27% for 0-3 years, 14% were not yet teaching, 6% had 11-20 years of experience, and 5% had been teaching for over 20 years. Once the profile of the chat participants was established, attention turned to identifying how many members were actively engaged (i.e., contributing at least one message over a two-week period). On average, at least 70% of participants interacted in the group (excluding emojis or stickers) within a two-week timeframe. For this study, only written contributions in the WhatsApp chat were considered. These messages were analyzed through content analysis, forming the primary data source for the research.

# 4. Analysis and Discussion of Data

In this study, content analysis was employed to examine the WhatsApp correspondences, which served as the primary data source. According to Patton (2002), content analysis can be considered a qualitative data reduction effort aimed at identifying consistent aspects of extensive data and making sense of them. Initially, open coding was performed, resulting in the identification of fifteen codes. In this process, the messages were individually read and coded. Subsequently, the codes were reviewed to create subcategories, reducing the total number of codes to four macro-categories and six subcategories. In the next phase, these codes were organized into broader themes. These themes were then finalized and interpreted. A comparison with the literature validated the emergent themes. The identified macro-categories are as follows:

- Discussions on specific field knowledge: Topics related to special pedagogy and school legislation, particularly regarding inclusion.
- Discussions on school practices: Exchanges of activities, suggestions regarding approaches, and methodologies.
- Emotional support: Motivational phrases to acknowledge efforts and achievements, as well as expressions aimed at fostering mutual trust.
- Non-relevant messages: For example, messages about selling materials (such as books and notes) used in various courses, as well as personal photos.

| Categories | Sub-categories | Occurrence | Percentages (of total) |
|---|---|---|---|
| **Domain-specific knowledge discussions** | Comparison and reflection on theoretical issues | 23 | 6,2% |
| | Regulatory comparisons and considerations | 27 | 7,3% |
| | Specific training guidance and suggestions | 52 | 14,1% |
| | Information on access to the teaching profession. | 38 | 10,3% |
| **Discussions related to school practices.** | Comparison of experiences and educational interventions in schools | 33 | 9% |
| | Suggestions for classroom activities/materials | 116 | 31,9% |
| | Suggestions/sharing of inclusive extracurricular activities/projects in the area aimed at students. | 41 | 11,1% |
| | Request to complete questionnaires. | 8 | 2,2% |
| **Emotional support** | Words of encouragement | 20 | 5,5% |
| **Non-relevant messages** | Sale of materials | 6 | 1,7% |
| | Personal messages or photos | 3 | 0,8% |
| **Total** | | 367 | 100% |

*Table 1: macro-categories and description*

Below is an example excerpt and the corresponding initial analysis:

M1: I'd like to say what I think about what's been said recently about special classes. Premise: I am for inclusion and I am doing the TFA; I have been trained and I am still being trained. I am doing a placement and I am working and in the contexts where I live I am experiencing everything but inclusion. The reflection that comes to me is this: why are we all scandalised by accepting the proposal of differentiated classes? To be honest, I might accept it better than the pseudo-inclusive teachers who cover up exclusive practices by passing them off as something else [...]

M2: It's true that inclusion is often a word that is spoken but not practised. Unfortunately, compulsory schooling remains one of the few, if not the only opportunity for some children to be with their peers. Unfortunately, nothing is left to relate to them afterwards. So what little we have gained... I would keep it. Then the fact that it is a flawed system is well known...especially to us support teachers [...].

M3: But I remember the words of a neuropsychiatrist during a course: "Inclusion is not about keeping the child in the classroom at all costs, it's about giving them the same opportunities...to learn, to grow and to have fun.

M4: We support teachers have to fight for inclusion for the whole class, not just the student we are following, with the tools we have...Everyone is responsible for their own actions...It takes courage and intelligence to change the school system...on a daily basis...the tools are there...it is up to us to put them into practice.

M5: Everyone does what they can. The ICF model often talks about barriers and facilitators. When the barriers are your own colleagues, it's difficult.

From this brief excerpt of a conversation, we analysed the occurrence of the most frequent words, highlighting their semantic connections. Below is an example.
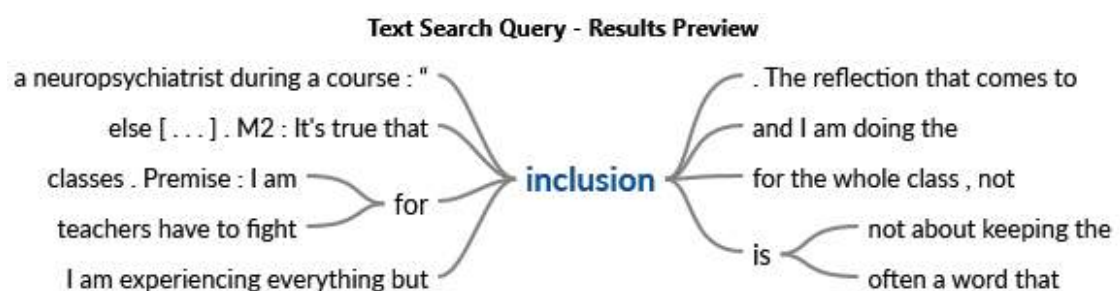


*Grafich 1: semantic analysis*

What is inclusion? What they think inclusion is and how do they position themselves about it? Is there a common understanding of the idea of inclusion? How does it fit in with the theoretical idea of inclusion?
Some possible considerations:
- We have seen that the occurrence of categories varies considerably according to the school period: in particular, given the recruitment of school staff or of school deadlines when certain documentation is required, certain categories (and subcategories) increase or decrease;
- We have seen that perhaps due to a more informal environment, teachers' beliefs and perceptions are more likely to emerge.

## 5. Final reflections

This online learning community is a great example of how teachers support each other through professional challenges, share resources and offer emotional support. However, it is difficult to ascertain the extent to which teachers in training and in-service learn from one another in this context. The absence of a clearly defined reference framework, coupled with the influence of numerous uncontrollable variables, makes it difficult to accurately assess the impact of the online community on professional development.

This study suggests that Communities of Practice Online (CdPO) could be linked to formal in-service training initiatives, which could be beneficial. Participants questions and doubts could be tracked by integrating these communities into structured professional development programs. These issues could then be addressed systematically, and emerging ideas revisited during subsequent group meetings. This approach could foster a more dynamic interplay between formal and informal learning spaces.

The analysis highlights the immediacy with which CdPOs respond to practitioners. These communities serve as platforms for sharing teaching materials, acquiring new knowledge, seeking emotional support and accessing timely information. While such responsiveness is valuable, we need to investigate further how these interactions influence teachers and practices. Without additional data and contextual insights, the impact of the community on long-term pedagogical changes remains uncertain.

Another intriguing avenue for exploration is the role of digital cues, such as emoticons and likes, in fostering emotional support and cohesion within the community. Although seemingly minor, these elements influence the tone and quality of interactions, potentially fostering mutual trust and solidarity among members. Including these aspects in future analyses could provide valuable insights.

In the context of continuous teacher training, the use of WhatsApp as a tool for micro-learning represents an effective and flexible strategy. By regularly sending brief educational content—such as theoretical insights, meaningful quotations, reflective prompts, summary sheets, or short videos—it is possible to promote continuous, gradual, and contextualized learning. This approach, based on frequent exposure to targeted and easily accessible materials, fosters personal reflection and metacognitive activation regarding one's own teaching practices. Reflections can be encouraged individually or in a shared manner, thus stimulating peer-to-peer discussion and collaborative knowledge construction. Moreover, micro-learning via WhatsApp allows for the enhancement of otherwise idle moments in the workday, turning them into opportunities for accessible, immediate, and sustainable professional development.

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# The use of artificial intelligence (AI) in inclusive learning:
# an exploratory investigation

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## Abstract

The contribution intends to illustrate the research carried out within the Learning Technologies laboratories of the specialization courses for the support of pupils with disabilities or Special Educational Needs (SEN). The research, addressed to the Universities of Sassari, Modena and Reggio Emilia and Trieste, sought to investigate the impact that AI can have in the education process. To answer these questions, a questionnaire was administered to a sample of 263 trainees to survey their views on the use of AI as a support for students with disabilities and other special educational needs and inclusive processes. The results of this survey highlight the views of trainee teachers on the strengths and weaknesses of AI in the inclusive teaching and learning process with SEN.

**Keywords**: artificial intelligence; inclusion; learning; special education needs.

# 1. Introduction

There is a lot of excitement in the school world these months, especially among teachers, because of the use or non-use of artificial intelligence (AI) tools (De Kerchove, 2019). Such tools are, without a doubt, capable of performing exceptional performances, such as the production of text, images, objective evidence and many other cognitive products typically produced by humans (Mc Kinsey, 2020). Moreover, the technologies are now integrated into the informal and nonformal learning appendage with which we are all equipped, the smartphone, and therefore, like it or not, everyone finds themselves using them (Vincent- Lancrin, 2020). Over the past decade, the international literature has highlighted the central role of digital technologies in supporting inclusive processes and, concomitantly, the need to promote strong digital competencies in education professionals (Touretzky et al., 2019).

The history of artificial intelligence-based "conversation models" has been, revolutionized by a new comer in the big tech business world: OpenAI. This company was founded in December 2015 in San Francisco, by a group of entrepreneurs, including Elon Musk CEO of Space X and Tesla, Reid Hoffman, co-founder of LinkedIn, and Peter Thiel, co-founder of PayPal (Musk later in 2018, exited the board).

The mission of Open AI, from its origins, is to promote and develop tools for artificial intelligence "and ensure that artificial intelligence is an asset for all humanity," an ambitious claim, perhaps really too benevolent, for a for-profit venture with a character that is, as we shall see, very aggressive and dynamic. From its origins OpenAI has focused on developing deep learning and machine learning algorithms to process natural language (Natural Language Processing - NPL). In 2016, OpenAI introduced the Generative Pre-trained Transformer (GPT) architecture-literally "Generative Pre-trained Transformer"-which based on initial training on a specific dataset generates text, summaries, and natural language responses from user input (Payne, 2024).

That is, GPT acts by progressively and successively identifying the most determinant elements of the input itself, which is why this technology is also known as the "attention network" (Vaswani, et. Al., 2017).

As of Nov. 3, 2022, Chat GPT realise 3.5 was made available online (Chat GPT-4 was also released on March 15), an artificial intelligence that enables it to generate very accurate natural language responses to questions posed to it in a dialog box quite similar to those used for a text chat such as WhatsApp.

The software architecture that enables this type of new human-computer interaction is based on Large Language Models. This is a subdomain of Artificial Intelligence that uses machine and deep learning applied to huge amounts of textual data to simulate-it is important to reiterate this-human conversational responses (Rivoltella, 2020).

When a question or more generally a request is made to ChatGPT its "conversational model" uses transformer multilayer neural network technology to process, and analyze the text of the question by comparing it with the databases on which it has been "pre-trained" to generate, then, also based on Web sources, its natural language response.

More specifically, "generative pre-training" (supervised machine learning), aims to provide the system with the ability to predict according to a statistical model what the next word within a sentence or set of sentences entered as a prompt within its dialog box will be.

A machine learning (deep learning) model specializes in processing and interpreting sequential data, which makes it particularly valuable for natural language processing tasks, consisting precisely of a sequence of words or syllables (Marino et al, 2020).

To protect the use of AI, the European Union has already moved to protect it by preparing the precautionary principle with the 2020 Assessment List for Trustworthy Artificial Intelligence and the subsequent Artificial intelligence Act (EU 2021b).

1.  Responsible and ethical use of artificial intelligence and enshrine the following principles;
2.  AI systems should ensure the empowerment of people and ensure adequate control mechanisms in particular:

- the ability - for women and men - to control processes and maintain oversight of them;
- the technological robustness and security of the systems;
- the assurance of privacy and transparent data management;
- the assurance of respect for diversity, non-discrimination and equity;
- the assurance of environmental and social well-being;
- the accountability and reliability of AI systems and their outputs.

Generative artificial intelligence, in fact, is a complex machine learning model to generate original outputs based on the data it has been trained with (DDL - Large Language Model). However, care must be taken with the data, which is not always controlled and therefore may give incorrect answers. In fact, the important help of AI can improve our productivity as teachers, but it cannot replace our function as experts and instructional mediators to students, especially those with Special Education Needs (Fabiano, 2020).
The first priority in using AI is to know is to design the prompt well. In a prompt we need to specify:

- the command we give to the AI (it must be clear and relevant);
- the specific context (the classroom or student learning level);
- the input data we can provide to facilitate the response (any data from a problem to be solved);
- the format in which we want the answer to be given (table, map, text, etc.).

It is not easy to center the right prompt right away; very often we will have to rephrase the request several times before the answer we want is given. One suggestion is to ask the AI directly to recommend the prompt that best suits our requirements (Giorgiutti, 2019).


## 2. Research objectives

The contribution intends to illustrate the research carried out within the Learning Technologies laboratories of the specialization courses for the support of pupils with disabilities, established in Italy in 2011 by the Ministry of Education.
The research, addressed to specializing teachers at the Universities of Sassari, Modena and Reggio Emilia and Trieste, sought to investigate, in this year 2024, the impact that AI can have in the areas of a:

1. the design of materials to be used in the classroom;
2. customization and the possibility of adapting methodologies to the different needs of students;
3. the ways in which students' academic progress can be assessed;
4. the possibility of offering tutoring to students to 'coach' them in learning.


## 3. Research design

To answer these questions, a questionnaire was administered to a sample of 262 trainees to survey their views on the use of AI as a support for students with disabilities and other special educational needs (SEN) and inclusive processes. The results of this survey highlight the views of trainee teachers on the strengths and weaknesses of AI in the inclusive teaching and learning process and as a compensatory tool for students with Special Educational Needs. The research also helps to highlight the persistence of compensatory and individual-centered views (centered on the deficits of individual learners) on the part of teachers, to the detriment of emancipatory processes, individuals and contexts.
This survey aimed, therefore, to understand ideas and perceptions about the role of artificial

intelligence in inclusive teaching/learning processes as a resource but also as a possible danger to inclusive development.

## 4.  Research outcomes

The questionnaire consists of four parts with a total of 28 questions. It is anonymous and can be completed in a few minutes. The first part collects contextual data, the second part collects knowledge of AI, the third part collects use of AI, and the last part collects perceptions of the impact of use and expectations.

In particular, we will only use three questions from the questionnaire here. Three questions that specifically explore the relationship between AI and inclusive education. The first two are multiple-choice questions with the possibility of inserting a short open-ended answer. The third is open-ended.

To begin, it is important to note that 85% of the sample is female, while 14% is male, and only 1% identifies as non-binary. The most represented age groups are 40–49 years, with 37.6%, and 30–39 years, with 33.5%. Following these are the 50–59 age group (18.6%), 21–29 years (7.6%), and those aged 60 and above (2.7%).

The majority of the sample (67.3%) holds a bachelor's degree (as they are secondary school teachers), but 29.7% also have a postgraduate qualification (such as a PhD, Master's, or other). Additionally, 38.8% teach at lower secondary schools, while 38.4% teach at upper secondary schools. A further 22.8% are not currently teaching.

Despite the course being designed as a teaching qualification program, nearly half (47.3%) report already being in the workforce, falling within the range of those with 4 to 10 years of professional experience.
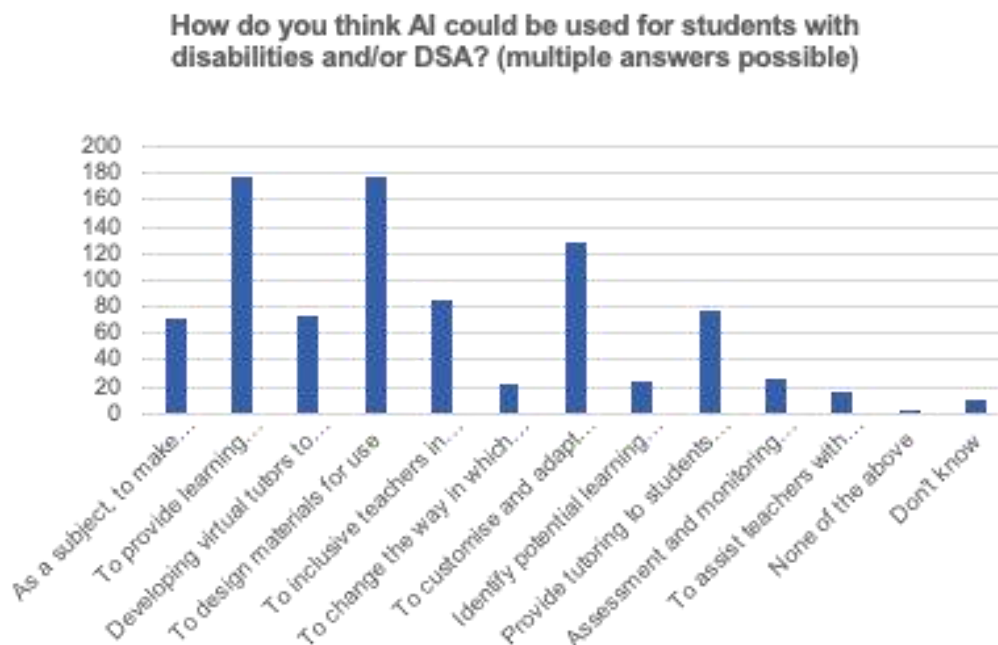


*Fig. 1 How do you think AI be used with students with disabilities or SEN*

The first question (fig. 1), specifically referring to how Artificial Intelligence could be used with students with disabilities or SEN, received significant responses. The answer that gained the most consensus was "To provide tailored learning experiences for the diverse needs and abilities of students" (179 preferences), followed by the second most chosen answer, "To design materials for use." Both responses highlight a fairly clear area of

expertise among the interviewed teachers: the personalization of teaching and learning. While the first question explored intentions, the second question reveals how AI is actually used by teachers in training. The percentages confirm that the second option (fig. 2), "To provide tailored learning experiences for the diverse needs and abilities of students," received 110 preferences, whereas the fourth option, "To design materials for use," gathered 124 responses.
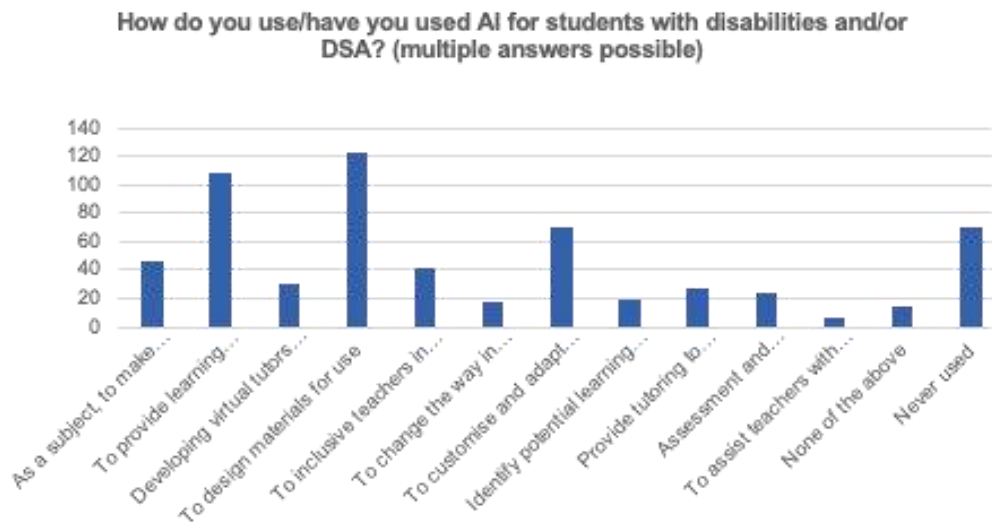


*Fig. 2 How do you used AI with disabilities or DSA*

When comparing the responses provided with the available literature, a strong correspondence emerges between the perspectives identified by various authors and the statements made by the interviewed students. Numerous studies highlight that one of the most promising uses of AI in inclusive education is the development of personalized assistive technologies for individuals with disabilities (Smith et al., 2023). Student responses indicate that Machine Learning (ML) can be employed to identify effective teaching methods by analyzing classroom interactions in real time, discovering the best strategies for each student, and enhancing educational outcomes through personalized instruction. Other studies emphasize how AI can enhance learning for students with specific challenges, for example, by personalizing educational activities to support those with learning disorders in reading, writing, and mathematics. Furthermore, AI can act as a writing assistant for individuals with dyslexia, correcting frequent errors and adapting teaching materials to individual needs (Zhai et al., 2023). At the same time, it can enrich the educational experience of students from diverse cultural backgrounds by offering personalized learning experiences and fostering their engagement in the classroom (Salas-Pilco et al., 2022).

However, effectively using these tools does not require being "AI experts" but rather having a clear mastery of educational objectives and teaching pathways. The interviewed students highlighted the need for support in inclusive planning and the personalization of educational pathways. Still, it is crucial to have a clear vision of the desired teaching materials before assessing the potential of artificial assistants. Only a solid understanding of educational objectives allows for the targeted and effective use of AI, maintaining coherence between the tasks assigned to AI tools and the reference pedagogical paradigms. Technology, therefore, should be seen as a support, not as a substitute for educational design.

Requesting an artificial assistant to generate content without having the expertise to

evaluate it- or without consulting expert colleagues-can lead to counterproductive outcomes. It is essential that users can understand and interpret the results, ensuring their appropriateness and relevance. The effective use of an artificial assistant involves several steps: selecting the most suitable tool, formulating a prompt aligned with the objectives, critically analyzing the output, and revising it if necessary. This approach ensures that the human component remains central, preserving the dignity, authorship, and responsibility of the educator in the educational process.

Artificial assistants should never be used to relieve teachers from significant tasks related to learning and professional development. Such activities always require the direct involvement of teachers to ensure pedagogical validity and adaptation to students'needs. This concept has also been emphasized in previous studies (Bocchi & Bortolotti, 2023), which highlighted the challenges faced by special education teachers in educational planning. Inclusive teacher training thus represents a strategic lever for promoting quality education that fosters the inclusion of all students. Information and communication technologies (ICT) can serve as a privileged tool for realizing this change, provided they are integrated into thoughtful educational planning. ICT, indeed, offers powerful support for promoting communication, learning, and breaking down barriers that lead to school exclusion. However, they cannot replace the professionalism of teachers.

We conducted an initial exploratory analysis using NVivo14 for question 9 "How could AI be used to support inclusion processes?" (fig. 3).



*Fig. 3 How do you used AI with disabilities or DSA*



*Fig. 4 word: tool*
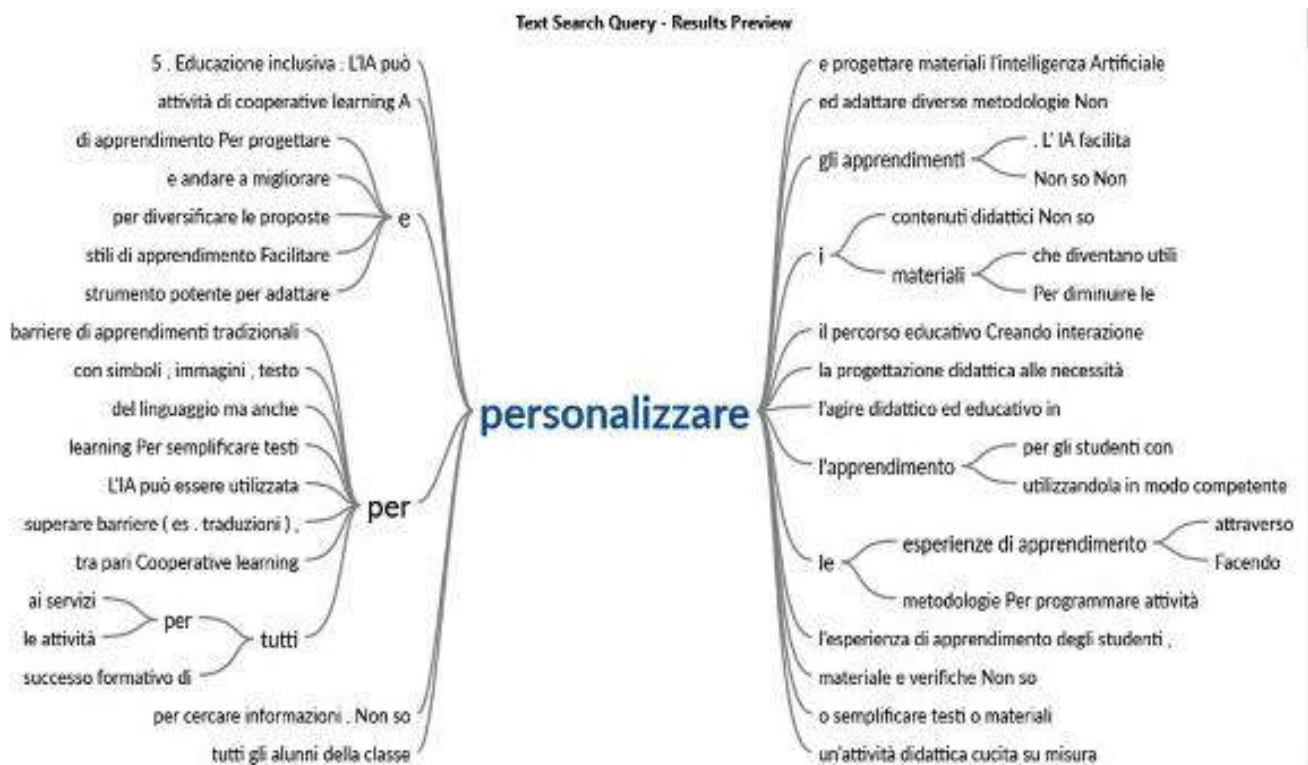
*Fig. 5 word: personalization*
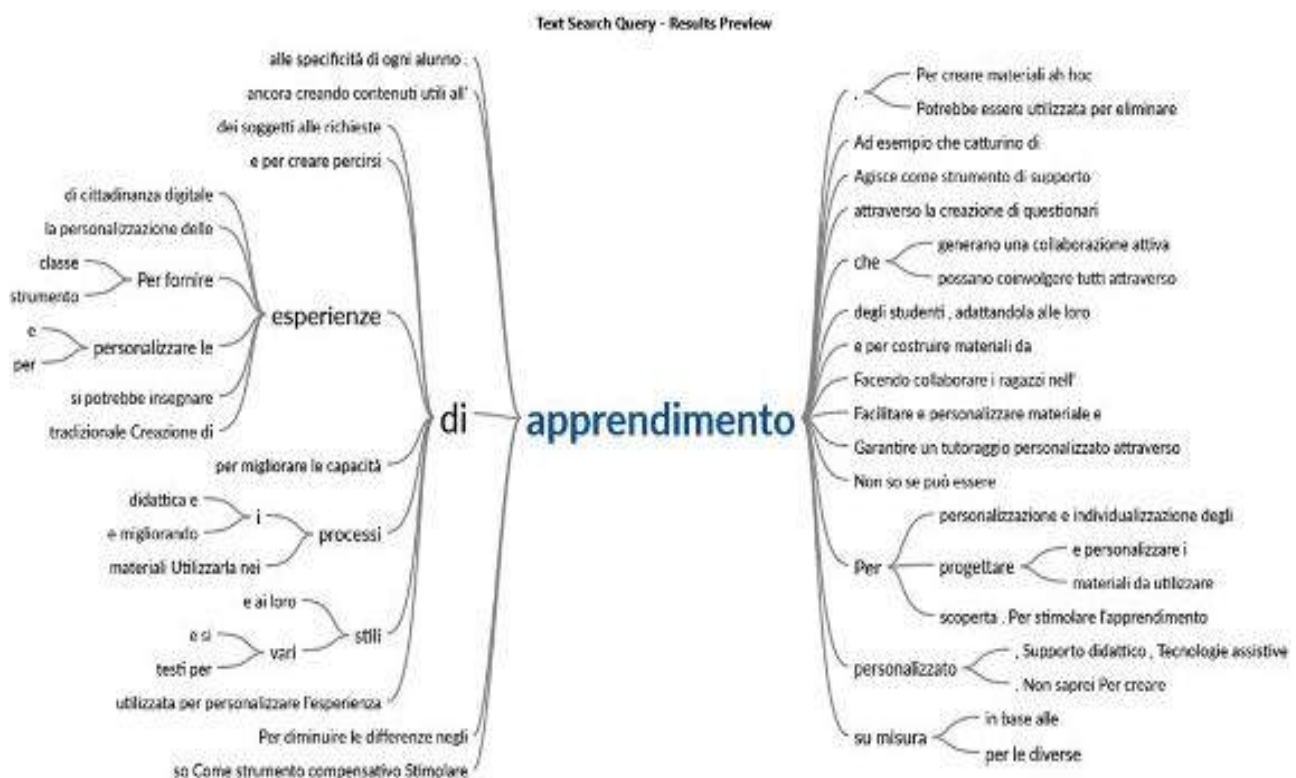


*Fig. 6 word: learning*

Consistently with what was previously observed, teachers focus on AI's ability to assist them in the design phase, particularly regarding the personalization of educational interventions. In fact, following a semantic analysis of the open-ended question that specifically asked how AI could be used in inclusive learning processes, many responses

highlighted the support it could provide in personalization, goal identification, and subsequent planning. The words identified as most significant were: personalization, tool, learning (fig. 4,5,6).

## 5.Final reflections

The survey revealed that 33% of the sample have never used AI for inclusive teaching, while 14.6% have never taught at all. Moreover, 64% of respondents reported that they have rarely or never used AI in the past, emphasizing the pressing need for specific training on the application of AI in education. The sample consisted of teachers in training from the support TFA programs in Sassari, Trieste, and Modena-Reggio Emilia. Moving forward, it would be valuable to extend the survey to include in-service teachers, not just those in TFA support training, to gain a more comprehensive perspective. AI can play a significant role in customizing lessons to meet the individual needs of students and designing innovative teaching materials. It is also a compensatory tool, providing tailored learning experiences and facilitating the inclusion of students with Special Educational Needs (SEN). Teachers are increasingly aware of the potential of AI for inclusive teaching and can identify its functional applications in this context. However, creating literacy in the use of AI is essential to maximize its effectiveness. While it has the potential to transform traditional didactic methods, it raises the question of whether AI alone is sufficient or if broader pedagogical changes are needed to truly revolutionize teaching practices.

The introduction of ChatGPT and other artificial intelligence technologies has marked a turning point for teachers participating in specialization courses for support activities, pushing them to update their skills and critically reflect on the impact of these tools in education. Although the application of Artificial Intelligence (AI) in the education of students with disabilities and Special Educational Needs is still an emerging field of research, its potential is increasingly recognized. However, the use of AI to develop personalized support for individuals with disabilities remains limited, due to scarce academic research in this area, the lack of specialized training programs for professionals, and the absence of regulations specifically designed to protect the most vulnerable users. The potential of AI in learning strongly resonates with the goal of promoting inclusive education, as highlighted by prominent international organizations such as UNESCO (2021) and the European Union (2023). This underscores the urgency of incorporating AI into teacher training programs to ensure that pedagogical practices can fully benefit from its capabilities. Nonetheless, one of the main current challenges lies in the limited knowledge of AIED (Artificial Intelligence in Education) among educators. Most teachers lack the necessary expertise to use it effectively, and specific training programs, particularly during initial teacher education, are still scarce (Hrastinski et al., 2019). Recent studies indicate that the teacher training period is critical in shaping attitudes toward AIED, a key factor in ensuring its educational effectiveness once teachers enter the profession (Yang & Chen, 2023).

In conclusion, the targeted use of AI in specific educational areas offers a dual benefit: on the one hand, it relieves educators from repetitive and burdensome tasks; on the other, it fosters continuous improvement of teaching materials through the flexibility and adaptability of digital resources. A conscious use of AI also significantly reduces unnecessary cognitive load, enabling teachers to focus on the most meaningful aspects of their profession.

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# The Impact of Teaching and Learning Centers (TLCs) on Initial Teacher Education Programs in Italy

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## Abstract

Teaching and Learning Centers (TLCs) are specialized facilities established in many universities and higher education institutions to support and enhance the quality of teaching and learning. Over the past fifty years, TLCs have undergone significant evolution, shifting from traditional pedagogical approaches to innovative models that address the changing demands of education. In Italy, the development of TLCs has been strongly influenced by the strategic initiatives of ANVUR (National Agency for the Evaluation of Universities and Research Institutes) and MIUR (Ministry of Education, University, and Research). This paper seeks to examine the role of TLCs with a particular focus on TLC of University of Bergamo.

**Keywords:** Teaching and Learning Centers; teacher education; Italy; reform; CQIIA.

## 1. Introduction

The fast-paced transformation of educational paradigms in the 21st century has prompted a reimagining of traditional approaches to teacher education. Higher education institutions worldwide increasingly acknowledge the need to prepare educators with the skills to navigate diverse classroom environments, integrate digital technologies effectively, and create inclusive learning spaces. In this evolving landscape, Teaching and Learning Centers (TLCs) have gained prominence as critical hubs for pedagogical innovation and professional development.

TLCs serve as dynamic platforms bridging the divide between academic research and teaching practice, fostering a mutually beneficial relationship for educators and learners alike. They provide focused support in areas such as faculty education, curriculum development, and the implementation of forward-thinking teaching methodologies. Evidence from global contexts highlights TLCs' capacity to elevate the quality of education by encouraging interdisciplinary collaboration and the adoption of evidence-based practices (Liberman, 2005; Coryell, 2016). In Europe, the pivotal role of TLCs has been emphasized by the European University Association's initiatives to strengthen the teaching mission of universities (Lotti et al., 2022).

Initially, TLCs focused on enhancing traditional pedagogical techniques, but their scope has since broadened. Today, they address diverse challenges, including integrating digital tools into teaching, promoting inclusive education, and supporting educators in adapting to hybrid and online learning environments. For instance, the development of Massive Open Online Courses (MOOCs) and blended learning frameworks are often spearheaded by TLCs (Austin, 2023).

In Italy, the growing relevance of TLCs aligns with the country's ongoing efforts to modernize its teacher education system. Recent reforms, influenced by European policies such as the Next Generation EU initiative and Italy's National Recovery and Resilience Plan (NRRP), underscore the necessity of integrating theoretical knowledge with hands-on experience. These reforms highlight the need for adaptability in teacher education to meet the demands of evolving educational contexts (Bertagna & Magni, 2022).

One of the primary goals of TLCs is to bridge the gap between academic disciplines and practical teaching by providing interdisciplinary platforms. These Centers offer services such as personalized consultations, workshops, and curriculum development support. They also facilitate collaborative research projects that align with institutional teaching missions, thus fostering a culture of continuous improvement in educational practices (Lotti et al., 2022).

Moreover, TLCs play a critical role in supporting professional development through structured programs that enhance teaching competencies. By facilitating knowledge sharing and collaboration among educators, these Centers help create professional learning communities. These communities encourage the exchange of best practices, thus elevating the overall quality of teaching and learning (Kowalczuk-Walędziak et al., 2019).

A particularly significant development in this area is Italy's Law no. 79/2022, which introduced a revamped framework for initial teacher education. Within this framework, TLCs are emerging as instrumental in advancing professional competencies, promoting reflective practices, and supporting the alignment of pedagogical strategies with contemporary educational goals. These Centers not only enhance the academic and practical education of future teachers but also encourage the adoption of inclusive teaching practices that address the needs of increasingly diverse classrooms.

By analyzing their roles, operational challenges, and future potential, the study sheds light on how TLCs can shape a teacher education system that is adaptive, inclusive, and of high quality. Furthermore, it explores the ways TLCs can serve as catalysts for bridging gaps in teacher preparation, ensuring that educators are well-equipped to thrive in an ever-changing educational landscape.

| Educational Activities | Consulting Activities | Research Activities | Teaching Support Activities |
|---|---|---|---|
| Develop and deliver workshops on | Provide guidance to faculty on integrating | Conduct studies on the impact of teaching innovations | Assist in creating effective course |

| innovative teaching methodologies. | technology into the classroom. | on student outcomes. | materials and lesson plans. |
|---|---|---|---|
| Design and run professional development programs for educators. | Offer one-on-one consulting to improve teaching strategies. | Publish findings in academic journals and present at conferences. | Support faculty in using learning management systems (LMS). |
| Facilitate collaborative learning initiatives among educators. | Provide strategic advice on curriculum design. | Collaborate on interdisciplinary research projects | Organize peer observation programs for faculty development. |
| Create education sessions on inclusivity and diversity in education. | Offer expertise on assessment and evaluation methods. | Conduct research on student engagement and learning efficacy. | Develop resources for faculty on best teaching practices. |

*Table 1: types of activities/actions of Teaching and Learning Centers*

## 2. Educational Reforms in Italy. A brief overview

As mentioned in the paragraph below, law no. 79/2022 marked a turning point in Italian teacher education, aligning with European initiatives like the Next Generation EU and the National Recovery and Resilience Plan. These reforms introduced a comprehensive restructuring of teacher education to better address the challenges of the modern classroom. Central to this initiative was the establishment of a new one-year, 60 ECTS initial teacher education course, designed to provide a balanced integration of theory, pedagogy, and practice.

The new program emphasizes practical placements, constituting 20 of the 60 ECTS, including 15 CFU for direct classroom teaching and 5 CFU for related activities. This hands-on component ensures that future educators gain invaluable real-world experience under the guidance of experienced mentors. Alongside this, the curriculum incorporates 16 CFU for subject-specific didactics and methodologies, 10 CFU for pedagogical disciplines, 3 CFU for language and digital competencies, 2 CFU for school legislation, 3 CFU for inclusive education, and 4 CFU for psycho-socio-anthropological disciplines (Lotti & Serbati, 2022).

The reforms also introduce strategic partnerships between schools, universities, and Teaching and Learning Centers to facilitate a seamless transition for new educators. By leveraging the expertise of TLCs, these collaborations ensure that teacher education programs are aligned with contemporary educational needs and standards. The curriculum's design reflects a deliberate effort to integrate interdisciplinary approaches, equipping teachers to navigate complex classroom environments effectively (Connelly, 2023).

Additionally, these reforms aim to address long-standing systemic issues in teacher recruitment and retention by creating a streamlined education pathway. This pathway is intended to attract motivated individuals and accelerate their entry into the teaching profession. The inclusion of digital literacy and inclusive education modules further underscores the program's responsiveness to evolving societal and technological demands. Local experimentation and feedback mechanisms are also integral to this reform agenda, enabling regional adaptations while maintaining national standards. Such flexibility allows for the testing and refinement of innovative teaching practices, ensuring that the education remains dynamic and relevant.

| 10 CFU Pedagogical disciplines | 3 CFU Language-digital disciplines | 3 CFU Inclusive education | 4 CFU Psycho-socio-anthropological disciplines | 2 CFU Teaching methodologies | 2 CFU School legislation |
|---|---|---|---|---|---|
| 16 CFU Didactics of the disciplines and methodologies referring to the class | | | | | |
| 20 CFU internship Direct: 15 cfu (180 calssroom hours) Indirect: 5 cfu | | | | | |

*Table 2: the new initial teacher education courses*

## 3. The Role of TLCs in Initial Teacher Education

Teacher education is fundamental to ensuring effective student learning, as strong teaching practices directly influence educational outcomes. Over time, the traditional teacher-centered approach has evolved into a student-centered model, emphasizing the active role of learners in the educational process. Today, learning is viewed as a continuous and dynamic process that leverages students' personal potential, with the ultimate goal of holistic development—not only academic but also personal and professional. This objective aligns with the "third mission" of universities, which extends beyond academia to contribute to societal and cultural growth through education and research (Felisatti & Serbati, 2015; Darling-Hammond & Lieberman, 2012).

The teaching paradigm has shifted from a purely transmissive model, where a good professor is someone well-versed in disciplinary content, to an outcome-based approach that prioritizes student learning. Effective educators are now expected to create engaging and stimulating learning environments, set clear learning objectives, and employ diverse teaching methods to bridge prior knowledge with new content through an interdisciplinary approach (European Commission, 2017).

Teaching and Learning Centers (TLCs) play a fundamental role in the successful implementation of Italy's reformed teacher education program, serving as essential hubs for connecting theoretical frameworks with practical application. These Centers provide a robust infrastructure that supports the comprehensive development of future educators, addressing key aspects of faculty development, curriculum design, and practical education. In terms of faculty development, TLCs offer targeted professional learning opportunities, including workshops, seminars, and mentoring programs, that equip educators with innovative pedagogical strategies and digital competencies. These initiatives encourage the adoption of evidence-based practices designed to enhance student engagement and inclusivity, while personalized feedback and coaching ensure faculty remain responsive to evolving educational demands (Coryell, 2016; Lotti & Lampugnani, 2020). TLCs also contribute significantly to curriculum innovation by collaborating with academic departments to create interdisciplinary programs that integrate rigorous theoretical content with practical relevance. Through embedding experiential learning opportunities, they enable pre-service teachers to develop critical reflective practices and a deeper understanding of classroom dynamics, ensuring a well-rounded approach to teacher preparation (Connelly, 2023). Additionally, TLCs are instrumental in supporting practical placements, a cornerstone of Italy's new teacher education model. By fostering partnerships with local schools, they organize structured internships where pre-service teachers gain hands-on experience in classrooms, supported by mentorship frameworks that facilitate professional growth and contextualized learning (Lotti et al., 2022). Beyond these contributions, TLCs drive the integration of digital tools and platforms into teacher education. Leveraging data analytics, they assess the effectiveness of teaching methods and adapt education programs to reflect evidence from classroom interactions, aligning with global trends and best practices in education (Austin, 2023). Importantly, TLCs serve as "bridging institutions" within universities, connecting often-isolated departments and disciplines, and fostering interdisciplinary collaboration that is critical in today's interconnected world. At the same time, they strengthen ties between academia and the school system, linking

educational research with classroom practice and creating innovative education pathways that prepare educators to address the complexities of 21st-century teaching. This dual focus on interdisciplinary collaboration and practical integration highlights the transformative potential of TLCs in shaping a more inclusive, innovative, and effective teacher education system in Italy. Their ability to unite stakeholders, including schoolteachers, university researchers, and academics across disciplines, underscores their pivotal role in building a teacher education framework that aligns with the demands of contemporary education while fostering lifelong learning and professional growth.

## 4. Case Study: TLCs in Italy

In Italy, Teaching and Learning Centers (TLCs) have played a transformative role in reimagining teacher education. Universities hosting these Centers have observed significant advancements in the quality of teaching practices and educational outcomes. By offering an array of support services such as workshops, seminars, and consultations, TLCs guide both novice and experienced educators in adopting effective teaching methodologies (Kowalczuk-Walędziak et al., 2019). Despite these successes, challenges such as resistance to change and the need for stable funding persist.

### *The University of Bergamo: CQIIA*
An exemplary TLC in Italy is the Centro per la Qualità dell'Insegnamento, dell'Innovazione Didattica e dell'Apprendimento (CQIIA) at the University of Bergamo. Officially inaugurated in 2023, CQIIA builds upon the foundation of the Centro per la Qualità dell'Insegnamento e dell'Apprendimento (CQIA), established in 2005. This center embodies the University of Bergamo's dedication to meeting evolving educational challenges through an innovative, multifaceted approach that prioritizes teaching excellence, professional development, and lifelong learning. The CQIIA operates through three primary sections, each addressing distinct facets of higher education and teacher education:
1. School and Teacher Education: Focused on developing, coordinating, and implementing programs for educational institutions across levels, this section promotes collaboration with specialized laboratories. These include IperDEA, which emphasizes inclusion and accessibility, and MatNet, which specializes in mathematics education and its applications.
2. Educational Innovation and Digitalization: This section drives the adoption of innovative teaching strategies and digital tools, equipping educators with the methodologies needed to create dynamic and effective learning experiences.
3. Faculty Development: Designed to enhance the professional skills of university faculty, this section offers tailored programs and resources to support excellence in teaching, research, and academic management.

The CQIIA serves as a hub for fostering interdisciplinary collaboration, promoting inclusivity, and integrating innovative practices into teacher education. By offering workshops, seminars, and one-on-one consultations, the center empowers educators to adopt research-based teaching strategies and digital tools. For example, education programs on platforms like Moodle and Teams facilitate the creation of dynamic online learning environments that enhance student engagement.
Moreover, the CQIIA actively supports inclusive education through partnerships with student organizations to develop accessible course materials and adaptive technologies. These initiatives align with broader efforts to ensure equity in education and prepare teachers to address the diverse needs of their students.
Beyond its impact at the University of Bergamo, the CQIIA plays a crucial role in regional and national educational strategies. In the Lombardy region, the center collaborates with educational institutions to promote STEM education, sustainability, and digital literacy. At the national level, the CQIIA participates in networks supported by the National Recovery and Resilience Plan (NRRP), contributing to the development of standardized frameworks and best practices in teacher education.

Despite its achievements, the CQIIA faces challenges such as resource constraints and resistance to pedagogical innovation among some educators. Addressing these issues requires continued institutional investment and strategic partnerships with stakeholders.

Looking forward, the CQIIA aims to expand its influence by integrating emerging technologies, such as artificial intelligence and data analytics, into its programs. These advancements could further personalize professional development and enhance teaching effectiveness. Additionally, the center plans to strengthen its international collaborations, contributing to global discussions on educational innovation.

Through its comprehensive approach and sustained efforts, the CQIIA exemplifies the transformative role of TLCs in shaping teacher education. It stands as a model for how higher education institutions can adapt to contemporary challenges while fostering excellence in teaching and learning.

## 5. Conclusion

The integration of Teaching and Learning Centers (TLCs) such as the CQIIA into Italy's teacher education framework underscores their transformative potential in addressing the evolving demands of education. These Centers provide a bridge between theoretical knowledge and practical application, fostering interdisciplinary collaboration and enhancing the quality of teaching practices. By promoting professional development and supporting educators in adopting innovative pedagogical strategies, TLCs address critical gaps in traditional teacher education models.

TLCs demonstrate their value not only in improving individual teaching competencies but also in creating institutional cultures that prioritize continuous learning and innovation. Centers like the CQIIA, with their focus on digital tools and inclusive education, exemplify how TLCs can adapt to broader societal and technological shifts, ensuring that educators are well-prepared to navigate diverse and dynamic classroom environments.

However, challenges persist. Resistance to change and limited resources continue to impede the broader adoption of TLC-led initiatives. Overcoming these challenges requires sustained institutional support, increased funding, and strategic partnerships with both public and private stakeholders (Murray et Al., 2019). Building a robust evidence base to measure the long-term impact of TLCs on teacher quality and student outcomes will also be crucial for securing their role in education policy and practice.

Ensuring the long-term sustainability of Italy's TLCs represents a significant challenge, particularly beyond the initial funding allocated through the National Recovery and Resilience Plan (PNRR). While the investments provided by the PNRR have established a robust foundation for the development of TLCs, their continued success depends on strategic measures that promote ongoing professional development and adaptive policy frameworks. A crucial aspect of sustainability is institutional integration, which involves embedding TLCs within the structural framework of universities. This process requires the establishment of permanent funding mechanisms within university budgets and the development of partnerships with both public and private organizations to secure long-term financial stability. Policy alignment is equally vital, ensuring that TLCs remain integrated within national educational strategies, particularly through compliance with ANVUR's quality assurance frameworks and continuous engagement with the Ministry of Education and other regulatory bodies. Furthermore, international collaborations play a pivotal role in enhancing the sustainability of TLCs. Engaging with global networks facilitates access to best practices, innovative pedagogical strategies, and additional funding opportunities. This global exchange fosters institutional resilience and strengthens the role of TLCs in advancing pedagogical innovation. By implementing these strategies, Italy's TLCs can transition into self-sustaining entities, ensuring their continued contribution to teacher education and instructional excellence in the long term.

Looking forward, the expansion of TLCs' scope into emerging areas such as artificial intelligence, data analytics, and global collaboration offers significant opportunities for growth. By leveraging these technologies, TLCs can personalize teacher education, provide targeted feedback, and enhance the scalability of their programs. Furthermore, fostering international networks will allow Centers like CQIIA to exchange best practices and contribute to a global dialogue on education innovation.

In conclusion, the role of TLCs in reshaping teacher education in Italy is both significant and promising. By addressing systemic challenges, adapting to emerging trends, and maintaining a commitment to quality and inclusivity, TLCs stand as exemplars of how higher education institutions can evolve to meet the needs of educators and students alike. Through their sustained efforts, TLCs will continue to play a pivotal role in shaping the future of education, ensuring its relevance and effectiveness in an ever-changing world (Roberts, 2013).

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# From Burnout towards Pedagogical Teacher Education. A communities perspective

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## Abstract

From a psychodynamic perspective, the burnout construct can be understood as a response to chronic interpersonal stressors experienced at work, with consequent deterioration in psycho-physical well-being. Although burnout has mainly been studied in the psychological field, it has recently attracted increasing interest from the educational field.

This paper aims to explore the burnout construct from a community pedagogical perspective. Particular attention will be paid to the current prevalence of burnout syndrome, especially in the school context, with specific reference to the figure of the teacher. Furthermore, the focus is on pedagogical training courses aimed at rediscovering one's professional vocation, increasing emotional-relational competences and building educational alliances in order to reduce the risk of burnout at schools.

**Keywords:** burnout; school; teacher education; pedagogical perspective; communities pedagogics.

## 1. Work today: some data

Numerous emerging phenomena characterize late modernity. Over the past 30 years, Italian society has undergone significant transformations, particularly in terms of increased job insecurity, fragmentation, and flexibility in the labor market (Vinciguerra, 2022).
The general crisis of certaintys has also affected the ways, places, and times of work.
The transition into the labor market already appears uncertain.
In fact, according to ISTAT data, in 2023, the employment rate in Italy grew significantly, becoming comparable to that of other European economies. Compared to 2019, employment has increased by 2.3%. However, Italy still maintains a high share of workers in vulnerable conditions. This vulnerability is primarily linked to the number of involuntary part-time workers, low wages, and short contract durations.
In 2023, the percentage of workers engaged in involuntary part-time jobs amounted to 17.6% of the population. Italy ranks last among European countries in terms of average wage levels.
According to the Indagine sul Reddito e le Condizioni di Vita (EU-SILC), in 2022, 8.5% of workers, equivalent to 11.5% of the population, lived in households at risk of poverty. These conditions are closely associated with education levels, which significantly influence individuals' economic stability. The data paints a picture of generalized uncertainty in which job and economic precariousness fuel emotional and relational instability. This situation fosters a new attitude toward the future, marked by a decline in hope, which manifests itself primarily in the difficulty of formulating a life project. Based on the observations presented so far, it is evident that the discrepancy between striving for the future and uncertainty about tomorrow perpetuates a dynamic of anxiety and distrust. This often translates into forms of stagnation and immobilization. Such processes determine the future as an unattainable utopia, with an increasing loss of hope replaced by resignation (Bauman, 2006, tr. it., 2009). This phenomenon also affects current work dynamics, contributing to the growing risk of burnout.
Amid this precariousness, young people face significant challenges in transitioning to adulthood. Traditionally, this developmental phase is characterized by achieving economic independence, leaving the family of origin, establishing a family of one's own, and formulating a personal life plan. However, in the national context, in addition to job insecurity, there is a significant percentage of young people classified as NEETs (Not in Education, Employment, or Training) individuals seemingly unable to cultivate personal projects.
More broadly, this condition appears to have caused widespread disaffection toward work. In this regard, the 2024 Censis Report highlights a "downgrading of work's value, no longer the epicenter of lives and aspirations, but relegated to being just one of many activities that form the daily puzzle of individual lives" (Censis, 2024, p. 5).
Despite the increase in the employment rate in Italy, greater professional stability, and a rising female workforce presence, the relationship with work remains ambiguous and contradictory. This paradox, as the report indicates, stems from changing habits and lifestyles, which have created a tension toward pursuing subjective well-being. Within this framework, work, on the one hand, represents an expression of individual potential and a rewarding, meaningful experience. On the other hand, it is perceived as an obstacle to achieving personal well-being, seen as overwhelming and insufficiently fulfilling.

## 2. The contemporary proliferation of Burnout Syndrome

The current contradiction in the perception of work as both a value and a disvalue for individuals is mainly attributable to the profound social, cultural, and economic changes that have reshaped individual and organizational perceptions of work (Maslach, Leiter, 1997, tr. it. 2000). Today, many workplaces prioritize short-term economic and financial profits over investing in the growth of their resources and the long-term improvement of work environments. Instead of focusing on excellence in products and fostering a sense of community, there is a preference for investing in cash flow (Rossi, 2008).

Some of the driving forces behind these changes in the world of work include the globalization of the economy, technological advancement, shifts in power distribution within workplaces, and the decline in the sense of belonging (McMillan, Chavis, 1986). The acceleration of globalization since the 1980s has led to the decentralization of industrial production away from local communities. Expanded communication and transportation systems, the removal of trade barriers, and the pressure exerted by multinational corporations have been key factors in a complex process that has redefined the concept of work.

Globalization drives increasingly competitive production methods, creating additional pressures on workers. To keep up with the relentless pace demanded, workers often extend their working hours and take on more tasks, which are frequently ungratifying.

The challenges associated with the decentralization of work and the conditions of workers inevitably contribute to the erosion of the sense of belonging. This disconnection fosters disengagement and a loss of trust in the organization a process further exacerbated by technological advancements. The increased use of sophisticated machines and software reduces interpersonal interactions and the human resources employed in organizational contexts. Many tasks are now performed with the aid of technology, to the detriment of human labor, which is often deemed less efficient and more costly.

This reliance on technology frequently coincides with inadequate training for employees on using new tools, slowing down task execution due to the misalignment of human and technological timelines.

Another significant factor contributing to the transformation of workplace dynamics is the redistribution of power. Human resource management has become increasingly rigid, focusing exclusively on economic productivity. Systems have grown more self-centered and hierarchical, leading to a decline in professionals' autonomy (Leiter, Maslach, 1999). This is compounded by the diminishing power of labor unions, which struggle to adequately address workers' needs and rights under the growing pressures from companies and their managers.

Against this backdrop of significant changes in the world of work, there has been a proliferation of burnout syndrome (Maslach, Leiter, 2006), primarily caused by a disconnect between economic and productive values on one side and human values on the other. The rapid adaptation required to these changes, often without adequate training, negatively impacts the individual well-being of human resources and the overall health of the workplace.

This issue is particularly relevant in today's education system, which is increasingly focused on pursuing success (in terms of education) and measurable outcomes (in learning achievements), while paying insufficient attention to the holistic flourishing of individuals (Nussbaum, 2010, tr. it. 2011) and the processes involving adult educators.

## 3. Burnout at school: a pedagogical interest

As is well known, burnout is a psychodynamic construct that can be understood as a response to chronic interpersonal stressors experienced in the workplace. It goes beyond the concept of stress, a term widely used even in common language. While stress involves a resistance and adaptation response to a challenging situation in an attempt to regain equilibrium, the experience of burnout entails a state of exhaustion caused by prolonged exposure to the stressor, where the individual's energy investment proves insufficient to cope with the intensity of the stimulus (Selye, 1976). Unlike stress, which is temporary, burnout is characterized by a prolonged, chronic condition of vulnerability resulting from the inability to adapt to external demands, sometimes leading to the onset of psychopathologies.

What decisively differentiates these two experiences is the interpersonal dimension present in burnout. Burnout specifically affects help professions, those occupations centered around human relationships with others.

For this reason, although this construct has been extensively studied in psychological literature, it has recently attracted growing interest from pedagogical perspectives. This interest is supported by a gradual departure from the tendency to pathologize human behavior and the emergence of a new, more holistic and community-oriented approach to social phenomena.

In this framework, risk conditions, specifically referring to burnout in educational professions, are no longer attributed to subjective variables but rather to the complex interplay of environmental and relational factors.

In educational accompaniment and caregiving work, relationships—both as a determinant of and determined by educational practice—are essential, providing the ground for nurturing new and unprecedented existential possibilities. However, these relationships also pose potential risks. According to Figley (2002), in caregiving relationships, educators experience tension from the other's experiences and emotional overload, leading to a loss of personal and professional equilibrium and the depletion of cognitive, emotional, and physical energy.

Sandrin (2004) identifies four phases in the onset of burnout in caregiving professions: unrealistic enthusiasm, a state resembling infatuation, characterized by strong idealization of work, significant group belonging, and mechanisms of identification with the client; stagnation, arises when signs of fatigue begin to appear due to a process of disillusionment; frustration, marked by the emergence of feelings of helplessness and guilt; disengagement, the final phase, involving a gradual emotional and professional detachment and a loss of work affection, accompanied by feelings of suffering, cynicism, and indifference.

At the root of these phases lies the centrality of the emotional dimension, particularly the concepts of emotional dissonance and emotional involvement.

These considerations become even more significant when focusing on the work of teachers, those professionals of educational care whose roles unfold within the dimensions of teaching and educational accompaniment. Teaching, and the school system more broadly, have undergone profound transformations in response to the significant social and cultural changes of the past century.

Today, teachers face numerous demands, not only related to the teaching-learning process but also increasingly centered on the educational relationship. A teacher's work is characterized by a multitude of relationships and interactions within their environment. In this context, Brown and Ralph (1998, cited in Botticelli et al., 2012) highlight that teachers' primary psychosocial risks stem from their relationships with students, colleagues, parents, and the broader community.

According to the authors, the risk of teacher burnout is closely linked to the multiplicity of relationships at various levels within the school context and organizational factors that do not always promote individual and community well-being.


## 4. Towards communities pedagogical teacher education

The social and cultural changes that have impacted and continue to influence the school system, the evident struggles of educational institutions, and the increasing difficulties faced by adults have fueled the national and international pedagogical debate about the need for adequate training to define a new profile of teacher identity (Tempesta, 2018). Although studies in Teacher Education have identified the factors contributing to this professional identity, there remains a significant challenge in applying these principles to training processes.

Training programs for teachers in the Italian school system remain anchored to inductive and applicative models, neglecting the cyclical framework of intentionality in teaching, which is founded on pragmatic, epistemic-methodological, and educational-relational dimensions. Schools and therefore teacher training remain focused on students' learning outcomes while neglecting the teacher, who is often seen solely as the "holder-reproducer of disciplinary knowledge" (*ivi*, p. 57).

Institutionalized forms of initial teacher preparation, in-service training, and systemic actions in continuous professional development remain disorganized and contradictory. They primarily aim to improve student learning outcomes, inadvertently increasing teachers' stress and job dissatisfaction while acronyms that dominate ministerial initiatives proliferate.

Even today, training initiatives appear not only fragmented but also primarily focused on the individual dimension of teacher burnout. Burnout is treated as a personal problem, and the primary goal of educational and training initiatives is the enhancement of knowledge and skills, with little attention paid to processes and environmental or relational variables.

More than ever before, the focus on the community dimension in understanding social phenomena calls for designing teacher training programs that center the relationship between individuals and their context (Bronfenbrenner, 1979, tr. it. 1986).
Teacher training programs should pursue three main objectives, each tied to a distinct dimension:

- individual dimension: this involves guiding teachers toward rediscovering their professional vocation and ethos. The aim is to foster a professional life that highlights the most intrinsic characteristics of the individual (Stein, 1959, tr. it. 2012) and that directs their personal and professional choices and practices;
- interpersonal dimension: this focuses on the relational dynamics within the school environment. Training initiatives should enhance emotional-relational competencies (Simeone, 2017) not only for teachers but for all members of the school community. Given the central role of emotional and relational dimensions in burnout, there is a need to establish authentic relationships based on empathy and mutual recognition (Bellingreri, 2017). Training programs should include tools for assessment, enabling the evaluation of abilities to perceive, understand, use, and manage emotions at both individual and relational levels. Additionally, they should offer training activities aimed at learning and strengthening emotional skills (D'Addelfio, 2022);
- community dimension: this reflects a fundamental principle of schools: being a community of people and practices. Social education becomes central as an indispensable endeavor without which the ultimate goal of human flourishing cannot be achieved (Stein, 1926-1933, tr. it. 2017). This principle can be operationalized through initiatives that foster virtuous alliances among schools, families, and the broader community (Pati, 2019).

The concept of shared responsibility refers to "the personal, group, and institutional capacity to autonomously and creatively engage in various formal and informal experiences, contributing to the ideation and implementation of new development and action models" (Pati, 2011, p. 25 ff.). This can be achieved through pedagogical actions aimed at community development, which base educational practices on the involvement of all stakeholders in the school community and the creation or maintenance of a shared vision and collective sentiment.
The pedagogical training of teachers requires not only the acquisition of knowledge and skills, but also a methodological orientation that guides professional practice. The primary objective is to train adult educators to be reflective professionals capable of acting through a problematic and complex approach to reality (Schön, 1993). Pedagogical training therefore takes the form of a continuous reflection on practice, so that the acquired competences can be put into practice under different conditions. This is possible through the interweaving of learning and experience in training courses.
The pedagogical training of teachers is based on a community approach, understood as a methodological direction for education. This means that pedagogical training is based on the interdependence between the person and the context, making use of the relationships that develop in the school context. In fact, from a pedagogical point of view, it does not seem sufficient for teacher education to work exclusively on the professional with an individualistic approach. To be truly pedagogical, it requires the involvement of the whole school community and the development of relational, social and emotional skills. The basic assumption is that the community, as a constitutive part of the human structure, represents both a direction of meaning and a method for education (Stein, 1922, tr. it. 1996).

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# FOOTT PRINTTS:
# Advancing Quality Standards in Teacher Training

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## Abstract

The ERASMUS+-project FOOTT PRINTTS (Focus on Teacher Training – Practical Guidelines for In-Service Teacher Trainers) provides theoretical research and practical insights from which possible conditions of success for quality assurance systems in European in-service teacher training will be generated.

In a collaboration of seven countries empirical data is generated across Europe to represent the diversity of regional, national, public and private training institutions.

By combining research with practical needs, the project seeks to establish international frameworks, proven methodologies, and a sustainable peer-learning network. Key milestones of the project so far include completing the literature review, advancing the mixed-methods data collection, and laying the groundwork for the creation of an adaptable framework for teacher trainers.

**Keywords:** teacher professionalization; continuous professional development; internationalization; quality standards; in-service teacher training.

## 1. Introduction

The FOOTT PRINTTS (Focus on Teacher Training - Practical Guidelines for In-Service Teacher Trainers) Erasmus+ KA2 project plays a crucial role in addressing contemporary challenges faced by the European education sector. The demand for Continuous Professional Development (CPD) has grown significantly in recent years, as teachers face new challenges, such as adapting to rapidly evolving educational technologies, addressing diverse student needs, and ensuring inclusive education (Petar, 2024; Awang-Hashim et al., 2019; Pramastiwi et al., 2018). The project, a cooperative initiative involving seven countries – Austria, Denmark, France, Germany, Greece, Poland and Portugal – was designed to enhance CPD for teacher trainers and consequently educators.

Teacher training institutions are now focusing on innovative approaches to ensure that CPD is accessible, relevant, and practical. The FOOTT PRINTTS project responds to these needs by generating empirical data on CPD in six European countries (AT, DE, DN, GR, PL, PT). The need for effective CPD is particularly critical considering the global teacher shortage, with many educators leaving the profession due to burnout or lack of support (Craig, Hill-Jackson, & Kwok, 2023). FOOTT PRINTTS aims to create evidence based practical guidelines that empower teacher trainers and ensure they are equipped to address these evolving challenges.

The mapping of partner countries in the FOOTT PRINTTS project[1] provides valuable insights into how CPD quality is influenced by various contextual conditions. For instance, centralized CPD systems in Austria and France contrast with more decentralized, regional and school-driven approaches in Denmark and Portugal, demonstrating how governance structures shape the design and delivery of CPD. Similarly, participation requirements, such as mandatory CPD in most countries versus the optional model in Denmark, highlight differences in policy priorities. Funding models also vary, with national budgets, municipal co-financing, and EU-supported initiatives playing significant roles in different contexts. These differences underscore the importance of adapting CPD to local needs while maintaining a commitment to high-quality standards. This diversity reflects the strength of the FOOTT PRINTTS project, which brings together public, private, and university stakeholders to create a reliable and inclusive framework for European CPD.

Chapter 2 discusses the different quality dimensions with a focus on trainer competence. Chapter 3 will explain the methods used and present key topics addressed in the FOOTT PRINTTS survey. The final chapter provides a summary of the quality dimensions investigated in this project.

## 2. The different quality dimensions of CPD

Defining the quality of Continuing Professional Development (CPD) depends largely on the scope of analysis. Some studies define CPD quality by examining its *outcomes*, such as the impact on student achievement, transformations in pedagogical practices, or the enhancement of school and institutional quality (Gümüs & Bellibas, 2019; Balmer, 2017). Other studies emphasize *process quality* of CPD, focusing on content, trainer competence, adult learning, network facilitation, digitization, and collaboration (OECD TALIS, 2018/2020; Darling-Hammond et al., 2017; Lipowski & Rzejak, 2017; Meyer, Kleinicht, & Richter, 2020; Stoll et al., 2006).

This paper adopts a comprehensive approach by drawing from both perspectives, placing a particular emphasis on elements that require increasing attention in CPD within the 21st century—a period marked by digitization (Montero-Mesa et al., 2023; Petar, 2024; Rzejak et al., 2024) and the emergence of new forms of collaboration and learning. Among these elements, trainer competence is of particular interest, given the central role trainers play in CPD. They serve not only as content experts but also as coaches, network facilitators, and critical friends, fostering an environment conducive to professional growth and peer collaboration.

The FOOTT PRINTTS research project identifies and elaborates on four central dimensions shaping CPD quality: the teacher, the teacher trainer, educational policy, and socio-cultural contexts. These

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[1] FOOTT PRINTTS. (2024). *Literature review*. Retrieved from https://foottprintts.eu/wp-content/uploads/2024/06/FOOTT-PRINTTS-Literature-Review.pdf

dimensions influence the conditions under which professional development occurs and is subsequently implemented in diverse classrooms and learning environments. Graph 1 illustrates the interdependencies between the four dimensions and underscores the importance of aligning CPD practices with the needs of various stakeholders.
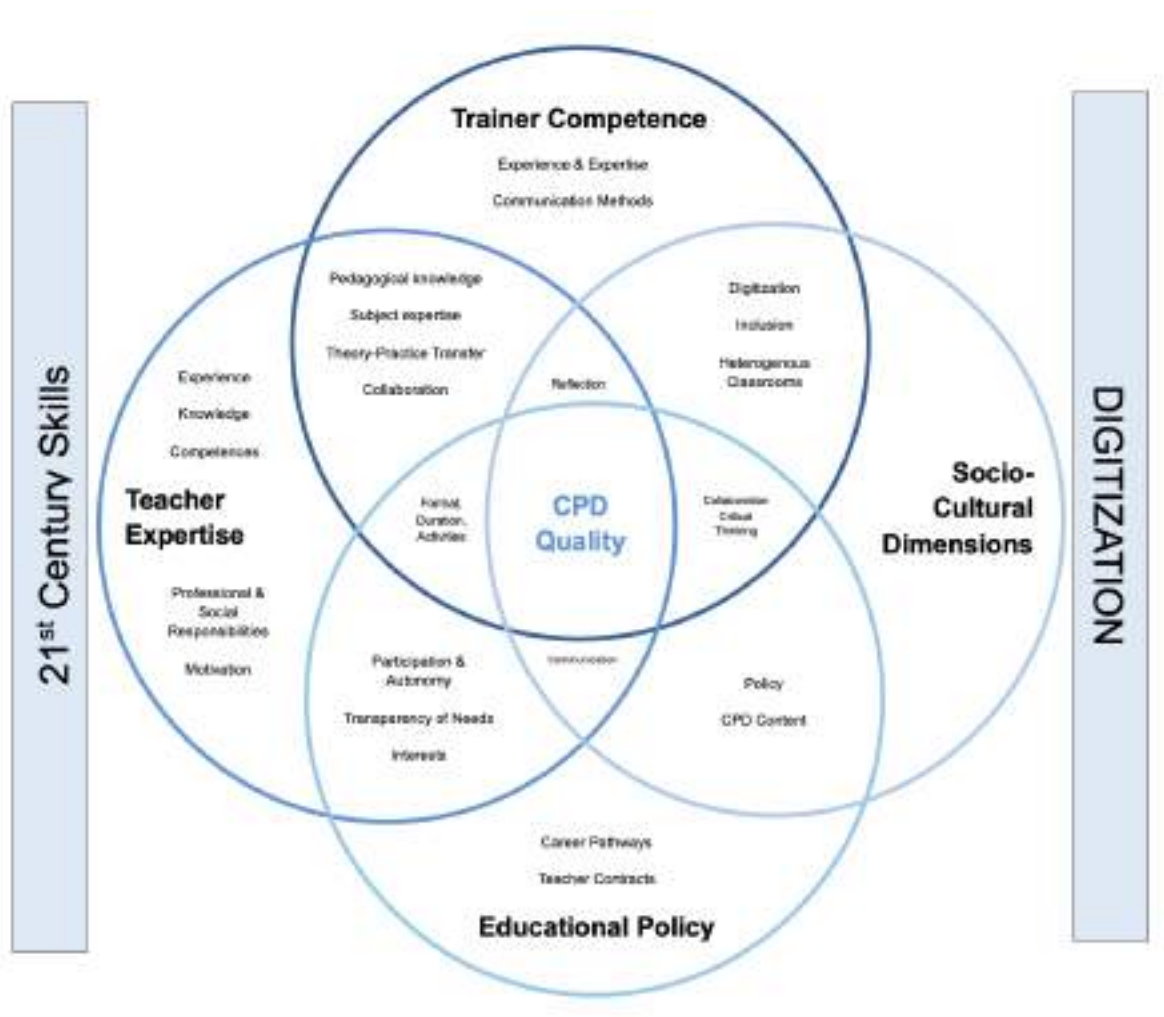


*Graphic 1: FOOT PRINTTS Quality Dimensions of CPD. Author's work.*

Recent findings from literature research[2] and the mapping of partner countries highlight several critical factors contributing to CPD quality:

1. Teacher-Centric CPD: CPD programs that align with individual teachers' professional learning needs and career progression pathways enhance motivation and engagement. Tailored support mechanisms, such as diagnostic tools like Portugal's Selfie for Schools, have been particularly effective in addressing specific developmental needs.

2. Trainer Expertise and Continuous Development: Ensuring the competence of CPD trainers is a priority across partner countries. For instance, in Poland, national regulations mandate specific qualifications and ongoing professional development for trainers. Similarly, North Rhine-Westphalia (Germany) requires trainers to complete structured training programs to qualify as moderators or school development coaches.

3. Digitization and Innovative Learning Contexts: Digitization has transformed CPD delivery methods, enabling blended learning approaches and fostering collaboration within schools as well as across geographically dispersed participants. Initiatives such as NRW's "Digital Offensive"

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[2] FOOT PRINTTS. (2024). *Literature review*. Retrieved from https://foottprintts.eu/wp-content/uploads/2024/06/FOOT-PRINTTS-Literature-Review.pdf

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underscore the integration of technology into CPD practices, preparing teachers for digitally enriched learning environments.

4. Socio-Cultural and Institutional Adaptability: CPD initiatives must consider the socio-cultural contexts of schools and communities. The inclusion of equity-focused practices, such as Greece's integration of diverse learning needs into CPD frameworks, demonstrates the necessity of adapting CPD to varied educational settings. Furthermore, school development efforts that are tailored to meet specific institutional needs emphasize the role of aligning CPD strategies with the unique requirements of educational institutions.

Educational policy defines the conditions for educators' professional development. A free choice of CPD content and activities can positively impact educators' interests, motivation and openness to develop knowledge and skills and reflect on routines and educational practices (see Wanitschek et al., 2020: 742). A biased choice, however, may allow development in some areas, while leaving blind spots in other areas. Teacher appraisal (FOOTT PRINTTS, 2024) offers one possible avenue of targeting these blind spots, while acknowledging and appreciating educators' strengths.

Effective CPD contributes to educators' knowledge and competence development, leads to positive changes in instructional and educational practices (OECD, 2020), student achievements and ultimately within teams of educators to raise the institutional quality (Lipowksy, 2009; Balmer, 2017). Additionally, support from the leadership level contributes positively to CPD efficacy (Stoll et al., 2012). CPD quality must therefore be studied by paying respect to both, the role of teacher trainers and educators during CPD and the policy and educational institutions' support educators experience as part of the implementation of positive change. While focusing primarily on the process quality of CPD, this study pays attention to the social, cultural and policy related contexts in the participating partner countries by including it into survey items and data analysis.

The spike of digitization in recent years has altered CPD formats, with an increase of online learning and the use of new technology. Consequently, the types of social interaction during CPD activities can alter from lectures and discussions in online synchronous events to digital interactions in asynchronous CPD formats. Collaboration over longer time spans builds trust which leads the way to exchanging ideas and practices with other professionals and experts in the field (Minea-Pic, 2020; Darling-Hammond et al., 2017). The FOOTT PRINTTS survey examines the role of duration and collaboration of digital CPD formats, to better understand its role in educators' competence development, their ability to reflect upon their teaching practices and build professional communities.

### 2.1 Trainer Competences

Trainers play an important role in CPD, not only as experts on subject-matter but also as coaches, network facilitators, and critical friends. The comparison of the education systems of the six participating countries in the FOOTT PRINTTS research project highlights how trainer qualifications and professional development vary across partner countries, from university-led standards in Austria[3] and Denmark to certification requirements in Poland and Portugal.

In contrast to pre-service teacher trainers, in-service trainers teach experienced professionals in their field. They present new insights into education, society and pedagogy to a group of experts of varying experience who work in varying circumstances (homogeneous versus heterogeneous groups, learners with different family backgrounds and educational aspirations as well as institutions with varying resources). Additionally, in-service teacher trainers serve educators who are handling high levels of uncertainty in their daily professional life: interacting with young learners and their parents/guardians, creates unpredictable pedagogical situations which require teachers' flexibility and high pedagogical professional competences. The social and technological developments of the recent decade have raised questions on the relationship between global trends, such as standardization, digitization and new ways of collaboration and learning, and their local adaptations,

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[3] In-service teacher trainers must possess the same academic qualifications and professional experiences as pre-service teacher university college lecturers in Austria (BMBWF, 2021: 20).

which is referred to as glocalization (Collinson et al., 2009). Consequently, in-service teacher trainers support teachers in developing both subject-matter knowledge and pedagogical competencies. Trainer competence can be understood as an intricate skill set that is based on subject-matter expertise, experience in pedagogical settings (see OECD, 2021; Balmer, 2017) institutional knowledge and the ability to flexibly adapt to educators prior knowledge and current needs (see Lipowski & Rzejak, 2017). Apart from trainers' knowledge and beliefs, the ability to communicate effectively and motivate participants were identified as key factors for trainer competence (Kunter et al., 2013).

## 3. Methods

### 3.1. Research Design

The FOOTT PRINTTS project uses a sequential mixed-methods approach, combining both qualitative and quantitative data collection techniques to ensure a comprehensive understanding of the CPD needs across Europe. From October 2024 to February 2025, a quantitative survey will be conducted in the partner countries Germany, Austria, Denmark, Poland, Greece and Portugal using online questionnaires at three different levels (micro, meso and macro level). Following the analysis of the quantitative data, semi-standardized qualitative expert interviews will be conducted in the partner countries from May to June 2025. These interviews will provide additional insights into regional aspects of CPD delivery to complement the survey results and support their interpretation. Socio-cultural and policy contexts of the participating countries were considered in the development of the surveys and will be included in data analysis and interpretation (Efstathiades & Rudloff, 2024).

Three questionnaires were developed for each partner country. One for the micro, one for the meso and one for the macro level. At the micro level CPD participants are interviewed. At the meso level, trainers are surveyed and at the macro level, decision makers are surveyed. The sample size of the quantitative research for the countries Germany, Austria, Poland and Denmark is 400 CPD participants at the micro level, 150 trainers at the meso level and 50 decision-makers for teacher training at the macro level. In Portugal and Greece, the sample size at the micro level is 310 teachers, at the meso level 70 trainers and at the macro level 20 decision-makers. This results in a dataset of a total of 3200 observations in the European Education Area (EEA). (Efstathiades & Rudloff, 2024)

*Quality Assurance*

A pre-test took place from May to June 2024 in the partner countries that are participating in the empirical research. The questionnaire was revised on the basis of the evaluation results and individual feedback from survey participants. To finalize the surveys developed by the Austrian team, multiple feedback rounds with all participating countries were held to ensure a consensus on the fundamental elements of the surveys as well as on their thematic, cultural and linguistic accuracy. Guided expert group discussions and reviews with all partner countries ensured relevance, quality, linguistic and content accuracy.

### 3.2. The FOOTT PRINTTS Survey

The aim of the survey is to gather insights from teacher trainers, educators, and policymakers, to identify the key challenges faced in delivering effective CPD and support teacher trainers in conducting successful CPD. The initial stage of the project involved a literature review, which identified key elements of effective CPD programs with a focus on policy and school quality assurance processes in the respective partner countries. Alongside additional research on quality criteria of CPD, these elements formed the basis for the development of the surveys. In order to minimize the time required to complete the questionnaire, care was taken to formulate the questions as concisely and precisely as possible and to keep their number as low as possible. Different forms of questions, such as rankings, randomization of answer items, and questions using a 5-point Likert-scale, were deliberately used, as variety is intended to keep the participants interested in the survey and focused until the end of the questionnaire. These measures also aim to prevent participants from ticking off answer options at random.

Table 1 presents an overview of the topics covered in the FOOTT PRINTTS survey.

| Training Format | Form of CPD delivery<br>Time,<br>Duration,<br>Location,<br>Digital and face-to-face training activities |
|---|---|
| CPD Delivery | Training elements: e.g. instruction, modeling or analyzing materials<br>Theory to practice ratio |
| Motivation | Extrinsic: career perspectives, policy, contracts, work hours<br>Intrinsic: connecting with other professional, interests, prior knowledge & competence development |
| Collaboration | Types of collaboration in digital and face-to-face settings |
| Participants | Level of involvement<br>Interests and objectives of training<br>Needs |
| Trainers | Qualifications<br>Professional experience<br>Didactic and communication skills<br>Needs |
| Policy | Options for selecting training,<br>Contract and career perspectives,<br>Resources and planning<br>Content needs |

*Table 1: FOOTT PRINTTS Survey Quality Dimension. Authors' work.*

The survey, for instance, asks participants to state when they learn most from trainers, such as from trainers' professional experiences; the combination of theory and practice; from showing possible effects on students; or different aspects that contribute to active learning (e.g. creating opportunities for reflection, the practical testing of content, modeling of good practice, and the analysis of pupils' work during the training courses). New ways of learning in digital and face-to-face settings are addressed by investigating the variety of forms of collaboration, including but not limited to: group discussions, peer learning, collaboration with online platforms, practical experimentation and informal exchange. In addition, the methodological diversity of these collaborations is analysed. All levels are asked to assess the role of CPD in addressing inclusion, social inequality, self-competence, digital developments (AI), or the support for children and young people with a migration background and cultural diversity.

## 4. Preliminary Findings

Based on 5,215 completed questionnaires, the preliminary findings of the quantitative survey provide valuable insights into the factors that participants consider particularly relevant for their professional learning and competence development through continuing professional development. Respondents highlighted the importance of intrinsic motivation, including personal interest and the aspiration for professional growth, as well as structural incentives such as certification, career opportunities and contractual conditions.
In addition, the quality of CPD is perceived to be shaped by participants' satisfaction with training, the availability of professional support in the form of coaching, mentoring, supervision and collegial exchange, and access to external training opportunities. The opportunity to practically test and apply newly acquired knowledge in everyday educational settings, along with the availability and quality of learning materials, was also considered essential.
Moreover, the perceived effectiveness of CPD depends on how training is selected and initiated. Both bottom-up processes driven by educational staff and top-down decisions made by school leadership

and supervisors play an important role in ensuring that CPD responds to actual needs and supports meaningful change.

The findings will be published, and good practice examples from the participating countries will be presented on the FOOTT PRINTTS website in the section titled "FOOTT PRINTTS Framework."


## 5. Discussion

This article focused on the competence of trainers, acknowledging their central role in the effectiveness of continuing education.

A key innovation of the FOOTT PRINTTS project lies in its multi-level design, which compares the perspectives of participants at the micro level, trainers at the meso level, and decision-makers at the macro level. With a dataset comprising 5,217 responses and the use of a rigorous mixed-methods approach, the project generates new empirical insights into the design and delivery of CPD across Europe. The results will be made available on the FOOTT PRINTTS website and are intended to offer teacher trainers practical guidance for implementing effective and context-sensitive professional development.

The in-service teacher trainers provide learning conditions to educators of varying experience working and needs. The social and technological developments of the last decade require complex skills based on expertise and experience in educational settings, in addition to institutional knowledge (see OECD, 2021; Balmer, 2017). Knowledge, beliefs and the ability to communicate effectively and motivate participants have been identified as key factors for trainer competence (Kunter et al., 2013).

A mapping of CPD in seven European countries shows that trainer qualifications and professional development vary across partner countries. The FOOTT PRINTTS survey was therefore developed as part of a cross-country sequential mixed method analysis. The aim of the survey is to gather insights from teacher trainers, educators and policymakers and to identify the key challenges in delivering effective CPD and the types of support that teacher trainers need to succeed. The survey covers CPD format, delivery, motivation, participant and trainer competence as well as educational policy. In regards to digitization, the FOOTT PRINTTS survey explores the role of collaboration in online CPD formats to better understand how learning and network facilitation take place in digital environments.

Effective upskilling contributes to the knowledge and competence development of educators and leads to positive change in the classroom and other educational environments (OECD, 2020). CPD can promote both student achievement and the quality of the educational institution through positive changes within the teaching teams (Lipowski, 2009; Balmer, 2017). Differences in the partner countries underline the importance of adapting training to local needs in order to ensure a high level of quality. The FOOTT PRINTTS project brings together public, private and university stakeholders to create a reliable and inclusive framework for continuing vocational training.

The FOOTT PRINTTS project offers valuable potential to shape future developments in European education policy, particularly in strengthening the quality and consistency of in-service teacher training across national systems. Building on its empirical foundation, the project envisions the development of a digital tool to support the planning, implementation, and evaluation of CPD at both national and international levels. This tool will be complemented by a conference with a strong focus on teacher professionalization, aimed at fostering long-term collaboration and initiating a sustainable international network of practitioners and stakeholders.

To ensure policy impact, further dialogue with EU-level actors is planned to explore how the findings can inform frameworks and quality standards. At the same time, future research should actively accompany the institutional transfer of project results, analysing how insights are taken up in diverse educational settings. A comparative reflection on regional differences will allow for deeper alignment across systems, promoting mutual learning through the diversity of structures and the exchange of proven practices in teacher education.

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# Rethinking digital competences for teaching in the Post-Covid Era:
# A participatory approach

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## Abstract

The evolving definition of teachers' digital competence encompasses cognitive, critical and ethical dimensions. Among these, the socio-relational aspect gained prominence during Emergency Remote Teaching, underscoring the importance of fostering student engagement and effective communication in online learning environments, as revealed in the literature review. This mixed-methods study explores the socio-affective components of digital competence necessary for inclusive, high-quality education. Through a participatory evaluation process involving consultations with 179 educators across Europe, the D-Paideia Qualifications Framework, based on DigCompEdu, was validated. Findings emphasize the importance of the socio-relational aspects of digital competencies. The insights highlight the need to adapt existing digital competence frameworks to better support teachers in navigating the complexities of post-pandemic education, fostering inclusive and engaging learning environments.

**Keywords:** teacher professional development; digital competence of educators; post-Covid education; Erasmus+ project; mixed methods.

# 1. Introduction

The current definition of digital competence of teachers surpasses a technocentric view and includes more complex dimensions related to cognitive, critical and ethical factors (Mishra & Koehler, 2006; Ranieri, 2022). Among these, the socio-relational dimension has emerged as essential during the experience of Emergency Remote Teaching (ERT). In this scenario, the ability to support teaching through strategies aimed at enhancing the motivation and commitment of all students and impactful communication has emerged as pivotal for benefiting from distance education (OECD, 2021).

The present contribution focuses on digital competence's socio-affective and relational components for teaching and learning. The initiative is situated within the context of the Erasmus+ project "Digital-Paideia", aiming to empower educators to leverage digital technology to support inclusive and high-quality education proficiently. The D-Paideia project is grounded in the DigCompEdu framework (Redecker, 2017, see Figure 1) and emphasizes the necessity of updating this model to better align with the evolving pedagogical demands and competencies required of educators in the post-pandemic era.
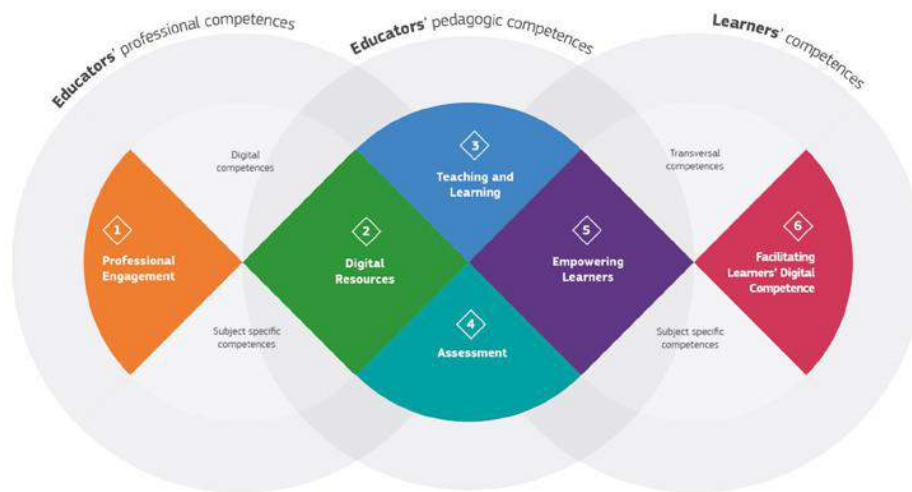


*Figure 1:Digital Competence Framework for Educators (DigCompEdu)*

During the first year, the following steps took place (Ranieri et al., 2023): identification of the need to develop an updated framework on social-emotional and relational skills, a literature review, a first draft of the QF and the participatory evaluation process with teachers and experts (Figure 2).



*Figure 2: Development stages of D-Paideia QF*

The review of the current literature and models addressing teachers' digital competences revealed some gaps in existing frameworks for assessing teachers' digital competence, particularly in addressing the social and emotional challenges of online teaching during ERT (Gabbi, Ancillotti & Ranieri, 2023). The rationale for extending the DigCompEdu framework is supported by this broader analysis, where the framework's limitations are critically discussed in comparison with other international models such as TPACK (Mishra & Koehler, 2006), Digital Teaching Professional Framework (ETF, 2019) and the UNESCO ICT Competency Framework for Teachers (Butcher, 2018). Accordingly, the aspects related to social-relational skills, digital well-being and mental health deserve appropriate and urgent attention (Carretero

et al., 2021). To address these limitations, a draft Qualification Framework (QF) was developed, expanding on the DigCompEdu by integrating new elements into its professional and pedagogical dimensions. Three new elements have been introduced within the Professional Engagement area (Awareness of local and global policy, Motivation for adopting digital technologies, and Balance and safety 'onlife'). In the central area of Pedagogical Competences, a new section titled "Social Skills and Communication" has been added, encompassing three key components: Managing educational relationships with ICT, Diverse and flexible teaching strategies, and Digital reputation and identity management. Finally, the framework aligns the Learners' Competence dimension with the most recent version of the European Digital Competence Framework for Citizens (DigComp 2.2). This revision aims to address the educational shifts and challenges that have emerged due to the pandemic, ensuring that the framework remains relevant and responsive to contemporary teaching and learning contexts.

## 2. Method

As previously explained, the literature review revealed potential additions to the DigCompEdu model. The validation process involved both domain experts and practicing teachers, with the latter representing the central focus of this study. The adapted draft of the Qualifications Framework was presented for discussion with teachers through consultations, aiming to assess the significance attributed to the highlighted aspects by practitioners and validate it. A key strength of this research lies in its participatory evaluation approach (Patton, 1997), which offers valuable insights into the social and relational aspects of digital teaching. By involving educators directly in the validation process of the D-Paideia Framework, the study explored the perceived importance of these components, highlighting their role in cultivating inclusive and engaging learning environments. The study adopted a mixed-methods approach to assess the relevance of the D-Paideia QF among European teachers (Creswell & Plano Clark, 2011), in line with what was done through expert consultation (Gabbi & Ancillotti, 2024). The research was guided by the following question: *What aspects of digital competence for teaching are recognised by teachers?*

The validation process of the QF involved educators through online workshops and in-person events. Data were collected by a questionnaire including 12 items on a Likert scale and an open-ended question, aimed at analyzing perspectives on the diverse components of digital competence in teaching. Each competence to be added to the DigCompEdu was covered with two questionnaire items highlighting different aspects (Table 1). Quantitative and qualitative analysis of the data were carried out, using statistical and content analysis, respectively.

| QF Area | Competence | # | Label |
|---|---|---|---|
| *Professional engagement* | Awareness on local and global policy | Q1 | Awareness of ICT local policies |
| | | Q2 | Awareness of ICT global policies |
| | Motivation for adopting digital technologies | Q3 | Motivation for adopting digital technologies |
| | | Q4 | Training on self-efficacy for adopting digital technologies |
| | Balance and safety 'onlife' | Q5 | Digital wellbeing for teachers and students |
| | | Q6 | Health promotion |
| *Social skills and communication* | Managing educational relationships with ICT | Q7 | Managing relationships with students and families |
| | | Q8 | Managing relational dynamics, especially for SEND students |
| | Diverse and flexible teaching strategies | Q9 | Design and convert teaching strategies and resources |
| | | Q10 | Digital teaching pedagogy beyond the use of digital technologies |

| Digital identity and reputation management | Q11 | Digital identity and online reputation management |
| | Q12 | Teachers' digital lifestyles and professional development |

*Table 1: Overview of the questionnaire's structure*

## 3. Results

### *3.1 The opinions of teachers on the proposed digital competence dimensions*

The age of the participants (*n* = 179) ranged from 20 to 67 years, with an average age of 46.88 years (*SD* = 9.44). 81% of the participants identified as female (145), 2.8% preferred not to specify their gender (5), and 16.2% identified as male (29). The majority of participants were from Greece (48; 26.8%), followed by Spain (45; 25.1%), Italy (38; 21.2%), and Bulgaria (29; 16.2%), among others.

Regarding role in school and experience, the majority of participants in the consultations identified themselves as teachers (68.2%), primarily focusing on ISCED 1 (Primary Education) with 42.5% and ISCED 2 (Lower Secondary Education) with 20.7%. Their main school subjects include Foreign Languages (22.3%) and Primary School Subjects (25.1%), with varying years of teaching experience (*M* = 19.47; *SD* = 9.70).

Generally, it can be observed that all dimensions were evaluated positively (rating from 5 to 7) and that neutrality (rating 4) or disagreement (rating from 1 to 3) were rare. In the professional engagement area, Figure 3 shows the degree of agreement of the questionnaire participants concerning the proposed competencies. Adding up positive responses, digital well-being for teachers and students received the highest average consensus score among the participants (97.8%). Participants also agree that the need for teachers' digital competence includes the ability to responsibly and sustainably manage digital resources in the school environment (96.6%), while the statement Q3 ("*motivation to adopt ICT is a fundamental dimension of digital competence: without it, even if able to use existing technologies in their practice, new possibilities are not explored in the classroom*") received the least support (88.8%).

The new area of communication and relations skills also received a good degree of agreement from participants, although to a slightly lesser extent (Figure 4). The aspects that emerge most are related to the digital identity of teachers (94.4%), considering how it affects social interactions and educational relationships, and the use of technology for inclusion, especially for students with disabilities and from socio-economically disadvantaged backgrounds (94.4%). The lowest approval was achieved for the statement Q7 ("*maintaining a remote relationship to communicate and collaborate with families and students is not easy and requires specific training*") which garnered 81% of the consensus.
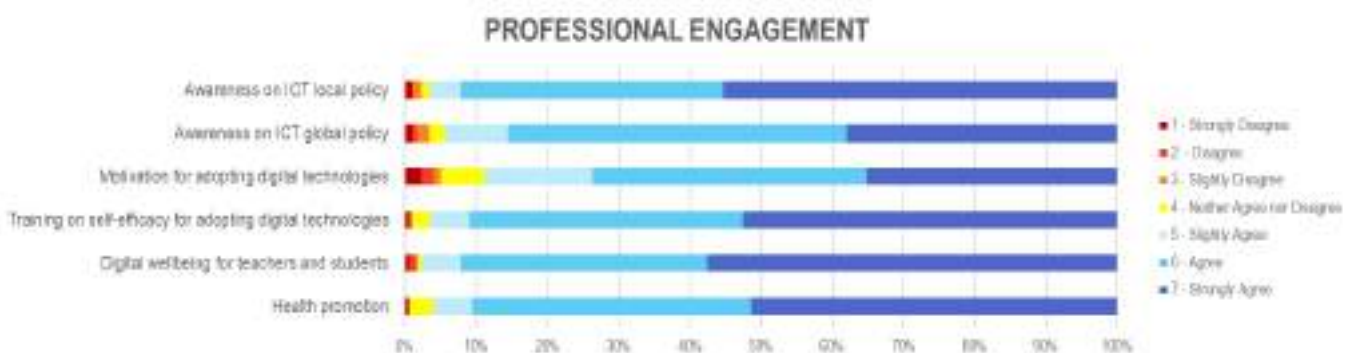


*Figure 3: Agreement on the updated competencies of the professional development area*
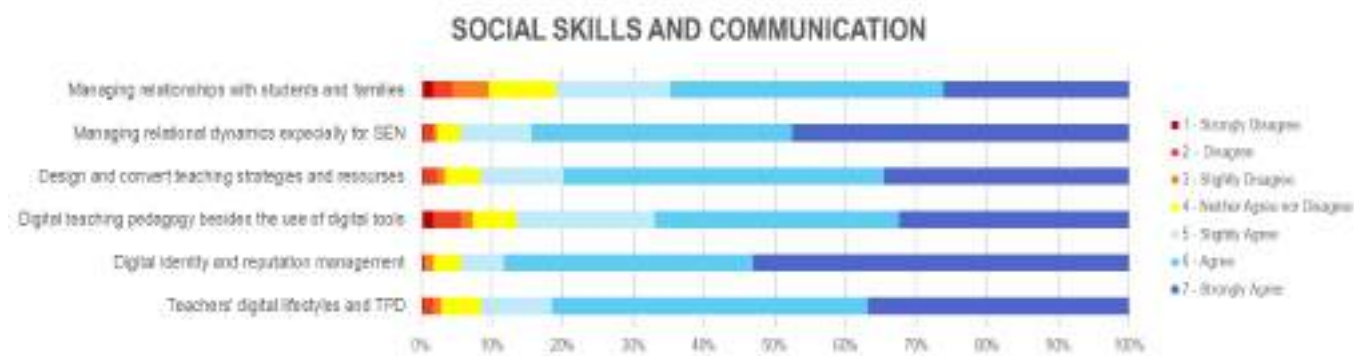
*Figure 4: Agreement on the updated competencies of the new area on the socio-emotional dimension*

### 3.2 Concepts, perspectives and practices associated with digital competence

The qualitative section of the study explored teachers' perspectives on the most crucial aspects of digital competence for teaching. Participants responded to the open-ended question: "*In your professional practice, what's the most important aspect of digital competence for teaching?*". After data cleaning to remove duplicates and ensure inclusion criteria, 173 responses were analyzed. The thematic analysis (Braun & Clarke, 2017) aimed to identify key aspects of digital competence, focusing on participants' conceptions of its role in teaching. Using an inductive approach, the analysis examined personal attitudes, motivation and strategies such as tool availability, relationship networks and teacher training. The thematic analysis revealed recurring themes and sub-themes, offering valuable insights into the strategies and priorities educators see as essential for digital teaching (Table 2).

| Themes | Sub-themes | Description |
|---|---|---|
| *Digital pedagogy* (f=145) | Learning Design | Focuses on creating an inclusive digital learning environment by considering timing, context, methods and educational content. |
| | Tools and Resources | Covers the technical knowledge and practical use of devices, applications or software essential for teachers' digital competence. |
| | Students' Engagement | Focuses on engaging, motivating and involving students through the use of digital resources during lessons. |
| *School policy and organization* (f=60) | School Resources | Involves providing necessary equipment and digital support teams: it includes the availability of physical and human resources. |
| | Digital School Community | Promotes a culture of sharing, participation, and investment in digital innovation initiatives and projects within the school. |
| | Continuing Professional Development (CPD) | Focuses on the importance of ongoing training for teaching staff in the use of digital technologies, both individually and as a team. |
| *Social and ethical implications of digital actions* (f=51) | Digital Literacy | Involves thinking critically and interacting ethically with digital content and services, ensuring informed and responsible usage. |
| | Ethics and Digital Behaviour | Emphasizes the responsible use of devices and appropriate digital communication, including respecting privacy and complying with laws. |
| | Digital Well-being | Includes practices that promote the digital well-being of individuals, ensuring a healthy interaction with digital environments. |
| *Digital educational relations* | Communication Skills | Covers the relational skills teachers need in digital contexts, including effective communication and interaction. |

| (f=45) | Interaction in Digital Environments | Involves the methods of interacting with students and other school actors using digital tools |
|---|---|---|
| | Professional Collaborative Practices | Promotes the sharing of experiences and collaboration among teachers within and between schools. |
| | Families' Involvement | Emphasizes the active involvement of families in school activities through the strategic use of digital tools, fostering stronger school-community connections. |
| *Attitude toward digital technologies* (f=30) | Digital Teaching Mindset | Focuses on the professional attitude, including curiosity, flexibility and motivation, in using technologies for teaching. |
| | Reflective Digital Teaching | Highlights the importance of teachers actively participating and growing through practical actions when integrating technologies into their teaching practices. |

*Table 2: Overview of participants' conceptions of digital competence for teaching with frequencies*

The most frequently mentioned theme was *Digital Pedagogy*, emphasizing the instructional use of technology. Sub-themes - Learning Design, Tools and Resources and Students' Engagement - highlight the emphasis on designing effective digital learning experiences, selecting suitable tools, and fostering active, inclusive classroom engagement. Under Learning Design, participants stressed tailoring digital content to students' needs: *"modifying content and designing innovative teaching paths"* and *"ensuring content motivates and includes all students"*. They also emphasized creating inclusive digital environments: *"adapting tasks to promote motivation and inclusion"*. In Tools and Resources, the importance of mastering digital platforms was evident: *"teachers must have an excellent knowledge of digital tools and use them appropriately"*. Educators noted the need to stay updated and experiment with tools: "*choosing the most appropriate ones for each situation*". Also, the *"practical use of tools like Zoom and Teams was particularly vital during emergency remote teaching"*. The Students' Engagement sub-theme underscored how digital tools enhance learning. Educators shared how platforms like Padlet, Kahoot and Scratch fostered active engagement and creativity. However, challenges in maintaining engagement, especially for students with low attention spans, were also noted, underscoring the constant effort required to keep students motivated in digital environments.

The second theme that emerged, *School policy and organization*, reflects systemic factors impacting digital teaching. Sub-themes include School Resources, Digital School Community and Continuing Professional Development (CPD). In School Resources, participants stressed the need for sufficient technical support, in terms of "*hardware and software*", to ensure teachers work freely and effectively. There was also a call for schools to adopt a centralized approach to digital implementation, led by management, to streamline processes. The Digital School Community sub-theme emphasized the value of collaboration. Educators spoke about the need for a unified vision, with one participant noting that "*the entire educational community must move in the same direction*". Stronger collaboration among teachers and parents was also seen as essential, fostering a more cohesive digital learning ecosystem. CPD emerged as a critical enabler of digital teaching, with participants underscoring the importance of ongoing training to keep pace with technological advancements. Teachers highlighted the need for *"periodic face-to-face training"* and lifelong learning opportunities. Many expressed concerns about the lack of preparation for distance learning and stressed the importance of workshops and seminars to enhance digital competence.

Another significant theme was the *Social and Ethical Implications of Digital Actions*, which encompassed Digital Literacy, Ethics and Digital Behaviour and Digital Well-being. Educators stressed that digital competence goes beyond technical skills: it requires critical thinking and information literacy, "*to understand the digital world and guide students effectively*". In terms of Ethics and Digital Behaviour, protecting digital identity and privacy emerged as a top priority. Participants emphasized teaching students how to safeguard their online presence and behave responsibly in digital spaces. Educators also noted the need to prepare students to handle negative

online experiences. Digital Well-being is focused on helping students manage their time online and prioritize their health. Teachers highlighted the importance of setting boundaries and educating students about the risks associated with digital platforms, especially for younger learners.

The theme of *Digital Educational Relations* brought attention to the relational dimension of digital teaching. Clear and effective communication was considered essential: "*teachers must establish communication channels and guide students in their responsible use*". The challenges of maintaining interaction in virtual settings were also discussed, with teachers sharing how they've had to adapt their teaching styles to foster richer connections with students. Collaboration among educators was another key focus, with participants valuing the sharing of experiences and resources: "*participating in collaborative networks helps create a supportive environment*". The involvement of families was also highlighted, emphasizing the importance of maintaining strong communication between school and home to support students' digital learning journeys.

Finally, the theme teachers' *Attitude toward digital technologies* emerged, with sub-themes of Digital Teaching Mindset and Reflective Digital Teaching. Educators emphasized the importance of cultivating a Digital Teaching Mindset, characterized by curiosity, flexibility and a willingness to innovate. One participant reflected on the shift from simply acquiring tools to thinking critically about how technology can transform teaching: "*It's about moving from 'I need an iPad' to 'What can I do differently with tech?'*". In contrast, Reflective Digital Teaching focuses more on practical, action-oriented strategies aimed at professional improvement. As one educator put it: "*we must rethink our educational practices and embrace self-criticism to grow professionally*". Resilience and a commitment to lifelong learning were seen as vital in navigating the ever-evolving digital landscape.

## 4. Conclusions

The socio-emotional and relational dimension of digital competence emerged as particularly crucial during the experience of Emergency Remote Teaching (ERT) (Carretero et al., 2021; OECD, 2021). This dimension played a central role in shaping the QF developed within the Erasmus+ project D-Paideia, which aims to empower educators to effectively leverage digital technology in fostering inclusive and high-quality education (Gabbi, Ancillotti & Ranieri, 2023).

The participatory approach (Patton, 1997) was crucial in refining and emphasizing the most relevant aspects of digital competence, ensuring their applicability to current everyday school practices. The findings underscore participants' recognition of essential elements of digital competence, including digital well-being, awareness of local ICT policies and training focused on digital teaching self-efficacy. The data reveals strong agreement among participants on the competences proposed in the D-Paideia QF to update the DigCompEdu framework (Redecker, 2017).

Furthermore, responses to the open-ended questions underscore the multifaceted nature of digital competence in effective teaching. The thematic analysis identified five main themes that reflect interconnected perceptions of pedagogical-digital competence, emphasizing the role of shared practices, school organization and teachers' attitudes toward technology, in addition to ethical and relational aspects (Butcher, 2018; ETF, 2019; Mishra & Koehler, 2006; Ranieri, 2022). These findings provide a nuanced understanding of digital competence, offering a roadmap for integrating technology into educational practices while addressing the socio-relational and well-being needs of both teachers and students. Our work aligns with the European Union's green and digital transition agenda, which emphasizes the importance of ethical use of technology to develop digital skills that include ethical awareness, critical thinking and understanding of the environmental and social impacts of digital.

Finally, the D-Paideia QF has been translated into a curriculum designed to prepare educators for the evolving challenges and opportunities of digital teaching and learning. This curriculum, which will be used to train many European teachers in the next year, not only addresses the technical and pedagogical dimensions of digital competence but also emphasizes the critical socio-relational and ethical aspects essential for fostering inclusive, engaging and high-quality learning environments.

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# Emergency Remote Teaching and Teacher Training: The Role of Implicit Beliefs in Lasting Educational Change

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## Abstract

This study examines teachers' beliefs and practices on formative assessment, engagement, and learning during emergency remote teaching in three omnicomprehensive schools. Data from semi-structured interviews, questionnaires, and focus groups highlight the importance of addressing both implicit and explicit aspects in teacher training. Literature suggests that effective training should consider these elements to avoid replicating outdated professional models. For sustainable change, training should be embedded in communities of practice, allowing feedback and rooted in classroom experiences, which research indicates encourages lasting adaptability in teaching. This paper presents findings from the first (qualitative) phase, based on interviews with school principals.

## 1. Introduction

This contribution aims to explore the topic of studying teachers' beliefs about the use of formative assessment during the pandemic emergency and their relationship with initial and in-service training. UNESCO and the Council of Europe recommended formative assessment during the initial phase of COVID-19 to support student engagement and learning paths (UNESCO, 2020b). In the most dramatic phase of the pandemic (spring 2020), governments decided to close schools and the sudden switch to distance learning (DL) as measures to combat contagion and not to completely interrupt teaching activities. Distance learning primarily relied on e-learning platforms or videoconferencing technologies (UNESCO, 2020a) with repercussions on education planning. Untrained and unprepared for this type of instruction, teachers have used ordinary methods and tools in an extraordinary context with consequences on student engagement and learning. This contribution presents findings from the first phase of a broader research project, focused specifically on semi-structured interviews with school principals during emergency remote teaching (ERT). The subsequent phases, including quantitative analyses, are not addressed in this paper. The choice to present only qualitative data from Phase 1 entails a focused analysis limited to school leadership perspectives on the topic and the school context. As such, the discussion and conclusions drawn must be interpreted as preliminary, and not yet representative of the entire research project.

## 2. Implicit and Explicit in the Teaching Profession: A Theoretical Framework

Teaching is frequently analysed through its implicit dimensions (such as beliefs and attitudes) and explicit practices. Numerous implicit can be ascribed to non-cognitive forms of knowledge, as van Manen (1999) suggests, emerge organically within daily classroom life, becoming explicit through reflection. In the Anglo-Saxon context, educational research with a cognitive approach has long investigated the predictive role played by these constructs on classroom teaching and assessment methods (Calderhead & Robson, 1991). The connection between beliefs and teaching practices is also supported by constructivist theories (Richardson & Placier, 2002). Implicit factors also include attitude (Sharma et al., 2017; Aiello et al., 2016; Saloviita & Schaffus, 2016) understood as an element that conditions the intention to act and determines teachers' practices, in the perspective of theoretical frameworks such as the Theory of Planned Behaviour (Ajzen, 1991) or the 3-H Theory (Florian & Rouse, 2009; Shulman, 2004).

Teachers are not always clear about the link between beliefs and practices (Sbaragli et al., 2011); the former turn into misconceptions when they are based eminently on the latter (Novak & Gowin, 1989). The identification of beliefs can therefore activate processes aimed at influencing practices and promoting innovation. Understood as mental constructs of an individual, beliefs are built on previous knowledge and new experiences (Charlier, 1998); they remain unchanged in the person and can be rebuilt into new conceptions (Tyson et al., 1997) when "the old ones prove to be unproductive and the new ones are perceived as intelligible, plausible and advantageous for their repercussions on the people's experience" (Giganti & Viganò, 2023, p. 196). In this regard, for V. Richardson (1996) it is essential to study in depth the beliefs of teachers which interact with practices. Some studies (Lodini & Vannini, 2006) detect the influence of the latter on the change of the former; others are aimed at understanding their construction and change to improve teaching (Gregoire, 2003). Some studies investigate the link between attitudes, beliefs and practices (Guskey, 2002) of teachers and study any changes in the direction of a broader trust of teachers in the power of teaching. Among these are those oriented towards the use of formative assessment (Black & Wiliam, 1998).

The literature indicates two approaches for the analysis of convictions and beliefs, one referring to the influence of individual factors, the other to organizational factors. According to V. Richardson and P. Placier (2002), it is appropriate to integrate them because they support the researcher in the study of the modes of action of personal experiences on the acquisition of teacher knowledge during initial and in-service training.

To this purpose, the analysis is extended to studies related to teacher change (Floden, 2002) to understand whether changes in beliefs precede or follow changes in practices, or whether beliefs and

practices are interacting and synergic (Peterman, 1993). As R. Chin and K. D. Benne (1969) state, on the one hand there are empirical-rational approaches aimed at showing teachers the existence of effective practices, promoting new awareness and therefore new beliefs; on the other hand, there are normative-re-educational approaches that make explicit socio-cultural and pedagogical norms and values to encourage collegial reflection by teachers and guide their beliefs and choices of action.

## 3. Method

The study presented in this paper aims to describe and analyse beliefs and statements of practice of teachers referring to four elements: formative assessment (FA), students' engagement, constructivist learning and emergency remote teaching (ERT, Hodges et al., 2020). The study employed a multiple-case approach to explore school contexts and the identified variables. In the initial phase, interviews with school principals and document analysis (Three-Year Plan, Self-Evaluation Report, Circulars, etc.) provided foundational insights. Teachers completed a questionnaire addressing socio-demographic characteristics and ERT-related practices, supplemented by eight scales on beliefs and practice statements; a focus group was conducted for each institute with privileged witnesses on the data collected and analysed, during which a discussion was started to interpret them and investigate the relationship between context, beliefs and practices.

### 3.1. Context
The research was carried out in Lombardy (Italy) and involved, through reasoned sampling (Viganò, 1995), three omnicomprehensive schools (from primary school to secondary school, from first to thirteenth grade). The first is located in two provincial towns and has 147 teachers, the second is a state boarding school in the city centre and has 62 teachers, the third is a Catholic institute also located in the city centre and has 69 teachers. The study examines teachers' context, beliefs and practice statements in two specific periods, both part of the broader emergency distance learning (ERT) period: March-June 2020 (so-called DAD) and September 2020-June 2021 (so-called DDI). Three research questions were formulated who led the study:

- RQ1: What are the characteristics of the school context in which teachers might have employed FA during the ERT?
- RQ2: Is there a relationship between teachers' beliefs and practice statements about FA in the ERT context? What kind?
- RQ3: How does school context relate to teachers' beliefs and statements of practice?

### 3.2. In-depth on the qualitative part of the study
Three semi-structured interviews were conducted in person at the Institutes, one for each school principal and/or deputy, recorded and transcribed verbatim. The focus groups were aimed at sharing the analysis carried out by the researcher and, starting from it, carrying out further in-depth analysis and reflections with the interested parties.
The interviews, focus groups and documents were analysed using the MaxQDA software, using a system of codes structured *ex ante* for reference to the variables identified for the questionnaire and *ex post* based on the recurrence of some important themes for the study of the context and the situations that emerged

### 3.3. The questionnaire for teachers: structure, participants and procedure
The questionnaire is divided into three blocks and aims to collect personal and professional data of teachers (16 questions) and, according to their perspective, of the school context during the ERT period (9 questions). Furthermore, teachers' beliefs and statements of practice regarding the constructs and variables in question are collected through eight scientifically validated and specially constructed Likert-type scales (on four levels) (whose validation is not carried out) accompanied by four requests for examples. A first version of the questionnaire was drafted and subjected to a tryout

phase with eleven teachers from different types of institutes and school levels who provided observations and suggestions. The questionnaire was administered online by sending a cover letter and using the Qualtrics software, initially for a period of two weeks, then extended for another; it was sent to schools 1 and 3 in winter 2022 and to school 2 in spring 2023. The analysis of the collected data is quantitative, carried out with the aid of SPSS-IBM software, and qualitative.

## 4. Some qualitative results

In this section the results of phase 1 of the research are presented with attention to the investigation of implicit in relation to teacher training.

### 4.1. Semi structured interview: school 1
The semi-structured interview conducted with the deputy headmaster was coded as follows (1):
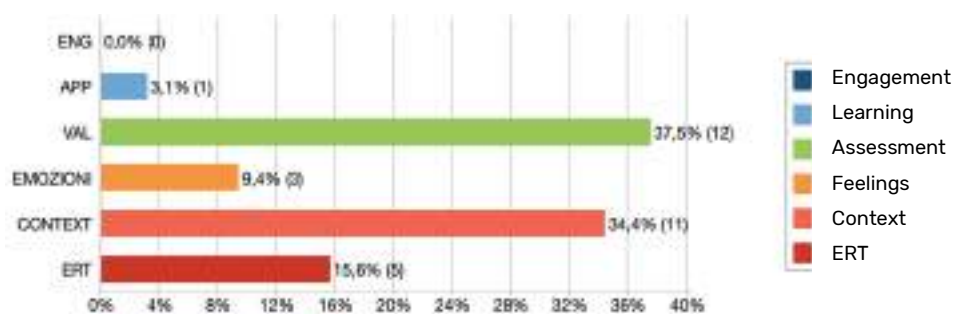


*Graphic 1: Code system of the semi-structured interview with the deputy HM.*

In the interview, the percentage of segments related to assessment (37.5%) was coded more, while the percentage of segments related to context (34.4%) and ERT (15.6%) were coded less.
The institute is a state boarding school, and its governance is different from that of other state schools: it does not have a school board, but a commissioner and a board of directors appointed by the Ministry of Education. In addition to the teachers, there are some educational figures responsible for managing extracurricular activities; most are employed on a permanent basis. The facility is equipped with all the digital devices and connections for media and digital teaching, but there are few teachers with IT certification.
During the interview, the deputy rector states that the school context has a size such that comparison is possible between all professional figures, including service staff; he describes it as very dedicated to the educational care of all students who are in lower numbers than in other institutes. The interviewee states that he delivers a training course on assessment for newly appointed teachers.
In relation to the ERT, the interviewee states that in the first pandemic period, numerous meetings were called via the Microsoft Teams platform aimed at managing the emergency; this made it possible to activate emergency remote teaching a week after the generalized closures. The Deputy states that he noticed that teachers were struggling to adapt to the ministerial indications on DAD/DDI and that he managed it by adapting and contextualizing them, in compliance with the rules on school autonomy.
The largest number of coded segments pertains to the assessment. It has a specific instrumental function composed of three teachers and is supported by internal and external training offered by the Territorial Area; in this regard, the self-evaluation report mentions a specific course for the assessment in DAD/DDI. There are many beliefs in this regard that emerged from the interview: a) teachers gradually abandoned grading as a mere mathematical average; b) the assessment is the result of metacognitive, self-assessing, evolutionary processes and must deal with cheating attitudes. The Deputy believes that the ERT has accelerated the processes already started and allowed teachers to experiment with alternative solutions.

### 4.2. Semi structured interview: school 2

Semi-structured interviews conducted with the Rector's deputy and the principals of secondary schools were codified in the following way (2):
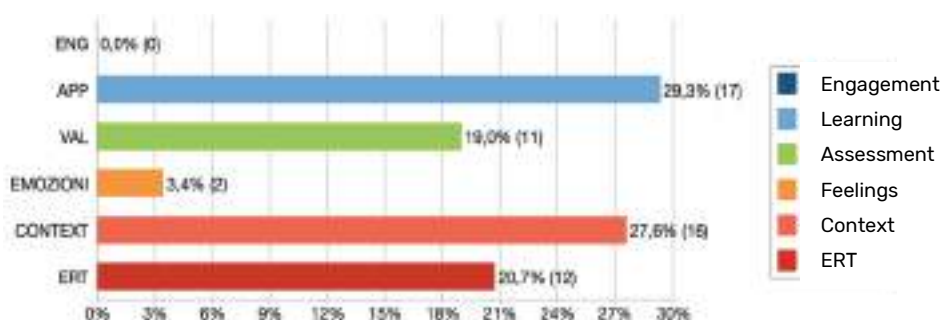


*Graphic 2: Code system of the semi-structured interview with the vice-rector and the principals of secondary schools.*

Unlike the previous one, in this interview, more segments related to learning (29.3%) were coded, less to context (27.6.4%) and assessment (19%).

The institute is private and of Christian-Catholic inspiration. Most of the teachers are hired on a permanent basis following a rigorous selection process by the Management; the average age is forty-five and, in addition to basic training, many have certifications for teaching in the language and for the use of innovative digital methods and tools.

The Rector in charge during the Covid period states that no one was prepared to design and manage the ERT but that the management decided to immediately offer training in the use of digital tools. He adds that he notes that his teachers are better prepared than those in public state schools and justifies this by the average age. The Rector is convinced that the ERT can be considered a period of digital education for students and teachers, that the latter have progressively developed active teaching and that students have gradually welcomed these changes and innovations. These occurred following a settling-in phase due to the freedom granted to each teacher to use the platform of his or her preference and subsequently to the transition from DAD to DDI.

The documents do not codify specific segments in reference to training on assessment; instead, there are many segments around beliefs and practices. The Rector said that the ERT has highlighted the opportunity for an assessment focused not only on content but also on skills; furthermore, he stated that during the ERT period, students had to acquire greater autonomy, and teachers increased the use of formative assessment tools already in use in the pre-pandemic era (portfolio, teacher diary, assessment rubric, systematic observations, etc.). The documents analysed reveal an evolutionary process of practices: from the initial confusion and replication of traditional methods and tools to a coherent and functional approach to the application of assessment with a predominantly formative function.

### 4.3. Semi structured interview: school 3

The semi-structured interview conducted with the headmaster and his deputy was coded as follows (3):
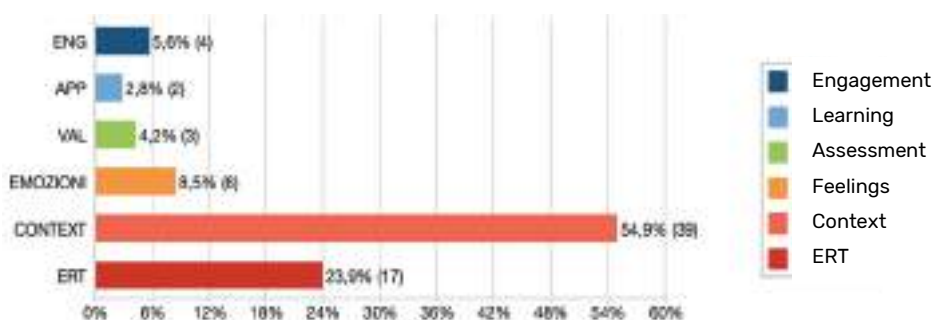


*Graphic 3: Semi-structured interview code system with HM*

More than half (54.9%) of the segments coded in the document pertain to the school context, approximately a quarter (23.9) to the ERT, only three (4.2%) to the assessment.

In general, the HM outlines two different types of socioeconomic background corresponding to the two municipalities in which the institute operates: on one hand medium-high, on the other medium-low with a high number of students belonging to families of foreign origin (these considerations are confirmed in the three-year plan of educational offer and in the self-evaluation report).

He describes his institute as "a village school resistant to innovation" and states that "especially in the first cycle there was a strong […] resistance to technological innovation". The secondary school teachers were asked to reduce the number of teaching hours because they were teaching a lot of them.

As for the ERT, the HM states that it was not possible to offer a widespread training proposed by the Institute and that teachers used that offered by large publishing houses. At the time, digital skills were possessed mainly by teachers in secondary schools, on average in lower secondary schools and less so in primary schools.

Practices have gradually changed: from an initial difficulty due to the laborious distinction between synchronous and asynchronous work and the unchanged transfer of traditional practices to the new medium, teachers have understood the need for greater interaction through specific applications and guided research paths.

## 4. Discussion

Although to a modest extent, it is significant to observe that teachers' age and experience influence their beliefs and practices, as do the order of teaching and emergency. More experienced teachers seem to have no need to use summative assessment to control of the class and to gain respect from students. Similarly, primary school proved to be the most suitable context to implement formative assessment and constructivist learning. These practices appeared to involve students more actively than at other school levels. According to teachers, this can be attributed to the different training received, and the assessment reform introduced during the pandemic. The school context also played a role in shaping teachers' beliefs about formative assessment and learning. Managing ERT was complex but considered an opportunity to innovate or improve some teaching practices and to stimulate professionalism (Giganti & Viganò, 2023).

From different perspectives it emerges that beliefs and practices are difficult to change, "especially if conditioned by the experience lived by teachers when they were students" and due to short times and emergency situations. Training is considered useful for this purpose but is often distant from the daily practice, weak in its didactic applicability and not very suitable for a profound transformation. Teachers report a lack of initial and in-service training on the topics of assessment, except for those in primary school with the specific degree.

## 5. Conclusions

Theoretical reflections, supported by empirical findings, yield several key insights. In the three cases examined, an evolution of assessment was observed, also influenced by the pandemic; the necessary changes introduced by the ERT led to a redesign of teaching oriented towards greater quality and less quantity. As stated, the implicit aspects of the teaching profession are crucial to guide its practices and, in the cases examined, the investigation has revealed some discrepancies between beliefs on formative assessment, on the ERT and the respective practices, with differences between institutes and school levels. This raises questions about the effectiveness of some models of teacher change.

In general terms, the literature suggests that, in order to design and implement effective teacher training, research should address not only explicit but also implicit aspects; if not properly considered, it is likely that traditional models of professional development will be proposed that have no effect on teaching practice. The changes induced in teachers by contingent situations such as the pandemic are not enough to lead to lasting change. It is necessary to develop courses in line with the training

needs and implicit and explicit beliefs of teachers, prolonged over time, in a context of a community of practice in which feedback can be given and received from colleagues and experts, and based on concrete experiences lived in the classroom, to observe the impact on practice. As highlighted by research, only in this way are teachers willing to undertake a path of effective and lasting change, and therefore to be ready to face future emergencies (Giganti & Viganò, 2023, p. 204). A synthetic consideration is that the key to dealing with emergency situations lies in structuring daily school activity through solid teaching and educational skills. Emergencies, by their nature, involve a high degree of unpredictability and require timely responses from those in decision-making roles, inevitably generating confusion among those who operate in the education system. However, adequately trained teachers with strong pedagogical skills represent the fundamental resource to ensure that, both in normal and extraordinary conditions, the school continues to have its fundamental social role.

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# Develop teachers' professional identity through global internship

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## Abstract

The globalization of education has introduced new challenges for Norwegian teachers, with increasingly diverse classrooms. To address this, internships in the global South have been integrated into Norwegian primary and secondary teacher education. This study is part of the "Long-Term Effects of International Practicum for Student Teachers" project. We conducted in-depth interviews with five teachers who had their internships in Uganda and South Africa and explored how these internships shape teachers' professional identity and global consciousness.

We ask how teachers perceive the relevance of their global internships in shaping their professional identity and global consciousness. We analysed their experiences in terms of personal and professional grow in light of teacher identity development and global consciousness. The results indicate that these internships foster personal development as impact on their teacher identity. Some teachers emphasised personal growth over professional development, while others emphasise their global sensitivity. Our findings suggest that international practicum experiences significantly affect teachers' personal and professional development, highlighting the need for better preparation and reflection opportunities in teacher education to cultivate global awareness.

**Keywords:** international practicum; teaching profession; teacher identity; professional development; global consciousness.

## 1. Introduction

For most teachers working in Norwegian schools, the process of globalisation has led to new challenges, since many classrooms have become diverse learning communities. Internships, such as internship in the Global South, are becoming more common in primary and secondary teaching education in Norway to meet these challenges. To include intercultural competence and global consciousness in preparing student teachers for diverse classrooms in Norway. Therefore, it is necessary to encourage these practicum experiences in the Global South after student teachers transition to professional teaching and development in the classroom with research knowledge.

This paper is part of a larger research project entitled 'Long-Term Effects of International Practicums for Student Teachers.' In this research collaboration, we emphasise teachers working in schools during the process of globalisation.

This study includes five teachers who spent internships at schools in Uganda and South Africa. We aim to investigate how the teachers' experiences gained from international practicums influenced their professional identity and global knowledge (e.g. Bourn, 2018; Deardorff, 2020; Mansilla & Gardner, 2007; Merryfield, 2008; Wilson, 1993).

The research question guiding this study is as follows: *How do teachers perceive the relevance of their global internships in shaping their professional identity and global consciousness?*

OsloMet has a long tradition of providing student teachers with internships in the Global South as part of their primary or secondary teacher education. As teacher educators, we run three-month internships, and during their practicums in the Global South, the five informants in this study worked on their bachelor's theses in teacher education at OsloMet. Since graduating, they have worked as teachers for more than five years.

## 2. Theoretical Inspiration

In the larger Norwegian research project, we began by using Wilson's (1993) theoretical categorisation of the impact of an international experience, as illustrated in Figure 1.



*Figure 1: The impact of an international experience (Wilson, 1993, p. 22).*

Wilson (1993) used the concepts of 'developing self and relationships' and 'gaining a global perspective' to analyse gains from participating in cross-cultural experiences. According to Wilson (1993), developing one's self and relationships concerns personal growth and interpersonal connections. Personal growth and development in this context relate to the acceptance of the self and others, as well as general maturity. They may also include dimensions such as increased self-confidence and independence. Interpersonal connections include the ability to engage in intercultural or cross-cultural interactions.

Gaining a global perspective involves substantive knowledge and perceptual understanding. Substantive knowledge concerns facts and an understanding of another culture, in addition to general awareness of global issues. It also concerns awareness of world issues, global dynamics and human or professional choices. Perceptual knowledge includes open-mindedness, anticipation of complexity, resistance to stereotyping, a more open attitude towards others and less chauvinism (Wilson, 1993, p. 22).

Later, Merryfield (2008, p. 363) focused on 'global awareness' as (a) reflecting on one's own cultural assumptions and the frameworks in which other people make sense of the world, (b) learning from people and scholarship in other countries and (c) making connections to engage citizens of the world. Merryfield (2008) emphasised that these actions are synergistic, since activities and assessments often bring them together as global experiences, such as in the Global South. Global awareness becomes meaningful when student teachers begin to act upon their interconnectedness (Merryfield, 2008, p. 365). Universities often claim to educate global citizens, but there is little evidence that this occurs (Lilley et al., 2015). Therefore, this small study of internships in the Global South provides thoughts for research on global awareness, experiences, knowledge, skills and consciousness.

Mansilla and Gardner (2007, p. 58) emphasised the following: Consciousness entails three core competencies: First is *sensitivity* toward objects in our environment (e.g., people, places, melodies, landscapes) with which the self comes into contact. Historical consciousness entails selective sensitivity for objects and circumstances that link us to past and future (an inscription on a wall, the shape of urban streets, a monument). Second, consciousness entails the competency of *organization*—the capacity to arrange such mental representations. Autobiographic consciousness distils patterns that reveal defining qualities of self. Historical consciousness, on the other hand, employs historical understanding to reinterpret experience along a continuum of past, present, and future, conferring new meaning on our experiences. Finally, consciousness entails the competency of *self-representation*—the reflective capacity to understand ourselves as knowers and feelers—and as historical actors. Through this latter competency, consciousness exercises its orienting function. Knowledge of ourselves, of what we value, of what makes us anxious, as well as knowledge of how we stand vis-à-vis the experience of generations before and ahead of us, necessarily shape the repertoire of options, commitments, and opportunities that we perceive.

In sum, Mansilla and Gardner (2007) concept of global consciousness '[capturing] the capacity to attend to global dimensions of our contemporary experience; to reflect on its tensions, issues, and opportunities by bringing informed categories and modes of thinking to bear; and to define our identities as members of complex global political, social, economic and environmental spheres.' They argued that global consciousness 'varies across cultures and regions as people situate themselves differently in geopolitical, cultural, and environmental landscapes. Thus, a study of global consciousness must be cross-cultural' (Mansilla & Gardner, 2007, pp. 62–63).

Deardorff (2020) emphasised intercultural competence as global consciousness or global knowledge. Many definitions highlight specific knowledge, skill and attitude dimensions of competence, and nearly all address differences between personal and professional selves. Intercultural competence, in essence, concerns improving human interactions across differences, whether within a society (due to age, gender, religion, socioeconomic status, political affiliation, ethnicity, etc.) or across borders (Deardorff, 2020, p. 5). Gaining a professional identity as a global actor could refer to having a professional understanding and positioning oneself within one's local or national context and within a global framework. This perspective reflects the increasing interconnectedness and interdependence of our world and the need for professionals in all fields to consider the global implications of their work.

Korthagen and Vasalos (2010) described a core reflection approach in which student teachers combine the personal and professional aspects of becoming teachers. Here, personal beliefs and beliefs about the teaching profession are seen as among the linking pins in forming and further developing one's identity as a whole and one's professional identity in particularly.

Beijaard and Meijer (2017) emphasised the 'personal' and the 'professional' in forming teachers' professional identities. A student teacher's personal beliefs about teaching and learning strongly determine the kind of teacher they are and the kind of teacher identity they wish to gain. Tensions may arise between what is personally seen as relevant by student teachers from the inside and what is professionally seen as relevant to the profession by other professionals from the outside. Developing a teacher identity is complex process of personal growth from the inside and professional development in interaction with others.

Teachers' professional identities refer to how educators perceive themselves in their professional roles within educational contexts. These identities are shaped by various factors, such as teachers' beliefs, values, experiences and work environments (Gibbs, 2018). To sum up these theoretical perspectives, one's professional identity as a global actor is about seeing oneself as part of a larger global community and recognising one's potential to contribute to this community in meaningful and impactful ways.

## 3. Methods

The empirical material in this study consists of in-depth interviews with five experienced teachers who participated in international practicums while working on their bachelor's theses as student teachers. Our sample was recruited from 55 student teachers who attended three-month spring internships between 2012 and 2016. For this research, we collaborated with four other higher education institutions in Norway using the same interview guide and methods. This study is inspired by a phenomenographic approach.

The interview guide consisted of questions referring to the informants' descriptions of their experiences from their global internship with questions like: How the internship has influenced their teaching about global and multicultural issues, their professional identity and their personal growth. The intention with the interview guide was to invite the participants to describe and reflect on how their experiences from global internship has influenced their professional identity, practice and global consciousness. Through an abductive analysis of the material, it underscores the significance of the teachers' internships for their professional identities and personal lives. We empirically study the global consciousness of today's teachers through their experiences of internships in the Global South. After first using Wilson's (1993) framework thematically we analysed the material in terms of our informants' substantial knowledge, perceptual understanding, personal growth and interpersonal connections, we found that the participants emphasised their personal growth based on their personal and professional development from their global practicums. As a consequence of our abductive analysis process the second thematic analysis of the material, we developed an analytical framework for teacher identity based on the informants' personal growth and professional identity and global consciousness.

The teachers were informed about the research aims and ethical requirements for confidentiality, consent, information and anonymity, as well as their right to withdraw from the research at any time without explanation or consequences. In the results, we have given our five informants fictive names.

## 4. Result

In the following, we present how our teachers perceived the relevance of their internships as practical placements in the Global South in shaping their professional identities and global consciousness.

## 4.1 Professional identity

Ann emphasised that she was '*very grateful for all the equipment we have*' in the Norwegian classroom. '*I am generally quite creative and work around what we have, instead of spending a lot of time and energy creating a whiny atmosphere in the workplace,*' she said. Her thoughts on her professional identity were based on her experiences in the global classroom.

Ann said, '*It was indeed a useful experience because I have had students who have felt like outsiders. Feeling bad looks and being outside are healthy. Everyone should experience it.*' Her professional identity peaked at personal experiences of being an outsider in a foreign classroom.

Ines reflected upon her professional identity, feeling that '*I have gained a lot from it, but how much it has affected my everyday life as a teacher and my professional work— I have some doubts about that.*' She emphasised personal growth rather than professional growth and that when she was a student teacher in the Global South, '*some of those things became less important there, while other things became more important*'. She said that the experience as a student teacher had been crucial for her teaching but was not part of her global consciousness as a teacher.

Britanny stated, '*I deliberately only applied for a job in Oslo East, which was the most exciting and rewarding.*' She felt very comfortable in her professional work there, but she also described variations in schools in Norway. On a professional level, she looked back at the practicum in the Global South, saying, '*There was not much we could contribute to in the classroom there*.' She became very interested in working in a multicultural classroom environment in Norway. On a personal level, she emphasised, '*I think that you become open, tolerant and humble in meeting students from other cultures.*' Moreover, working with cultural and linguistic challenges were important for developing her professional identity. She also worked with interested organisations after her practicum in the Global South.

Ida's conversations with professional teachers in the Global South were about their motivation for being teacher. Their teacher identity, '*where they were very noble,*' she stated. She describes her global experiences as; '*I became more robust in creating a teacher identity when I felt powerless as a student teacher in the classroom in the Global South.*' Ida felt safer in the classroom because '*those situations globally were so pedagogically chaotic.*' This involved cramming in a large amount of school practice, with very little focus on professional reflections, while one had to learn things by heart and write things on the blackboard. '*I was also very impressed by the students. Many did very well under difficult circumstances. We talked about it a lot, and when we saw it, maybe we reflected on what we didn't want to take back home,*' she said.

Annie said that the global internship had not given her autonomy as a teacher in Norway, although she emphasised her personal growth: '*I learned a lot about myself and how I, for example, dealt with new challenges, difficult things or unexpected situations. I left the teaching experience and practice there.*'

## 4.2    Global Consciousness

Ann argued that the practicum had strengthened her empathic ability, and she understood some thoughts as '*our different worldviews.*' She felt that student teachers were not well prepared for what students needed in the classroom in the Global South. Her global sensitivity appeared to be from seeing herself from the outside and trying to understand global perspectives in another context.

Ines also peaked at the uniqueness of the practicum in the Global South: '*I tried to have both my way and their way. After all, we were guests,*' she stated. '*That was not all we dared to comment on. This practicum was the most different; regarding practicum experiences in my teacher education, the most important impact was personal growth*.' Her global understanding as an outsider, as a visitor rather than understanding the teachers in the global south thoughts and identities.

Britanny described another classroom environment in the Global South in which she would not '*disturb*' or '*recreate*'. She emphasised that the practical exchange had given her an interest in global issues and how things were connected in this world. She stated, '*It affects the choices I've made since - yes, definitely.*' It seems that she saw it as a loop of global experience, increasing her global awareness rather than her global consciousness.

Ida said, '*I think I used the years afterwards as a frame of reference to understand the world.*' She argued that she had increased her multicultural and international orientation. She thought that it was very sad and reacted to the fact that '*the students wanted to speak Afrikaans but went to the English class because it had a higher status.*' She reframed her global understanding based on her experiences in the classroom in the Global South.

Annie emphasised that the global experience left her '*with some internal processes that had started. It's a selfish answer, but those are my personal experiences, and they were how I learned about myself and the others I was with.*' She felt like an outsider in a very privileged way. She pointed out, '*Your skin colour determines a lot for you. People want to help you because you're White. It's not a good feeling like that—really, no.*' Her feelings of Whiteness in terms of global sensitivity should be discussed.

## 5. Discussion

We asked how teachers perceived the relevance of their global internships in shaping their professional identities and global consciousness. Discussions of global consciousness in terms of challenging diversity have been seen in other studies regarding the reflections of teachers from the Global North on their experiences during internships in the Global South to develop their professional identities (Helleve, 2019; Klein & Wikan, 2019; Lehtomäki et al., 2018; Sjøen, 2023; Steele & Leming, 2022). It is interesting to see that the teachers reflected on the concept of 'otherness' many years after their internships in the Global South.

Gibbs (2018, p. 9) argued that to fully understand the development of professional identity, particularly in relation to education, the process of dialogue with others—of 'othering' and being 'othered'—is a main concern, with identity formed in relation to others. Our teachers' global experiences of Whiteness many years after their practicums in the Global South led them to have other concerns regarding 'otherness', which gave them important global awareness in developing their professional identity-building interactions as student teachers with teachers' identity building in the global south as part of their teacher education.

Internships in the Global South mean global experiences in another educational context. We are unsure whether our teachers had limited reflections on their self-representation as global citizens (Goren & Yemini, 2017; Lilley et al., 2014; Pais & Costa, 2017), both regarding their personal and professional selves, after their practicums in the Global South. The five teachers reflected on their roles in other classrooms during their global experiences as student teachers compared to their 'controlled' practical placements at home throughout their teacher education in Norway.

The internships in the Global South influenced and developed at a distance their teaching practices, thoughts on interactions, relationships with students and decision-making processes in a reflective way as global experiences. To develop student teachers' self-reflections as global citizens after practicums in the Global South, we need to better prepare them for their practicums and give them space to reflect on their global experiences.

Student teachers' now take part in teacher education in the north two years after completing their BAs and so will develop their reflections on practicums from the Global South. They can be positioned as global actors by being teachers in the Global North with partners in the Global South. Our student teachers embraced global sensitivity and understanding to develop empathy, relationships and social justice from their internships abroad throughout their teacher education.

Reflecting upon global consciousness, such as Whiteness, involves becoming aware of issues and working on challenging and dismantling the structures of privilege and bias through decolonisation that made them global sensitivity through their internships abroad (Mansilla & Gardner, 2007). Specifically, the global experiences as Whiteness and professional roles within the context of the global community to enhance inclusive education for all are biased knowledge. This means recognising how one's own perspectives may be shaped by these systems of power and striving to listen to and amplify the voices of marginalised or overlooked learners. Our teachers described having this privileged position during their internships as discomforting and undesirable; the feeling of Whiteness was uncomfortable in a decolonised world.

Our teachers described their practicums as experiences in which they enhanced their competences in inclusive classrooms by managing a larger number of students. They reflected on postcolonial thoughts of professional development rather than subjective thoughts of another worldview as a global consciousness (Klein & Wikan, 2019). Global teacher practice and professional identity refer to how educators perceive and enact their roles within a global context. This perspective acknowledges that teaching and learning are increasingly globally interconnected, and it has significant implications for student teachers in developing their personal and professional selves through internships in the Global South. Our informants emphasised their personal development rather than their professional work regarding practicums in the Global South. We can give student teachers' better reflections on their global experiences throughout their teacher education.

Overall, internships in the Global South provide opportunities to understand other cultures and engage in other school systems and cultures to educate global citizens. The teachers used their experiences in multicultural classrooms in Norway. Developing pedagogical skills to teach students from different sociocultural contexts and prepare them for an increasingly globalised and multicultural world in everyday classrooms is necessary to develop their professionalism. Practicum opportunities during teacher education should be part of students' research knowledge building. We can draw several findings from the lived experiences of the student teachers who worked in schools during practicums in the Global South.

Our findings indicate that the teachers' global thoughts, sensitivity and understanding dominated their global consciousness of reflections, overshadowing their global self-representations. Their global consciousness was based on their experiences of cross-cultural practicums, in which they reflected on their personal development rather than on their professional growth. Lastly, the implications for teachers' professional identity development in their teacher education due to their global consciousness must be further studied and developed.

## 6. Conclusive remarks

We aimed to investigate how student teachers' internships in the Global South influenced their personal and professional identities as teachers to enhance their global consciousness during their teacher education. The teachers perceived the relevance of their global internships in shaping their professional identities and global consciousness to a limited extent, as discussed. The results reveal that global practicum experiences impact student teachers' personal and professional self-development. Many more follow-up reflections on the internship are needed in teacher education to enhance teachers' roles in educating global citizens.

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# Opening the black box of writing instruction in times of change: insights from Italian secondary school teachers

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## Abstract

This study explores the writing teaching practises of secondary school teachers in Turin, Italy, in the midst of challenges such as generative AI and post-pandemic changes in education. Semi-structured interviews with 20 teachers reveal a reliance on traditional methods, limited focus on revision and concerns about the impact of digital writing. Teachers report low self-efficacy and emphasise the need for practical, targeted training that integrates traditional and digital writing approaches. The findings point to systemic challenges, including student motivation and the burden of assessment, and call for tailored professional development to empower teachers to teach writing in a rapidly changing world.

**Keywords:** writing instruction; secondary school teachers; interviews; practice; professional development needs.

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# 1.  Introduction

Teaching writing is a complex task in which students must learn to plan, translate, transcribe, and revise while being encouraged to consider the context of the task and the needs of the intended reader (Bereiter & Scarmalia, 1987). Helping students master these multiple skills requires writing instruction that is carefully tailored to their needs, a long-term process that requires considerable effort and commitment from teachers at all grade levels (Kellogg, 2008). However, with the advent of generative AI (artificial intelligence, Cingillioglu, 2023; Anson & Straume, 2022), which can produce complete, error-free texts from simple prompts, urgent questions arise: Is writing instruction still useful? Are teachers' efforts well spent? Should we focus solely on teaching how to write prompts and leave the rest to technology?

To answer these important questions, we propose to begin with an examination of what it means for educators to teach writing today. Specifically, we want to understand the meaning of teaching writing from their perspective and the practises they use in the classroom. Examining the challenges they face, and their perceived training needs could also shed light on areas where teacher training can be improved, both at university level and through professional development programmes. These findings could help to better prepare teachers for the changing challenges of teaching writing in today's world.

The COVID-19 pandemic in 2019 has significantly accelerated the shift towards digital learning, and the increasing use of generative AI (*text-to-text* models) has further transformed the educational landscape (Fleckenstein et al., 2024). In this context, secondary schools represent a particularly interesting research focus. Students in these schools typically participate in formal writing exercises at least once a month (*tema in classe* in Italy; Serianni & Benedetti, 2015) and are likely already integrating digital writing tools and AI into their everyday lives.

While international research has extensively investigated the practises of writing instruction, particularly in English-speaking contexts (Graham et al. 2024; Sheppard, 2021; Merga et al., 2021), there is a conspicuous gap in studies focusing on recent years in Italy (Boscolo & Zuin, 2015; Barbagli et al., 2017; Rossi, 2019). Researchers such as Graham and Harris have developed validated instruments to assess teachers' self-efficacy in writing instruction (Graham et al., 2001), their theoretical orientations for writing instruction (Graham et al., 2002), and their adaptations of instruction for struggling writers (Graham et al., 2003). These instruments, which are designed to assess teachers' perceptions of their practise and focus on the writing process (the primary focus of writing instruction in secondary school), are particularly appropriate for the objectives of the present study.

The aim of this study is to understand how Italian teachers have reacted to the changes of the last five years, including the increasing integration of digital tools, and eventually to analyse the impact of AI in writing instruction. Through interviews with teachers, we aim to find out what is happening behind the classroom doors from educators' perspective, filling a critical gap in the existing literature on the teaching of writing in Italy in recent years.

The results of this study will shed light on current practises of writing instruction in Italian classrooms. They are intended to help prospective teachers demystify the "black box" of writing instruction and better understand what happens in daily practise (Lampert, 2010; Shank & Santiague, 2019). By identifying the difficulties teachers face, this study aims to shift responsibility for these challenges from being the sole concern of individual teachers and schools to a broader societal problem. Finally, the study highlights the training needs articulated by the teachers themselves and offers valuable insights for the development of teacher training programmes in Italy and the promotion of a critical, informed approach to writing instruction in the digital age.

The research questions we want to answer with this work are the following:

RQ1. What practises do secondary school teachers in the city of Turin use to teach writing?

RQ2. What difficulties do these teachers encounter when teaching writing?

RQ3. What training needs arise from their experiences?

## 2. Method

A qualitative approach was chosen to answer these questions. The study used semi-structured interviews to comprehensively answer the research questions (Brinkmann & Kvale, 2018; Brown & Danaher, 2019).

Key steps of the methodology included:
- Interview design: questions were based on an extensive literature review (Poch et al, 2020; Graham et al, 2001, 2002, 2003, 2016; Bifuh-Ambe, 2013; Rossi, 2019; Hidi & Boscolo, 2006). The interview focused on background information, writing instruction practises, writing instruction conceptions (e.g., teachers' opinions about their self-efficacy, positive and negative aspects of writing instruction, students' writing motivation), and perceived need for professional development.
- Validation: Two secondary school teachers and a linguistics professor reviewed the questions for appropriateness.
- Data processing: The interviews were audio-recorded, transcribed and analysed **using template analysis** (King, 1998; King & Brooks, 2016), a special type of thematic analysis. Template analysis enables the development of a hierarchical coding structure: the process begins with a preliminary coding template informed by the study's research questions and relevant literature on writing instruction (e.g. Graham et al., 2001; Rossi, 2019), which guides the creation of questions for the interview. At this stage, any ideas that the researcher has a priori about the topic are considered and his/her previous assumptions that led to the determination of the interview questions are taken into account when creating the codes. In reviewing the transcripts, the codes were iteratively refined: sub-themes were developed to capture nuances in the data, but the main themes remained the same. This method made it possible to systematically integrate both a priori and emergent themes. The final template was consistently applied to all interviews. The selection of quotes was based on the representativeness of the common patterns and the ability to illustrate the main sub-themes that emerged when analysing the interviews, as well as the interesting discrepancies between participants, identified during the coding process. One evident example is the COVID-19 aspect, which was not taken into account when the questions for the interviews were drawn up and only emerged in the coding phase.

The questions asked in the interviews are translated in the following table:

| Writing teaching practices | Q1 | How much time do you dedicate to teaching written composition within the hours allocated for teaching the Italian language? |
| | Q2 | Do you explicitly teach students how to plan, draft, and revise their writing? |
| | Q3 | Do you incorporate collaborative writing activities in your teaching? |
| | Q4 Q5 | Do you encourage the use of technological tools to support written production? Do you recommend specific hardware or software for writing tasks? |
| | Q6 Q7 | Do you personalise the requirements for writing tasks for your students? And what about the time? |
| Writing teaching conceptions | Q8 | Do you feel effective when teaching writing? |
| | Q9 Q10 | What do you think are the main advantages of teaching writing? And the disadvantages? |
| | Q11 Q12 | Do your students appear motivated to write? Are there specific types of assignments or tasks that you find particularly engaging or challenging for your students? |
| Professional development needs on writing instruction | Q13 | Do you feel that you need additional in-service training for writing instruction? |
| | Q14 | If so, what type of training would be most beneficial for your teaching practise: digital writing tools or traditional handwriting methods? |

*Table 1- Short version of questions asked during the interviews.*

The study used the snowball sampling method (Parker et al., 2019) to recruit 20 secondary school teachers from the city of Turin. Participants represented different age groups and teaching experiences, as shown in Table 2. The interviews took place between July and December 2023.

| Age | N |
|---|---|
| 21-30 | 0 |
| 31-40 | 1 |
| 41-50 | 5 |
| 51-60 | 11 |
| > 60 | 3 |

| Gender | N |
|---|---|
| Male | 1 |
| Female | 19 |

| Secondary school | N |
|---|---|
| Lower (also known as middle school) | 10 |
| Higher (also known as high school) | 10 |

| Education background | N |
|---|---|
| University degree in modern literature | 14 |
| University degree in ancient literature | 5 |
| University degree in pedagogy | 1 |
| Additional for only few teachers of the sample: specific training to be a teacher (SSIS, TFA, PAS, degree in pedagogy) | 7 |

| Teaching experience(in years) | N |
|---|---|
| > 5 | 0 |
| 5 – 10 | 1 |
| 11 – 15 | 2 |
| 16 – 20 | 6 |
| 21 – 25 | 3 |
| > 25 | 8 |

*Table 2 – Background information from the secondary school teachers interviewed*

## 3. Results

In order to present the results in a concise and effective way, we will address each question of the interview and give an insight from the teachers' point of view in their own words (all sentences have been translated into English by the author but are the best possible translation of the original text).

### 3.1 Writing teaching practices

Teachers generally reported spending about 1 hour per week on writing instruction (Q1 – 15 out of 20 teachers). The findings are particularly consistent with those of lower secondary teachers (who generally spend about 6 hours per week teaching Italian). At secondary level, teachers have greater difficulty in specifying the time spent on writing instruction (they also have only 4 hours for Italian lessons): They are more vague and find it more difficult to give an exact answer (5 could not estimate the time). Mostly they refer to the writing assessment they do (more or less) every month and emphasise that they tend to spend more time on grammar and writing lessons in the first years of high school (9th and 10th grade).

> «So, normally, I'm telling you, normally, all classes have to do two written assignments per term, okay? This is the classic composition or essay—call it what you want, right? Obviously, there's a difference between the first two years and the final three years of high school. In the first two years, grammar is covered again, so phonology, morphology, and syntax » (Higher secondary, Male teacher in his 50s).

In the other years (from 11th to 13th grade), explicit writing lessons at high school level are rather rare according to the teachers. With regard to the second question of the interview (Q2), all interviewees stated that they spend 2 to 4 hours annually to explicitly teaching planning. However, drafting and revising are referred to be taught occasionally and in an unstructured way. For example, one teacher says about revision:

> «While the rest of the class is doing something, individually we do the correction together because they still don't know how to do it. Keep in mind that… I didn't tell you that as a premise and maybe I took it for granted: these classes came from distance learning: they have written very little. So this work is a work that does not exactly correspond to a first, to a second class; that is, I did not do this work years ago, in middle school, but now I have to do it because they have missed that learning. They are not yet capable to do this, so they are not real lessons that I do but I correct together with them» (Higher secondary, Female teacher in her 60s).

From this extract, we can start to notice COVID-19's impact on teaching: it was profound and required remediation to close gaps. This was noted by 18 of the 20 teachers; the middle school teachers were particularly concerned about the loss of their students' skills. All teachers raised this issue when asked about digital didactics (Q4&5). Thirteen teachers stated that they link writing lessons with reading and literary examples (in Italian: antologia), mainly based on textbook content; all middle school teachers stated that this was their way of teaching:

> «Many times, the "antologia" offers in my opinion - and in any case the textbook offers a constant indication for the work in the classroom - offers many possibilities: the pupils write after a text has been read and analysed and then they have to somehow rework it» (Lower secondary, Female teacher in her 40s).

Collaborative writing was criticised (Q3). Six teachers stated that they practised it, but others were sceptical (no patterns could be identified in relation to the age of the participants).

> «Well… I really don't believe that the writing process is possible in a collaborative manner. It's very difficult to work collaboratively in writing. It's really really hard» (Lower secondary, Female teacher in her 50s).

Coming to the digital writing aspect, as already mentioned, all respondents in questions Q4 & Q5 described a before and after on the subject of the COVID-19 pandemic. Every single teacher stated that their teaching methods had changed during this time. Two thirds of the participants confirm that they have adapted their didactic approach, while one third (consisting only of older upper secondary school teachers) say that the time of the pandemic has left aftermath, but they are trying to return to a "normal" pedagogy in their classrooms and refer to the pre-pandemic period as a lost treasure. The use of Word or Google Documents is cited by all participants and some teachers describe it as a mixture of positive and negative aspects, such as the following:

> « Well, especially during the lockdown, we used Google Docs, and in my opinion, the clear advantage is the ability to correct and produce a clean text. Those who have poor handwriting or students with learning disabilities (like dyslexia) have more opportunities to revise their work because they don't face the challenge of reinterpreting their own writing or struggling with disorder, if you know what I mean. [...] However, unfortunately, kids are kids. This happened to me, especially during the lockdown, when I assigned essays on certain topics. Several times, I found that students copied and pasted content they found online» (Higher secondary, Female teacher in her 50s).

These simple but powerful words explain how teachers feel about the use of digital writing in their didactics or for homework. Interestingly, only 5 out of 20 teachers state that they think AI is important (it is important to bear in mind that the interviews were conducted in 2023, when the AI boom was just beginning), and it is the more experienced teachers who are concerned about this. One interviewee stated that:

> « I don't think I'll ever assign essays to be done at home again, because one of my students told me that her sister, who is in high school, did an experiment with her classmates. There were 22 of them, and they had ChatGPT write their essays. It produced 22 different essays, and the teacher didn't notice. Then, to their credit, they admitted it to the teacher, saying, 'Look, professor, we didn't write the assignments, it was done by…,' but I think we're moving toward an era where homework assignments won't be feasible anymore. That's the big problem. So, written work must be done in class, collecting cell phones, watches, and so on. Because even in second grade, they're already savvy and might sneak in a phone. Unfortunately, that's the way it is… Even summarizing a fairy tale, ChatGPT does it in three minutes» (Lower secondary, Female teacher in her 60s).

Finally, regarding the personalisation of tasks (Q6 & Q7), all participants indicate that they personalise their written assignments, especially those during the monthly writing (tema in classe). Time is also individualised as much as possible, depending on the students' needs, e.g. if the 2 or 3 hours allocated to writing exercises are not enough, teachers allocate more time the following week so that students can finish their texts.

### 3.2 Writing Teaching Conceptions

Regarding teachers' opinions of writing instruction, professors (Q8) widely reported low self-efficacy; 14 out of 20 felt ineffective in teaching writing. Frustration was evident. When asked if they felt effective in their writing instruction, one teacher responded:

> «Not at all. I mean, there are times when a student maybe gives you a decent essay, and in the next essay you read, they've unlearned how to write? What happened? Or they make the same mistakes again, you correct the same thing a thousand times. Then, they either learn spelling in primary school or they never learn it. It's crazy, though. It's crazy, it's crazy. […] And not yet after three years, after five years, depending on how old the students are, they tend to be three, two or three, they never change » (Higher secondary, Female teacher in her 60s).

The view that students' skills are a monolithic, unchanging aspect is supported by 4 out of 20 teachers who state that writing is ultimately an 'art' that cannot be taught. When asked about the benefits and challenges of their work (Q9 & Q10), respondents state that the positive aspect is closely linked to the educative aspect of writing instruction. More than half of the interviewees stated that they really enjoy being literature teachers because they have access to the students' personal writings in their monthly writings (temi) and can have an inside perspective on the students, which allows for a closer relationship compared to teachers of other subjects. This educator, for example, expresses this very clearly:

> «[Writing] is a very powerful channel to be used with caution, but I still think it's necessary and I'm not willing to reduce everything to summarising so that I can evaluate how students write […] and if I believe in a didactic-educational approach then necessarily some purely didactical things for me become a little less relevant» (Lower secondary, Female teacher in her 30s).

Another teacher takes stock of the pros and cons:

> « Teaching writing is very versatile. It allows you to do many, many things. And to enter, what I was telling you at the beginning, to get in deep contact with the kids. I, through writing, get to enter a little bit into their world and so I enjoy it. That is, in my opinion, the big advantage, where italian teachers are the ones who often know the pupils best. The disadvantage is that it is difficult and that correcting essays is something that takes an immense amount of time. Sometimes, in fact, I admit that I get a bit angry thinking about other teachers who are paid like me but who have no papers to correct or who correct them very quickly. But I believe that only with this dedication can one achieve anything. Thus, the disadvantage is this, that it is complicated» (Lower secondary, Female teacher in her 50s).

According to the observations of all teachers (Q11 & Q12), students show more enthusiasm when the tasks allow for personal or imaginative expression:

> « In my opinion, when the students have to talk about themselves it's always more motivating, and the ones that read a lot those really like when they have to invent stories. […] Also my colleagues say the same» (Lower secondary, Female teacher in her 50s).

> « when there are the essays of personal introspection I see them[*the students*]  more convinced or even if I sometimes ask them to imagine situations, for example the idea of having a historical character speak, to say what the emotions of the one represented in the statue are… then yes, where there is to use a little more imagination or where there is to talk about oneself are the writings for which I see them enthusiasts.» (Lower secondary, Female teacher in her 50s).

### 3.3 Professional Development Needs

Perhaps it is thanks to critical reflection during the interview that eighteen teachers emphasised the need for targeted further training measures when asked about their training needs for writing lessons (**Q13**). One of the most important demands of the interviewees is that the further training should be practise-orientated and scientifically sound. Two of them emphasised this:

« You have to be very practical. I mean, little theory and just... You [as a teacher] are an active, creative part of it, I mean, you create it together with the trainer » (Lower secondary, Female teacher in her 50s).

« Probably it would be useful because it's a training that I do not have at all, I built the method through my experience, but a bit more scientific training might be useful» (Higher secondary, Female teacher in her 50s).

Digital transformation was another area of focus. Teachers who answered positively to the previous question were asked whether the training should focus on digital or handwritten form (**Q14**); all indicated that both should be covered; for example,

« We are in an epochal change that has been here for decades, and the school needs to understand how to change, it can no longer be traditional, so obviously training would be very useful, and in my opinion, it should deal with both handwriting and digital writing » (Higher secondary, Female teacher in her 50s).

## 4. Discussion

The data presented above shows an interesting picture of what is happening in Italian classrooms. An important aspect to consider is the lack of representativeness of the sample: teachers were only interviewed if they were interested and took the time to do so, which may lead to a strong bias in the sample; even if it more or less reflects the actual age distribution of teachers, more than half of the teachers were at least 50 years old and had many years of experience. This could have strongly distorted the results. As the aim of the study was to present a specific situation and not to produce statistics, we nevertheless believe that all the results are helpful in answering the research questions. The analysis shows that the teaching of writing in Italian high schools still seems to be traditional, as the time devoted to writing in school is very small, as is the time teachers devote to teaching writing. In middle school, teachers tend to support and encourage more children in the writing process, which is more in line with what scholars describe as effective (Slavin et al. 2019; Graham et al., 2016).
The widespread critique of collaborative writing should be further analysed as it has strong roots in Italian pedagogy (e.g. the transformative and critical experience of the Barbiana school, Milani, 1967) and could be a feature of very traditional views on writing instruction or a more recent reaction to the changes in language teaching in Italy in the 1970s (e.g. *10 Tesi GISCEL*).
The fact that the pandemic has accelerated the growth of digital writing in schools raises new interesting questions that are worth addressing in future research, such as how much space this teaching should have in the curriculum. Teachers seem very convinced that handwriting should be retained in schools. We see this as a positive prospect in terms of the impact on students' brain development (Berninger et al., 2009). The personalisation of tasks is in line with Italian inclusive didactics, which pays particular attention to students' needs (through personalised learning plans). In general, the positive and negative aspects of writing instruction are reported to be balanced in daily practise, but the burden of writing assessment on teachers should at least be problematised. OCR technology and software customised for assessment could increasingly support this task.
It is also interesting to note that AI was explicitly mentioned only by 5 of the 20 participants, mainly in the context of homework interference: their answers suggest a lack of structured strategies for addressing AI's impact. This suggests that awareness of how AI challenges traditional notions of authorship and assessment is nascent but growing. Rather than integrating AI as a teaching tool, most participants saw it as a threat or, more neutrally, as a change to which they needed to adapt.
The high distribution of low self-efficacy perceived by the participants is very worrying as these teachers agreed to talk about their practises and we can assume that they should be at least somewhat aware when asked questions about their pedagogy. The difficulty of motivating students is also a challenge that could affect educators' perceptions of their effectiveness in a world where we are writing less and less. It is important that this aspect is addressed. One way to do this is to address the diffuse sense of educational need in writing instruction. If we begin to listen to the contextual, specific needs of educators in relation to their daily practise, it would be possible to develop in-service teacher training programmes that provide practical, effective training (Darling-Hammond et al., 2017; Federighi, 2018). Such initiatives should bridge the gap between traditional

and digital pedagogy and enable teachers to deal with rapidly changing challenges (and last but not least, the effectiveness of these training programmes should also be evaluated).

## 5. Conclusion

As so often, further research is essential. The sample of this study was limited to the city of Turin, which led to distortions. Expansion to a regional or national level would provide a more comprehensive understanding of writing instruction across Italy, uncovering good practices, positive experiences, and areas for improvement. The interviews revealed promising strategies that, if shared through collaborative teacher networks, could benefit teachers nationwide even before they enter professional development.
In order to strengthen writing instruction, we propose four decisive steps:
1.  Strengthening and enhancing teacher networks (such as the Italian Writing Teachers) to support professional learning and reflective thinking and to help teachers find contextualised responses to their students' writing instruction needs.
2.  Expand the study of effective methods of teaching writing in the Italian context.
3.  Boosting teacher confidence through targeted, practical support.
4.  Addressing the challenges related to student motivation and digital integration.

Furthermore, the results point to a transitional phase in Italian writing instruction, in which digital tools are widely used but not yet fully integrated into the pedagogical framework. While platforms such as Google Docs have become commonplace, the use of generative AI in the classroom remains limited and is often viewed with concern: this suggests that critical research on the application of AI in writing instruction is crucial and should be carefully considered in a contextualised way to evaluate the potential positive and negative impacts of AI use in the writing classroom (Liu et al., 2024). Critical reflection on AI at the time of the interviews does not yet help us answer the question of whether and how AI is relevant to teach writing from the teachers' perspectives. Based on the general feedback we received during the interviews, we can safely say that writing instruction is a relational act of cultivating student voice, and the use of AI has played little role in italian classrooms so far. The reported low self-efficacy of teachers in teaching writing is extremely worrying, even if it is not surprising given the rapid development of digital tools and generative AI. Universities and teacher educators need to critically analyse this and other data and develop tailored, context-specific professional development programmes. These initiatives can empower educators, bolster their confidence and foster impactful change in their teaching practise.

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# A learning design to promote reflection and digital media skills for the professionalisation of student teachers

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## Abstract

Reflection skills are seen as a crucial factor for teacher professionalisation. They serve to combine theoretical and practical knowledge and are, therefore, relevant for solving challenging situations in school practice. Furthermore, digital media skills are important for teacher professionalisation because contemporary teaching requires the integration of digital media resources into learning processes as well as the promotion of media skills among pupils. The development of professional reflection and media skills are therefore an important aspect in the context of teacher education and corresponding learning opportunities should be offered. In this paper, I present a learning design that aims to promote both reflection and digital media skills for student teachers.

## 1. Introduction

To enable deep learning processes and therefore the professionalisation of student teachers, didactic conceptions of learning designs should focus on active, constructive and interactive learning behaviours of the students (Chi & Wylie, 2014). These learning designs are characterised by methods and tasks, that promote cognitive activation, for example through target group orientation, feedback, opportunities of self-directed learning and reflection on real-world practices (Ellaway, 2020).

In the context of teacher education, reflection is understood as thinking back to one's own actions and experiences with the aim of intentionally and purposefully changing a problem (Häcker, 2017). Reflection processes enable in-depth learning and the development of flexibly applicable knowledge (Pedaste et al., 2012). Furthermore, reflection enables the successful linking of theory and practice (Leonhardt & Rihm, 2011; Reintjes & Kunze, 2022). The ALACT reflection model offers the possibility of structuring and an in-depth examination of theory and practice by the students (Korthagen & Nuijten, 2022): First, a situation is described (Action), viewed from different perspectives (Looking back on the action), and then analysed with regard to the levels of environment, behaviour, competence, attitude, role and mission using literature (Awareness of essential aspects). Building on this, alternative methods of action are developed (Creating alternative methods of action), which can be tested in practical situations (Trial) (Korthagen, 2014). By integrating this model into university learning opportunities, students can develop reflective skills and enhance their professional development, based on theory (Häcker, 2017).

In the digital age, active learning can also take place in the digital space and be supported using technology. The digital space offers the opportunity to support active, constructive and interactive learning processes, for example, by the integration of individualised consolidation and feedback options that learners can select and use themselves (Lehberger, 2025; Thurnes & Schüßler, 2005). The inverted classroom concept can be used to structure a learning design for the professionalisation of student teachers (Spannagel & Freisleben-Teutscher, 2016). This model includes analogue and digital spaces as well as self-directed and collaborative learning phases for a university seminar design (Lehberger, 2023). Digital learning materials are used by the students for independent content development to prepare for the university attendance phases. In the seminar time, the individually acquired knowledge is applied and deepened in collaborative practice situations (Handke, 2023). Traditionally, digital self-study materials in the inverted classroom consist of video tutorials or recordings of lectures (Lovisach, 2019), but they can include all kinds of formats, such as podcasts, texts or interactive tasks (Zickwolf & Kauffeld, 2019). All these formats mentioned and other interactive elements can be generated using the free H5P software, which is a plugin that enables the Moodle system to create interactive content like videos, quizzes and presentations (Magro, 2021). Because digital skills are important not only for learning processes but also for successfully mastering many everyday and professional tasks, the preparation for active and critical participation in the digital world should be emphasised at school and in all subjects (Fraillon, 2024). In addition, digital technologies offer numerous opportunities to promote teaching and learning processes in the classroom. In order to fulfil this task professionally, teachers must have extensive technological, pedagogical and content-related expertise (Koehler et al., 2013). Teacher education programmes should therefore offer learning opportunities for student teachers to be able to integrate digital technology in the classroom and discuss digital topics in subject lessons (Tondeur et al., 2017).

A learning design can contribute to the development of these skills if it enables and encourages students to actively engage with the phenomena of the digital world and critically reflect on their own skills in this area (Herzig, 2019). Therefore, topics relevant to media education should be addressed as a content, like artificial intelligence (Aufenanger et al., 2024), cyberbullying (Mishna et al., 2012), or social media use (Korkmaz & Colak Kilic, 2024).

One didactic method for realising this aim in the context of an inverted classroom learning design is artifact-generated learning. With this method, the students produce learning artefacts by using digital technology (Jahnke et al., 2022).

## 2. Learning design

The learning design described below is intended to promote the professionalisation of student teachers in reflection and digital media skills. It is based on the inverted classroom concept, where digital learning materials in H5P format are used to realise students' individual content preparation and reflection processes. In the attendance phase, learning artifacts are produced collaboratively on topics related to the digital world and reflection opportunities are provided.

### *2.1 Organisational conditions*
The learning design is integrated into the master's degree programme of educational sciences at Paderborn University in Germany (4 ECTS). In this module the student teachers can choose from various subject areas to set an individual focus, so the seminar described 'Digital media in schools and lessons' is not compulsory. The attendance phase takes place weekly and lasts 90 minutes. The aim of the seminar concept is to promote the skill 'Select, modify and create digital resources and materials for teaching and learning in a purposeful manner', which is part of the digital competence framework for teachers in North Rhine-Westphalia, Germany (Eickelmann, 2020). That corresponds to Area 2 of the European Framework for the Digital Competence of Educators (DigCompEdu): 'Digital Resources - sourcing, creating and sharing digital resources' (Redecker, 2017).

### *2.2 Didactic concept*
The seminar is based on the inverted classroom concept where the individual preparation is self-guided and supported by formative assessments at the end of the themes. Exercise and application take place during the attendance phase and include the creation and reflection of digital learning artefacts. To specify the term 'digital resources' from the competence framework, 'visualisation', 'podcast' and 'video' were chosen. The topics for the content of the learning products can be chosen by the students at the beginning of the semester and should focus on digitalisation-related topics from the school context. The learning products consist of a combination of a digital tool with a topic from the digital world. For example, students individually created a visualisation related to the topic of cybercrime, worked in pairs to produce podcasts on the use of social media in schools, and developed explanatory videos in small groups on the topic of artificial intelligence. This approach offers the opportunity to gain a deeper understanding of quality criteria for the use of individual forms of representation to promote learning.

### *2.3 Digital learning materials*
The Moodle course with H5P learning materials contains subject-specific and organisational content (see Figure 1). The starting page was organised with the H5P-content type 'image hotspots' and the lessons can be accessed by clicking on the arrows. The 'interactive book' element was used for the technical realisation of the navigation in the lessons. The headings of the 'book' pages are clearly displayed as a table of contents in a selection menu on the left-hand side. A click on the headline takes the students to the contents of the page. The pages can be designed by various forms of representation can be combined on the pages of the interactive book, such as texts, illustrations, videos or interaction formats (Jacob & Centofanti, 2024). To support the learning process, not all content is presented as continuous text; some is visually also visually reduced using the H5P element 'accordion'(Schneider et al., 2022). For example, various tools to produce digital visualisations were described in this format or different aspects of cybercrime. For the learning process, diverse formats have the advantage that different sensory channels are addressed. In addition, the simultaneous presentation of illustrations and text promotes retention (modality effect) (Chandler & Sweller, 1991).
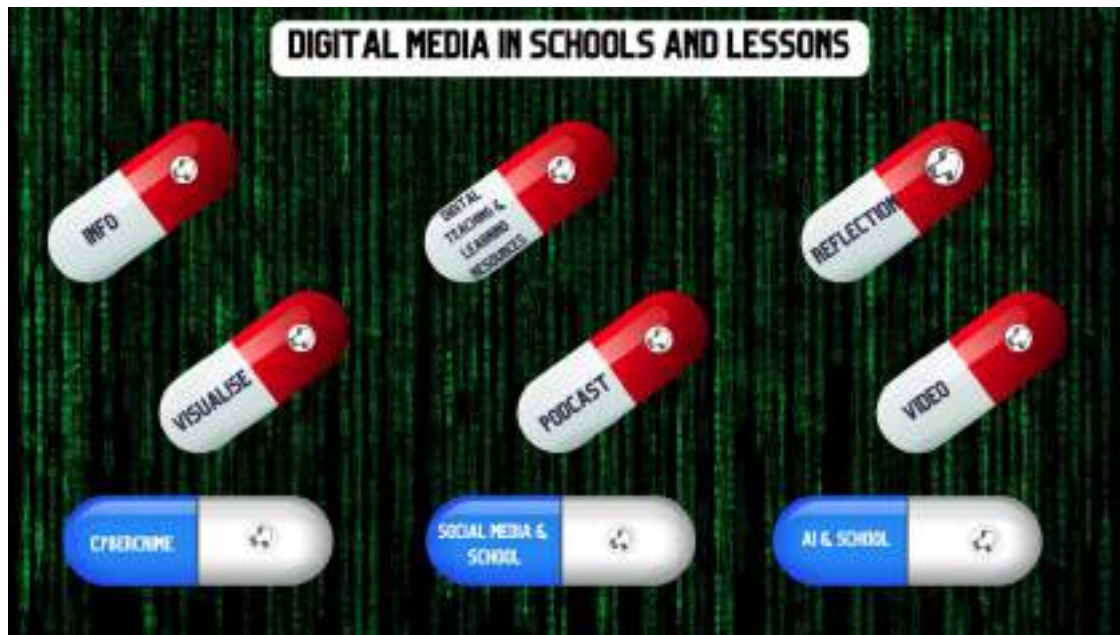
*Figure 1: Starting page and table of contents of the Moodle course as H5P element 'image hotspots'. Click on the arrows to access the different lessons (own representation).*

### 2.4 Reflection opportunities in the learning design

Because reflection skills are important for learning and teacher professionalisation, they are also to be promoted as part of the seminar work. This topic is integrated into the learning design at several points. Firstly, the importance of reflection processes for professionalisation and also the ALACT reflection model are discussed as part of an introductory seminar unit. Later in the course, students can reflect on their level of media-related professionalisation using the ALACT reflection model. Therefore, reflection prompts are integrated into the H5P materials (see Figure 2) and time is provided during the seminar to work on them.



*Figure 2: Reflection task as H5P element 'image hotspots' (top). Clicking on the arrows opens the text-based prompts (bottom) (own representation).*

The ALACT reflection model was used to structure the reflection processes in the seminar. To develop a deeper understanding of the model, the ALACT phases are discussed using the example of cybercrime:

- Action: students should report on their own experiences related to cybercrime in the school context.

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- Looking back: the students perspective and the perspective of other people who attended the situation are described by the dimensions of wanting, feeling, thinking and doing.
- Awareness of essential aspects: students should refer to pedagogical theory at levels that can influence teacher functioning. Those levels are environment, behaviour, competencies, beliefs, identity and mission.
- Create alternative methods for action: students create a plan for an alternative action in the same situation described at the beginning
- Trial: to enable practical application of the knowledge reflected in the seminar, the students create a visualisation, which should form the basis for the discussion of the individual situation in the teaching staff.

### *2.5 Schedule*
The following table shows an example of the seminar programme. The students have already received access to the Moodle course before the first in-person session and should orient themselves in it, as well as work on the first test with organisational questions.

| 1 | - get to know each other<br>- enquire about wishes and clarify questions about the course<br>- information on the research project<br>- information about aspects of the digital world as content knowledge and possible topics for the learning artefacts, voting on topic choices |
|---|---|
|  | *Preparation task: complete the lesson 'digital teaching and learning resources' and solve the test* |
| 2 | - brief information on reflection and its importance in teacher education<br>- explanation of the exemplary practical situation for using the video about internet research as a first written reflection<br>- time for writing the reflection |
|  | *Preparation task: complete the lesson 'reflection' and solve the test* |
| 3 | - brief information on cybercrime<br>- discussion of personal experiences with forms of cybercrime (out of the school context) (Action)<br>- the students own perspective and the perspective of other people who attended the situation are described by the dimensions of wanting, feeling, thinking and doing (Looking back on the action)<br>- the students research the framework conditions of cybercrime in school programmes or on school websites, such as study groups, house rules, thematisation in subject lessons (Awareness of essential aspects / environment) |
| 4 | - reflection on possible behaviour when cyber violence occurs at school (Awareness of essential aspects / behavior)<br>- information on competences from teacher competence frameworks that can be helpful in the context of cybercrime, like education or counselling (Awareness of essential aspects / competence)<br>- reflection on students' attitudes towards cybercrime at school (Awareness of essential aspects / attitudes)<br>- reflection on their own role in the context of cybercrime at school (Awareness of essential aspects / identity) |
|  | *Preparation task: complete the lesson 'visualisation' and solve the test* |
| 5 | - the students inform themselves about quality criteria for visualisations (cognitive load, text-image integration and graphic design) on the basis of literature in the learning material and create a visualisation about their topic (technique: sketchnote). |
| 6 | - completion of the visualisation<br>- sharing content in teams with the help of visualisation<br>- creation and discussion of a catalogue of criteria for digital visualisations via Etherpad |
|  | *Preparation task: create a visualisation to explain cybercrime and possible courses of action in chools for a teachers' conference* |
| 7 | - peer-feedback on the visualisations based on the quality criteria discussed in the previous lesson<br>- reflection on actual visualisation-skills based on the ALACT model (Awareness of essential aspects) |
|  | *Preparation task: complete the lesson 'podcast' and solve the test* |
| 8 | - insights into sample podcasts from the education sector with social media topics |

| | | |
|---|---|---|
| | - | discussion about possible goals and formats of podcasts and quality criteria for podcasts as learning material |
| | *Preparation task: information on a topic from the field of social media and school* | |
| 9 | - | creation of a podcast-storyboard for the chosen topic in pairs and preparation of the recording |
| 10 | - | recording of the podcast |
| 11 | -<br>- | reflection on actual podcast skills based on the ALACT-model (Awareness of essential aspects)<br>discussion of ideas for possible meaningful integration of audios / podcasts in subject lessons at school |
| | *Preparation task: complete the lesson 'video' and solve the test* | |
| 12 | -<br><br>-<br><br>-<br><br>- | brief information about AI and its significance in school contexts and about the video usage behaviour of pupils and potential for learning<br>selection of quality criteria for videos that promote learning based on information from the learning material and the criteria for visualisations and audios<br>information on a topic from the field of artificial intelligence and school (for example: AI for teachers, AI in learning processes)<br>*Preparation task: creation of a storyboard for the chosen topic in teams and preparation of the video-recording* |
| 13 | - | recording of the video |
| | *Preparation task: viewing the videos of the other groups and noting feedback* | |
| 14 | -<br>- | reflection on actual video-skills based on the ALACT model (Awareness of essential aspects)<br>discussion about the quality of the videos and of ideas for possible meaningful integration of videos in subject lessons at school |
| 15 | -<br><br>- | explanation of the exemplary practical situation for using the video about personal rights and copyright as a second written reflection<br>time for writing the reflection |

Table 1: Example schedule of the learning design

## 3. Conclusion and future work

The aim of the learning design is the professionalisation of student teachers in the ability to 'Select, modify and create digital resources and materials for teaching and learning in a purposeful manner'. To evaluate the students skills development and the seminar concept, the students are provided with a video as a practical example at the beginning and end of the seminar. One video is about information research and the other about personal rights and copyright. The students should consider whether they would use the video in their lessons as a learning material for the pupils at school, and they were asked to reflect in writing. It is intended to analyse the students' reflections using qualitative content analysis (Kuckartz & Rädiker, 2023). The analysis will focus on the range and depth of reflection. The range of reflection becomes clear in references to digital skills (e.g. technology-based learning processes and criteria for video quality) and the depth of reflection in references to reflection skills (e.g. learning taxonomy levels or reflection levels (Anderson & Krathwohl, 2001; Hatton & Smith, 1995; Korthagen & Nuijten, 2022).

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# Reflective Practice in MOOCs: Exploring the Role of Tutors and Fostering Teacher Professional Development

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## Abstract

This study investigates the role of tutors in MOOCs and the impact of reflective practices on student-teachers' professional development. Tutors enhanced engagement by fostering reflection, facilitating peer interaction, and linking theory to practice. Reflective activities, such as video analysis and article discussions, promoted critical thinking, metacognition, and professional identity formation. Peer interaction further enriched learning by creating communities of practice. Despite the benefits, challenges like limited feedback and engagement with tutors remain. Recommendations include active learning strategies, AI-driven feedback tools, and enhanced tutor-student collaboration to maximize MOOCs' transformative potential in education.

**Keywords:** MOOCs; reflective practices; professional development; socio-constructivism; tutor engagement.

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# 1. Introduction

Massive Open Online Courses (MOOCs) have democratized global access to education by providing free and flexible learning opportunities, promoting lifelong learning, and enabling specialized learning (Palacios Hidalgo et al., 2020). Based on their use in higher education, MOOCs have been classified into various models, such as content delivery, assessment with credits, and interaction-focused approaches (Alghamdi et al., 2019). They have been used to flip classrooms and enhance student participation and peer-to-peer interaction. Studies on MOOCs highlight their opportunities for self-directed and peer-supported learning and their adaptability and cost-effectiveness for teacher training (Hollebrands & Lee, 2020).

These features make MOOCs an attractive option for universities seeking to enhance teacher education (TE) programs and teacher professional development (TPD) programs aiming to cultivate reflective practices (RPs) among student-teachers (STs).

RP is learning from experience to gain new insights and improve future practice (Finlay, 2008). Rooted in the works of Dewey and Schön, it involves critically examining assumptions and evaluating responses to professional situations (Schön, 1987). Schön's framework distinguishes between reflection-in-action (real-time reflection) and reflection-on-action (retrospective analysis), offering a comprehensive approach to professional development (PD) that involves identifying problems, exploring relevant knowledge, constructing solutions, and resolving dissonance through action (Garrison, 2003).

TE encompasses pre-service, induction, and in-service phases, and it aims to develop pedagogically skilled teachers with reflective attitudes (Kasemsap, 2017). For pre-service teachers, reflective training fosters self-awareness and the ability to monitor their teaching strategies (Parsons & Stephenson, 2005). Therefore, RP is fundamental to PD, as it enables teachers to critically evaluate their teaching methods and adapt to complex classroom dynamics in changing educational landscapes (Huynh, 2022). It also promotes self-inquiry, systematic exploration of teaching experiences, and PD (Diasti & Kuswandono, 2020). However, challenges such as time constraints, mechanical application, and limited understanding among educators often hinder its implementation (Finlay, 2008). Despite such challenges, online platforms can enhance RPs (Diasti & Kuswandono, 2020).

MOOCs provide scalable and cost-effective solutions for TPD, enabling teachers to enhance their content knowledge, pedagogical skills, and technological competencies (Misra, 2018). They encourage professional identity development and create learning communities that promote RP (Rodrigues-Silva & Alsina, 2024). Also, frameworks like the meta-didactical transposition model for MOOCs (MOOC-MDT) demonstrate the potential of online environments for teacher collaboration and skill sharing (Taranto, 2020).

MOOC tutors play an important role in facilitating TE and TPD. Their effectiveness lies in their ability to structure and guide discussions marked by deep engagement and critical thinking that supports learners in taking greater ownership of their learning process (Mishra et al., 2017). Guldberg and Pilkington (2007) emphasize that the nature of discussion questions significantly influences the quality of outcomes.

Tutors also employ a variety of strategies to foster RP; self-monitoring tools, such as quizzes and reflective prompts, combined with external feedback from instructors and peers are important in this regard (Araneta et al., 2024; Zhu & Bonk, 2019). Structured activities like journaling, peer feedback, and video-based discussions encouraged RPs in MOOC-based blended courses (Araneta et al., 2024). Other strategies include learner-centered tutoring (Blum-Smith et al., 2020) and intelligent tutoring systems (Aleven et al., 2015). These mechanisms and approaches help learners critically assess their progress and identify areas for improvement. In the case under study, two tutors collaboratively worked to facilitate reflective learning among the ST.

However, questions remain regarding how tutors design activities to encourage meaningful engagement and the extent to which RPs embedded in MOOCs foster professionalism among ST. Significant gaps also exist in understanding how learners perceive the role of tutors in facilitating MOOC-driven RPs and how such practices benefit learner PD.

This research paper is a sequel to Araneta et al. (2024), which examined how RPs could be fostered in a MOOC-based blended learning course. This study replay to calls to better understand the interplay between tutor facilitation and reflective learning within MOOCs, exploring the following research questions:

- What are STs' perceptions of the role of MOOC tutors in fostering RPs?
- What are STs' perceptions of the usefulness and effectiveness of MOOC-driven RPs on their PD?

Through these questions, the study aims to advance understanding of the role of tutors in supporting reflection among MOOC learners and provide insight into how MOOCs can support reflective PD in TE. The findings could offer practical implications for tutors, course designers, and institutions and inform the development of effective facilitation strategies to improve the overall impact of MOOCs on TPD.

## 2. Theoretical framework

This study draws on socio-constructivist theory, particularly Vygotsky's (1978) principles, to examine the interaction between tutors, STs' PD, and RPs in MOOCs. Socio-constructivism emphasizes the social and dynamic nature of learning, co-constructed through interactions with peers, tutors, and cultural tools. This theory not only highlights the importance of tutors in facilitating meaningful engagement but also situates RPs as central to PD within online learning environments. Tutors play an important role in fostering engagement and facilitating reflective dialogue, crucial for PD within online learning environments. MOOCs reflect these principles via structured interactions, collaborative tasks, and digital tools like quizzes and journals that support reflective learning (Zhu & Bonk, 2019; Poquet et al., 2018).

The Zone of Proximal Development (ZPD) highlights the gap between independent capabilities and what learners achieve with guidance (Vygotsky, 1978). MOOC tutors scaffold RPs through tailored feedback, discussion prompts, and collaborative activities, enabling deeper reflection and critical analysis of teaching practices (Shabani et al., 2010). However, large-scale MOOCs face challenges such as superficial interactions and disengagement. Tutors must leverage technology and inclusive designs to foster social presence and sustained reflection (Aleven et al., 2015). This study explores how MOOC tutors mediate reflective learning and how it impacts PD, contributing insights into optimizing socio-constructivist strategies in online environments.

## 3. Methodology

This research used a single-case study research design (Yin, 2018) to examine how to foster RP in a MOOC-based blended course at the University of Padova. The aim of the MOOC under study, "<u>Innovative Teaching: Engaging Adult Learners with Active Learning</u>" is to help learners discover the power of active participation in adult learning through teamwork and collaboration among students. The MOOC has been used as the online counterpart in the blended university course "Organisational Culture: Teaching and Learning Methods" (OC-TLM). RAs are embedded in the course design and tutors are deployed to facilitate reflective learning in tune with the principles of constructivism that underlie the MOOC (Fedeli et al., 2022). Further details are found in Araneta (2024).

The participants for this study were a cohort of 2021/2022 second-year master's students (n=51) enrolled in the OC-TLM blended course. They participated in the MOOC along with other learners from around the world. Students were asked to answer an adapted version of the Critical Incident Questionnaire (CIQ) (Brookfield, 1995) to be answered at the end of each of the four weeks (n=51 per week, totaling 204 CIQs). The CIQ comprised six open-ended questions on students' learning experiences and perceptions of the MOOC. Also, as part of the didactical design of the course, students were assigned to work in groups of 6 for the Reflective Group Activities (RGAs). The outcome was a group report guided by reflection questions, and these were written by the group (n=8) and delivered at the end of the course. This helped the researchers make inferences about the students'

learning experience. A qualitative content analysis was facilitated using ATLAS.ti, a Computer Assisted Qualitative Data Analysis Software. Inductive and deductive processes of qualitative analysis of written text, consisting of iterative processes of comparing, contrasting, and categorizing text were adopted (Hsieh & Shannon, 2005).

## 4. Findings

### *4.1 The role of MOOC tutors in fostering RPs*
The role of MOOC tutors in fostering RPs was widely acknowledged by learners, based on an analysis of the reflective reports. Many students valued their interactions with tutors as meaningful for gaining new perspectives and enhancing learning. For instance, Reflective Report (RefRep) Group 3 noted that discussions with tutors and peers created "affirming and perspective-creating moments." Tutors played several central roles in supporting the teaching-learning process, offering guidance, fostering interaction, and encouraging deeper reflection.

**Tutors as guides and mediators.** Learners described tutors as essential guides who provided clarity on course topics and processes (RefRep Groups 1, 4, 5, 8). Tutors were appreciated for their technical support, helping students navigate the virtual environment and MOOC platform functionalities (RefRep Group 2). Most importantly, they served as moderators between teaching staff and learners, building a crucial link and creating a sense of connection between course trainers and students' learning outcomes (RefRep Group 5). Additionally, tutors introduced the MOOC, explained its integration into the course design, and set clear expectations for tasks (RefRep Group 8). Their role as mediators was valued for fostering a sense of cohesion and continuity throughout the course.

**Tutors supporting peer interaction.** Tutors facilitated peer-to-peer discussions and interactions, which were crucial for fostering RPs. RefRep Groups 3, 5, and 7 highlighted that tutors encouraged dialogue among learners and supported peer learning. For example, RefRep Group 1 explained how tutors helped construct links between students by connecting their contributions, shedding light on different perspectives, and encouraging participants to engage more deeply with their peers' ideas. Furthermore, tutors were noted for creating less formal, more direct relationships compared to traditional teacher-student dynamics (RefRep Groups 3, 5). Their continued availability and online presence fostered closer, peer-like interactions, which enhanced collaboration and discussion among learners and made the course less monotonous (RefRep Group 3).

**Tutors fostering reflection and learning awareness.** Another significant role of tutors was fostering deeper reflection on course topics. They provided alternative perspectives and ideas for in-depth analysis, rather than merely supplementing the MOOC content with additional materials (RefRep Groups 3, 5, 7, 8). RefRep Group 8 specifically noted how tutors' input stimulated reflective thinking and encouraged learners to engage critically with course content. Tutors' feedback on weekly activities and summaries of learning progression was instrumental in helping students develop awareness of their learning journey (RefRep Groups 3, 7, 8). This feedback allowed students to identify areas for improvement (RefRep Group 4) and track their progress more effectively. Moreover, tutors were recognized for providing concrete examples to support theoretical topics, which helped bridge the gap between abstract concepts and practical applications (RefRep Group 3). Their role in linking course content with real-world applications made the learning experience more engaging and accessible (RefRep Group 3).

**Suggestions for improvement of MOOC tutoring.** Despite the overwhelmingly positive feedback, learners also identified areas for improvement. Some students expressed a need for more frequent and detailed feedback on assignments and individual activities (RefRep Groups 5, 8). Others wished for tutors to engage more actively in peer discussions and facilitate deeper dialogue among learners (RefRep Groups 2, 8). RefRep Group 1 recommended that tutors provide regular feedback on peer discussions and group assignments, as well as monitor learners' participation more closely. RefRep

Group 2 suggested that tutors summarize and share the results of the CIQ to maintain a pulse on learners' experiences. Finally, learners encouraged tutors to leverage their mediating role to improve the course by sharing insights from student feedback with course designers. This proactive approach could help refine the MOOC experience for future participants.

### 4.2 MOOC-driven RPs on PD

STs' perceptions of the usefulness and effectiveness of MOOC-driven RPs for their PD were analyzed through responses from the CIQ and RGA reports. The analysis showed a broadly positive reception to RPs, underscoring their role in stimulating critical thinking, fostering professional awareness, and enhancing teaching methodologies.

**Reflection as a core component of learning.** Participants consistently emphasized the relevance of both individual and group RAs to their learning process. The RAs were described not only as engaging for the learning process but also as fundamental for developing a sense of professionalism and building awareness of the professional profile they aimed to develop. Many noted that the MOOC design was structured to provoke reflection, with articles emerging as the most effective triggers, followed by videos, discussions, exercises, and quizzes. Grazia's CIQ response exemplifies this perspective:

> The moment I felt most involved was when I watched the videos showing interactive lessons and when I shared my comments on them. At the end of watching these videos, I imagined myself in action instead of the teacher. I thought about what actions I would carry out, how I would deal with the students, and what activities I would propose. It was also interesting to understand the pedagogical mistakes made by teachers. This made me more aware of the mistakes that need to be avoided when teaching.

Similarly, RGA reports highlighted how the combination of activities—such as reading articles, engaging in discussions, and responding to reflective prompts—allowed participants to connect theory with practice and critically assess their teaching approaches.

**PD and metacognition.** Participants viewed RAs as instrumental in shaping their professional identity and enhancing their metacognitive skills. Gaia captured this sentiment in her CIQ: "The most important things I learned are the importance of being always engaged in critical reflection as a teacher and the importance of implementing new methodologies in teaching to be up-to-date with students' desires and needs" (Gaia). Others, such as Menica, used reflective opportunities to critique systemic issues within the educational landscape:

> I realize more and more that the difficulty of being an educator is overcome by the variety of tools discovered, known, and applied. I ask myself these questions: "Why do we continue to teach only with traditional methods? Why does the Italian school system remain static and not take inspiration from other contexts close to it?"

The tools provided in the MOOC, such as the Teaching Perspectives Inventory (TPI) and the Lesson Designer tool, were seen as particularly effective in fostering reflection. Martina noted the introspective nature of composing a teaching biography: "In composing the teaching biography, I found very introspective the questions about the purpose of education, the role of the teacher and what is an effective curriculum because they allowed me to summarize my thoughts." Martina explained that the questions allowed her to summarize her thoughts, drawing from both her formal training and informal experiences.

**The role of peer interaction and communities of practice.** The asynchronous format of the MOOC, combined with structured opportunities for peer interaction, was widely appreciated for enabling deeper reflection and collaboration. RefRep Group 1 testified that all the activities and personal reflections were given a platform to be expressed, shared, and compared with peers, fostering the creation of a meaningful "educational and formative experience." As Grazia said, "It was interesting to read about the bad learning experiences of other colleagues and to see how some of their experiences

are similar to my own." (Grazia). This is an example of reflective and shared learning, which demonstrates aspects of empathy and shared understanding through peer learning. Participants valued exchanging ideas and receiving feedback from others in the course, which often led to new insights and broadened perspectives.

Group reports further emphasized the value of sharing experiences and integrating theory with practice. RefRep Group 5 shared that exchanging ideas is a valuable experience that encourages mutual learning and self-reflection, enabling participants to provide and receive meaningful feedback while also sharing insights that bridge theoretical knowledge with practical application. Another group (RefRep Group 7) echoed this:

> Interaction, discussion, and giving and receiving feedback were meaningful because they represented a real opportunity for the exchange and sharing of ideas and experiences from other people, allowing us to look at things through a different lens, expand our knowledge, and learn new and innovative content. Both reflecting activities and sharing ideas and thoughts allow us to broaden our perspective, seeing things from a different, deeper point of view. Reading the comments, and the opinions of others, gave us the opportunity to learn about different scenarios.

**Recommendations for enhancing RPs.** In their recommendations to improve RPs, students emphasized the importance of fostering active learning strategies (debates, group activities, and hands-on tasks) and nurturing peer interaction and feedback mechanisms. Building communities of practice (CoPs) to sustain professional growth beyond the course was frequently mentioned. Furthermore, the tutors were cited as a major contributor to the effectiveness of RPs, as they facilitated peer interaction and provided guidance for deeper engagement.

## 5. Discussion

The findings highlight the pivotal role of MOOC tutors in facilitating RPs and enhancing STs' PD, reflecting a socio-constructivist approach that emphasizes social interaction, scaffolding, and collaboration (Vygotsky, 1978). Tutors provide essential support by clarifying course content, guiding technical navigation, and mediating between teaching staff and learners, facilitating the transition from surface-level engagement to deeper critical reflection within the ZPD (Guldberg & Pilkington, 2007; Shabani et al., 2010). Their role as "narrators," creating collaborative environments, aligns with the evolving dynamics of online education (De Caro-Barek, 2019; Mishra et al., 2017).

Structured environments, reinforced by tutors, were central to fostering STs' engagement, critical thinking, and PD, consistent with the importance of scaffolding in MOOCs (Zhu & Bonk, 2019). Tutors facilitated peer discussions that cultivated social presence, enabling reflective dialogue and professional growth (Poquet et al., 2018). By connecting theoretical concepts to practical applications and providing targeted feedback, tutors promoted Schön's (1987) reflection-on-action framework, reinforcing self-assessment and bridging theory with practice. However, the study also revealed challenges in implementing socio-constructivist principles at scale, including limited feedback and inconsistent tutor engagement. These findings reflect the constraints of MOOCs, as noted by Tubman et al. (2016). Incorporating technological solutions, such as AI-driven feedback tools, and positioning tutors as intermediaries between learners and course designers may enhance the relevance and effectiveness of MOOCs, as suggested by Taranto (2020).

STs perceived RPs as central to their PD, citing activities like video analysis, article reflections, and interactive exercises as essential triggers for connecting theory to practice. These experiences demonstrate how MOOCs can support the integration of knowledge and practice. Reflective prompts encouraged self-directed inquiry and enhanced teaching effectiveness, reinforcing findings that RPs improve self-awareness and professional identity (Aldahmash et al., 2017). Participants reported gains in metacognitive skills and professional clarity through RPs. Their critiques of traditional methods and curriculum design resonated with Brookfield's (1995) critical-reflective framework, highlighting the potential of reflection to challenge norms and foster lifelong learning (Morgan & Skaggs, 2016). Tools like the TPI and Lesson Designer further supported professional identity formation by scaffolding reflection within the ZPD framework (Vygotsky, 1978).

Finally, the findings foreground the value of peer interaction in fostering reflective learning. The asynchronous MOOC format enabled participants to exchange feedback, share experiences, and create CoPs, indicating co-constructed knowledge. Sustaining these networks beyond the course is vital for continued PD, echoing Taranto's (2020) advocacy for collaborative approaches in teacher education.

## 6. Conclusion

The findings of this study underscore the potential of MOOC-driven RPs in fostering PD among STs. The integration of structured tools alongside opportunities for peer interaction and critical reflection creates a robust learning environment that bridges theory and practice. RAs not only support the development of metacognitive skills but also promote professional identity formation and critical awareness of systemic issues in education. Tutors play a vital role in scaffolding learning, fostering social presence, and mediating between learners and course design, aligning with socio-constructivist principles. However, challenges such as limited individualized feedback and tutor engagement highlight the need for enhanced technological solutions and collaborative course design processes. The implications of this study suggest that well-designed MOOCs can serve as catalysts for lifelong learning in educators, encouraging them to adopt innovative pedagogical approaches, critique traditional methods, and participate in sustained CoPs. To maximize their potential, future MOOCs should prioritize active learning strategies, increased peer interaction, and the integration of AI-driven tools for personalized feedback and support.

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# Guiding students from lower to upper secondary: a challenging and shared task for families and schools

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## Abstract

Within the Italian educational system, the transition from lower to upper secondary school constitutes a challenging task for many students; in this process teachers and parents play a strategic role.
In this paper is presented a survey aimed at highlighting the process of decision-making related to upper secondary education from the perspective of parents. This empirical action is part of a broader project aimed to fight training failure in Varese (Lombardy). A semi-structured online questionnaire was submitted to all parents of students attending lower secondary school in Varese in 2022/23. The results show that the guidance practices carried on by school are generally appreciated by many parents. A closer look to the data shows possible areas of fragility that require schools to take on responsibility.

**Keywords:** school guidance; research; parents; secondary school.

# 1. Guidance in the Italian school system

In today's increasingly dynamic society, school guidance is crucial in lifelong learning and in every life context (lifewide learning). It is a complex challenge that requires the person to know how to position and reposition him/herself within fluid and uncertain scenarios, avoiding dispersion and/or fossilization in a static context (Haynes et al., 2014). Undoubtedly, the education system can and must play a fundamental role in creating favourable conditions for the development of these capacities from which the person benefits throughout his/her entire life.

Therefore, guidance is, or should be, cultivated throughout the school life cycle. From childhood, it is up to the school to provide students with the skills and knowledge to face the educational choices to which the same education system subjects them (Marostica, 2019); learning to ponder the different options and self-evaluation are strategic life skills to make conscious decisions both at school and in everyday life (Montalbetti, 2020). The Italian Guidelines for Guidance (C.M. 43/2009) tell us that "guiding an individual means making him/her acquire self-guidance skills, aimed at improving self-perception, making him/her capable of taking decisions and making choices consistent with his/her desires".

In order to fulfil this task, it is necessary to implement targeted guidance practices at certain topical moments, but also to implement guidance didactics in a widespread manner (Guerrini, 2017).

On a more general level, the Italian education system consists of three cycles. Compulsory attendance lasts 10 years (6-16 years) and includes the entire duration of the first cycle and part of the second (the lower secondary school and the first two years of upper school) (L. 296/2006). The first cycle includes primary school, which lasts 5 years (6-11 years) and lower secondary school, which lasts 3 years (11-14 years); the second cycle coincides with upper secondary school (14-19 years), which lasts from 3 to 5 years and is articulated in different ways. The transition from the first to the second cycle marks the beginning of pathway differentiation.

After finishing lower school young people can choose between different types of upper school divided into three main macro-categories: high schools, technical schools, vocational schools and vocational training. All five-year training pathways allow access to university and technical higher education, while the three- and four-year pathways offer a direct outlet into the world of work.

Choosing a path is a complex task that requires a series of evaluations taking into account multiple factors. It is a moment of high emotional intensity and strategic value with regard to the developmental trajectories of young people, and is not infrequently accompanied by uncertainties, doubts and sometimes real difficulties. Although these are not irreversible choices, the decision to attend a high school rather than a technical or even professional pathway bears crucial implications for the future, at least in the short term. Unlike in other contexts (Brunello & Checchi, 2007), in Italy it is required to make this choice in January of the third year of lower secondary school, at an age still considered by many to be precocious, which can amplify difficulties and generate uncertainty.

For these reasons, guidance activities intensify in the last two years of lower school; in December of the third year the teachers of the class council must express a non-binding suggestion regarding the high school route suitable for the student. This suggestion is called 'guidance advice'; it is an administrative act (Settembrini, 2019) that teachers must obligatorily give in order to guide the choice of one of the paths offered for upper secondary schools. Despite being a nation-wide administrative act, the formulation of the advice is not based on uniform, standardized criteria, but is defined independently by each school (Romito, 2016).

Both the practices activated in each institute and the guidance advice do not have the child as the sole interlocutor but also involve the family in different ways. It is precisely the parents, spurred by different intentions, who assume a strategic role in directing their sons and daughters; it is enough to look at the data to realise that there is a sort of family tradition traceable in the regularity of paths between one generation and the next (Checchi, 2010; Bonizzoni et al., 2014; Argentin et al., 2017). Beyond the reasons that motivate parents, the choice of upper school, for better or worse, takes on the appearance of a family task; this does not mean that families always play an active role but their positions, from disinterest to over-involvement, exert considerable influence.

A good guidance advice should consider aptitudes, skills and aspirations, acting as a protective factor against the risk of school drop-out and abandonment (Dodd et al., 2022; Agostini et al., 2022). High

dropout and school abandonment rate is a structural problem of the Italian school system (European Commission, 2022) and frequently at its origin there are difficulties encountered precisely at career turning points and in the management of choices in these crucial moments (Agostini et al., 2022). In this perspective, guidance in secondary school is configured as an educational resource to prevent situations of failure and as a lever to counter the reproduction of educational inequalities (Psifidou et al., 2021).

## 2. Device

Within this briefly outlined framework took shape the research "What choice after lower secondary school? The point of view of families". The action is part of the Agreement between the Centre for Studies and Research on Education Policy of Università Cattolica del Sacro Cuore and the Local School Authority in Varese (Italy). Starting from school year 2021/22, various actions have been planned and implemented with the aim of learning about and combating the phenomenon of educational poverty thanks to the synergic action between school and territory.

The evidence gathered in the previous year confirmed on an empirical level the link between the choice made at the end of lower school and the likelihood of showing, especially in the first year of upper school, signs of fragility that quite often lead to dropping out or leaving school due to a poor school performance. As already mentioned, in a choice that calls into question the educational responsibility of multiple subjects, the family plays a fundamental role. Therefore, it was decided to investigate the point of view of the families of children attending the last year of lower school in the aftermath of pre-enrolment in upper school. The academic research interest in deepening the theme converged with the local context.

The aim of the survey is to investigate the issue within a broad perspective, involving as many parents as possible; for this reason, a semi-structured questionnaire, administered online, was prepared and addressed to all parents of children attending the third year of lower secondary school. The questionnaire is divided into 6 sections:

- Profile (respondent and child);
- Choice of school;
- Guidance advice;
- Outgoing guidance (lower school);
- Incoming guidance (upper school);
- Needs and perceptions.

The invitation was sent by the Local School Authority in Varese to all schools, inviting third-year lower secondary class coordinators to put the link on the electronic register in order to encourage parents to complete the questionnaire. A second reminder was sent to raise the rate of respondents.

During the questionnaire period (February-March 2023), 2741 valid questionnaires were received, representing 31% of the students who pre-registered for upper school for the 2023/24 (n=8803). The coverage was consequently very good and the response rate higher than what is generally considered acceptable in surveys conducted via online questionnaires.

## 3. Data presentation

Below are the main results of the questionnaire grouped by area.

### 3.1 Profile of respondents

The questionnaire was generally filled in by the mothers (86.1%) of the students enrolled in the last year of lower school in Varese. The children, mainly of Italian nationality (97.6%), are equally divided between males and females and, in line with the expected age, are 13 or 14 years old (99.4%). A small

group is already 15 or 16 years old; among them may be students who failed in the lower classes (0.6%). The choice of type of school is clearly oriented towards high schools, which gather 54.0% of the respondents' preferences, followed by technical institutes (31.6%), vocational institutes (9.1%) and vocational training (5.3%). Compared to the 2023/24 enrolment data of the province of Varese[1], the sample is sufficiently evenly distributed (Chart 1).
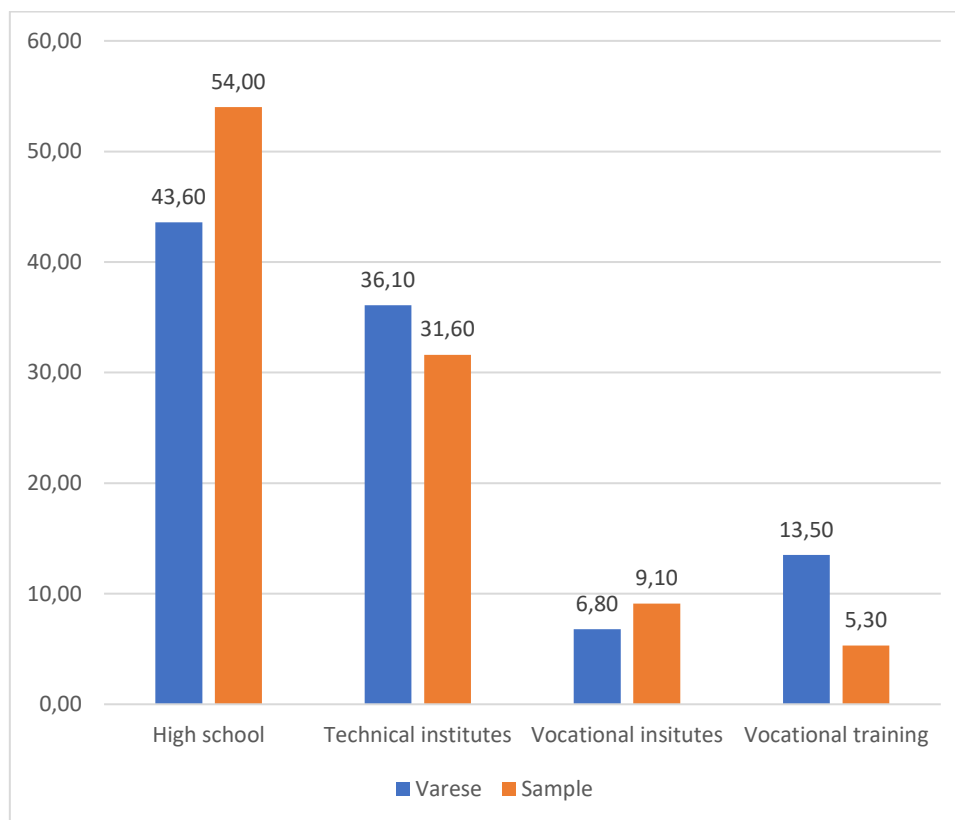


*Graphic 1: Upper secondary school type chosen: population comparison (Varese) – sample (%).*

In most cases, students will be able to attend their chosen pathway (88.3%); 11.7% of the sample, however, had to change their initial choice. In particular, a small proportion of students (2.7%) will attend a pathway very different from the one chosen because they did not meet the school's requirements. Among these are also some students who received a different guidance advice from their lower school.

### 3.2    Choice of school

According to parents' perceptions, choosing an upper school was not particularly complex (Chart 2): for 49.5% it was not at all or not very complex (level 1 and 2), for about a third of the respondents it was quite complex (31.4%: level 3), for the remainder the decision was difficult or very difficult (18.9%: level 4 and 5). Given the educational perspective of this survey, it should be borne in mind that for almost one in five families the choice was perceived as rather complex and burdensome.

Consistently, after having made the choice but before the beginning of upper secondary school, most parents believe they made the right choice (86.2%); some, however, were very uncertain (3.0%) and a small number of parents, relevant from an educational perspective, believe a wrong choice was made (0.8%).

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[1] Local School Authority in Varese (3.03.2023).
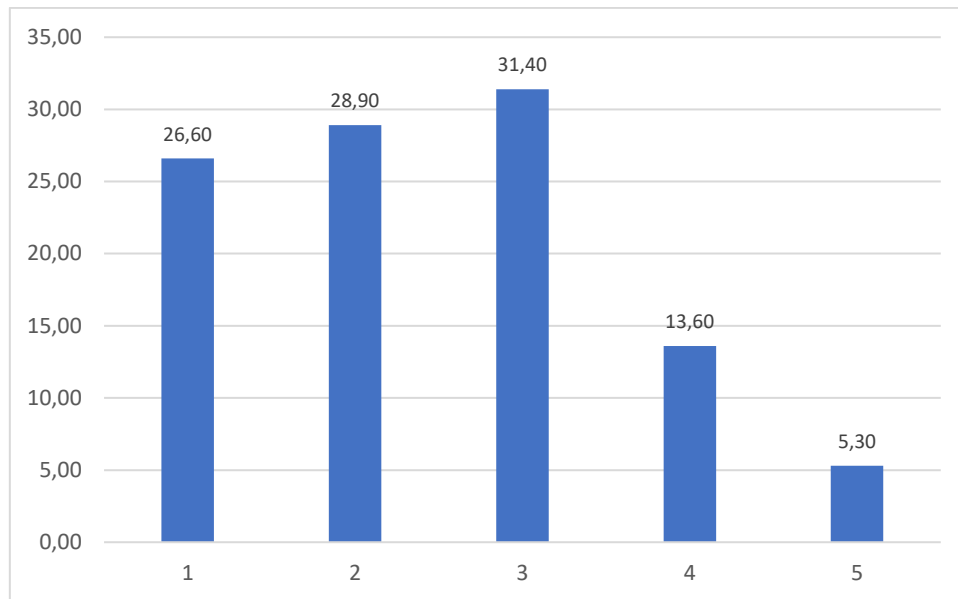
*Graphic 2: Complexity of specific route choice (%).*
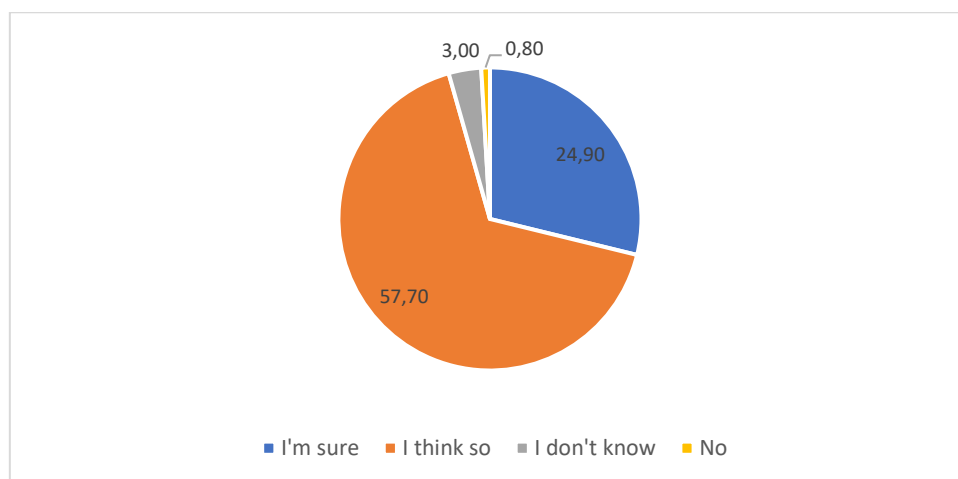


*Graphic 3: Perception of correctness of choice.*

The factors underlying the choice of upper school were then investigated. The motivations reported are heterogeneous and reflect the complexity of the dimensions involved. What oriented the choice in a decisive way was the will to identify "the best path for one's son/daughter" (a), considered to be very important (level 4: 50.1%) by half of the respondents and overall important (level 3 + 4: 90.8%) by almost all of them. Other motivations refer to the scenarios that will open up after the end of compulsory schooling, such as: the preparation offered for access to university (b: 69%), which is in line with the choice of attending a high school made by more than half of the sample, and the possibility of finding a job soon (c: 62.2%).

The specific characteristics of the institutions chosen are also relevant. The possibility of finding a serene and welcoming climate in the school is a relevant factor for almost all parents (d: 81.9%), confirming the importance attributed not only to the curricular dimension but also to the relational and educational one. The fact that the school is easily reachable (e: 64.6%), although taken into consideration, does not seem to be one of the main factors guiding the choice, at least for the majority of respondents.
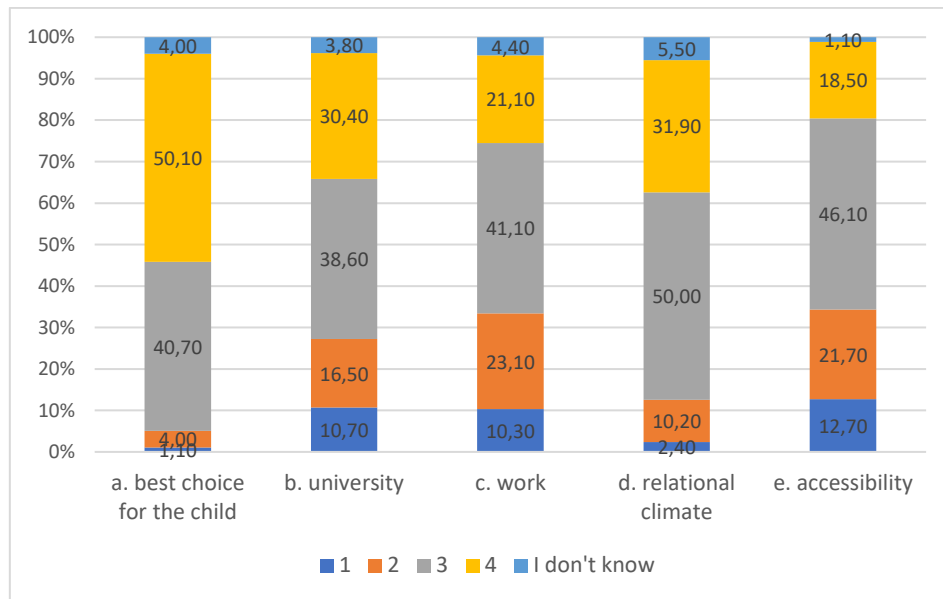
*Graphic 4: Motivations that guided the choice (%).*

In the parents' opinion (Chart 5), their children had sufficiently clear ideas about the choice of upper school: according to 67.5%, in fact, the children decided autonomously (a); in other cases, they were guided in their choice by their parents (b: 8.9%), teachers or others (c: 8.6%). Other parents, on the other hand, emphasised how the choice was somehow imposed by external factors (d: 14.1%) such as: the non-acceptance of the application, logistical problems or problems related to the school environment perceived as unsuitable.

Parents described their role in their child's choice in a manner consistent with the above (Chart 6): the majority placed their trust in their child, letting him/her decide independently (a: 69.6%) or deciding together (b: 6.5%). A significant proportion of parents, on the other hand, pondered on their own about the best choice, choosing in their child's place (c: 12.4%) or were guided by their middle school teachers or others (d: 8.6%). In some cases, the choice was induced by external motivations (e: 2.9%). These latter cases, although residual, must be taken into careful consideration because, for some, starting upper school could be more complex precisely because the school attended is not the outcome of a choice but of a contingency. Just as much attention should be paid to parents who seem to have decided in their children's stead in order to investigate the underlying reasons. Last but not least, the option chosen by the majority - i.e. allowing the children to be protagonists in the decision process - if, on the one hand, should be considered an indicator of trust, on the other, it could also indicate the difficulty of guiding and accompanying the child by choosing to welcome his/her decision without contradicting him/her, thus delegating parental educational responsibility.
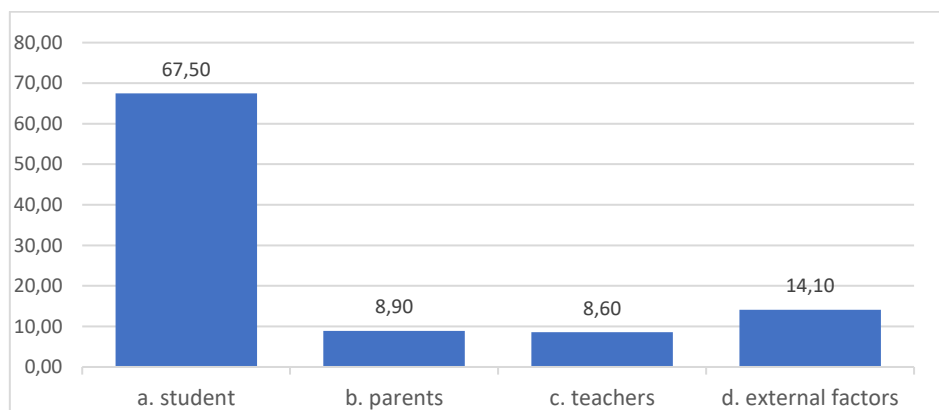


*Graphic 5: Child choice mode (%).*
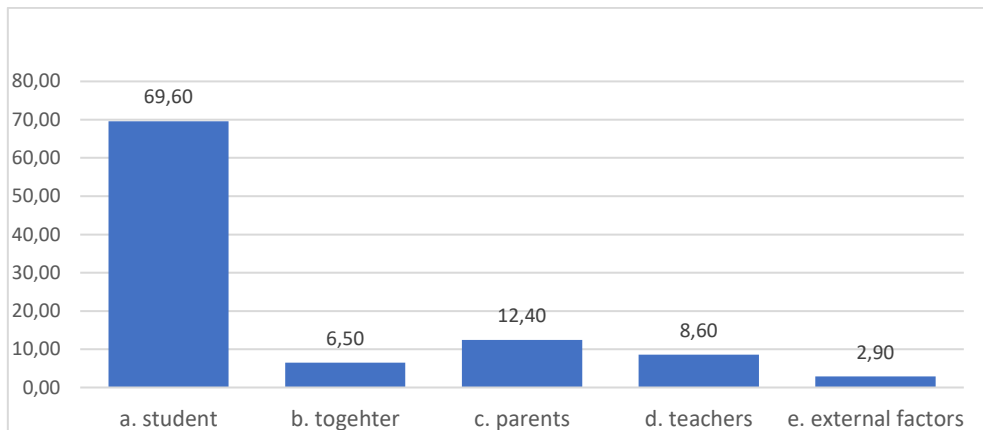
*Graphic 6: Parental choice mode (%).*

### 3.3 Guidance advice

Guidance advice (Chart 7) appears to be a useful tool and generally taken into due consideration by households: the majority of respondents have in fact followed it (70.3%); a non-marginal share of households, however, say they have not (26.7%).

The latter report that they did not follow the guidance advice (Chart 8) mainly because the school recommended did not correspond to what their son/daughter wanted to do (a: 64.0%) or would not have allowed him/her to express his/her potential (b: 14.1%). Others, however, indicated more instrumental reasons (c: 13.1%) such as remoteness, type of environment, need to find a job, etc. On the other hand, 5.9% (d) of the respondents stated that they received their guidance advice too early (before they had seen the different high schools and got to know their characteristics) or too late (when they had already enrolled). A small group, finally, attested its mistrust towards this tool declaring to have intentionally decided not to consider it (e: 2.9%). Although marginal, these two categories deserve to be taken into account in view of possible improvement actions by schools.

If, on the one hand, not following advice to respect one's own child's wishes could be considered virtuous behaviour, on the other hand, one cannot overlook the risk that behind such conduct lies the difficulty of contradicting the child or distancing from the image of an ideal child or school. In the background there is also the issue of the relationship between school and family: only if this relationship is based on trust and educational co-responsibility is it possible to 'team up' and accompany the children in their growth in the best way possible.
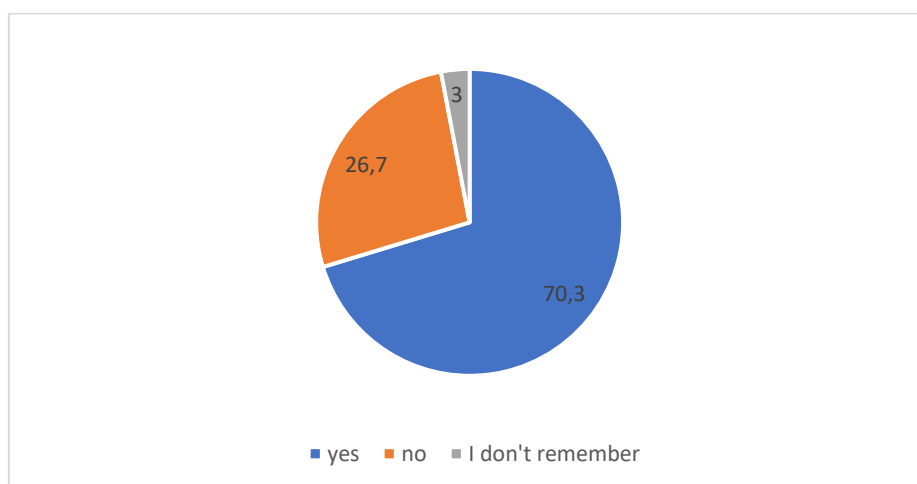


*Graphic 7: Guidance advice (%).*
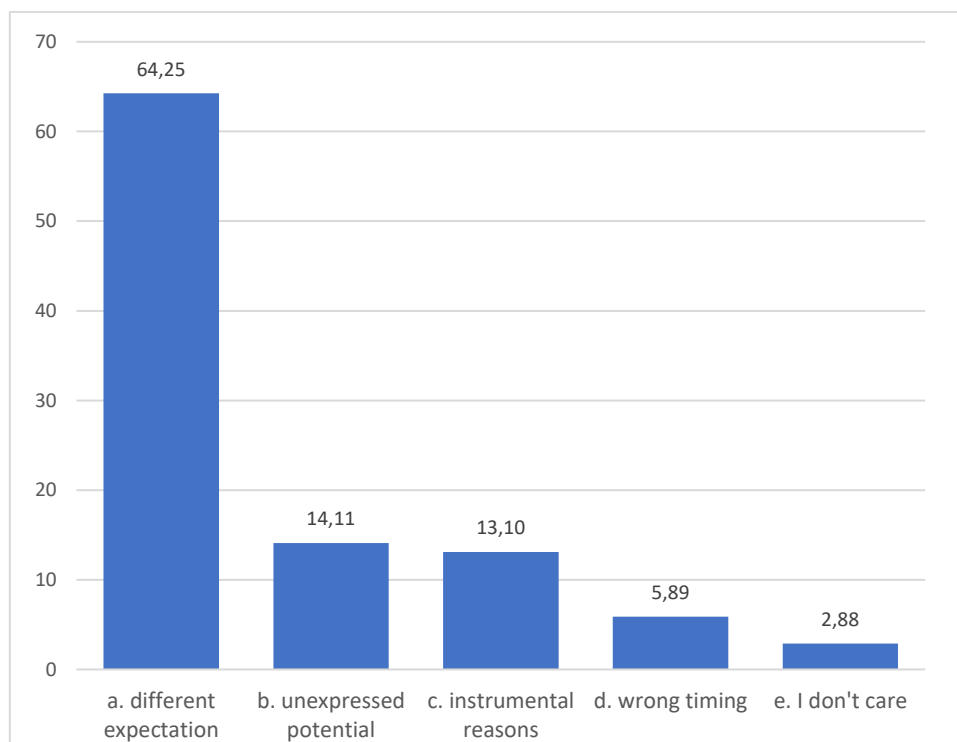
*Graphic 8: – Reasons for not following guidance advice (filtered) (%).*

### 3.4    *Outgoing and incoming guidance*

The majority of lower schools organised outgoing guidance activities (78.9%). Although this figure is reported by parents, who may not have a clear picture of the activity pathway carried out at school, it is surprising that in 21.1% of cases it seems that no guidance activities were carried out at all. Clearly, this information must be cautiously considered but could also indicate that, in a number of cases, outgoing guidance activities were not particularly evident or incisive, or were not communicated to parents. It cannot be excluded that some schools did not actually carry them out, leaving pupils and families alone in their choice.

Almost all upper schools, on the other hand, organised incoming guidance activities (93.8%), which are confirmed to be strategic for making their educational offer known.

Parents who participated in outgoing (76.1%) and incoming (83.0%) guidance activities generally find them useful. The judgement (Chart 9) is however much more positive for upper schools (level 4: 55.3%) than for lower schools (level 4: 34.6%).

Although the positive effect induced by the first impact with the new upper schools and the different role assumed by the two schools should not be underestimated, from an improvement perspective it could be particularly useful for first-cycle schools to reflect on the way guidance activities are organised and presented.
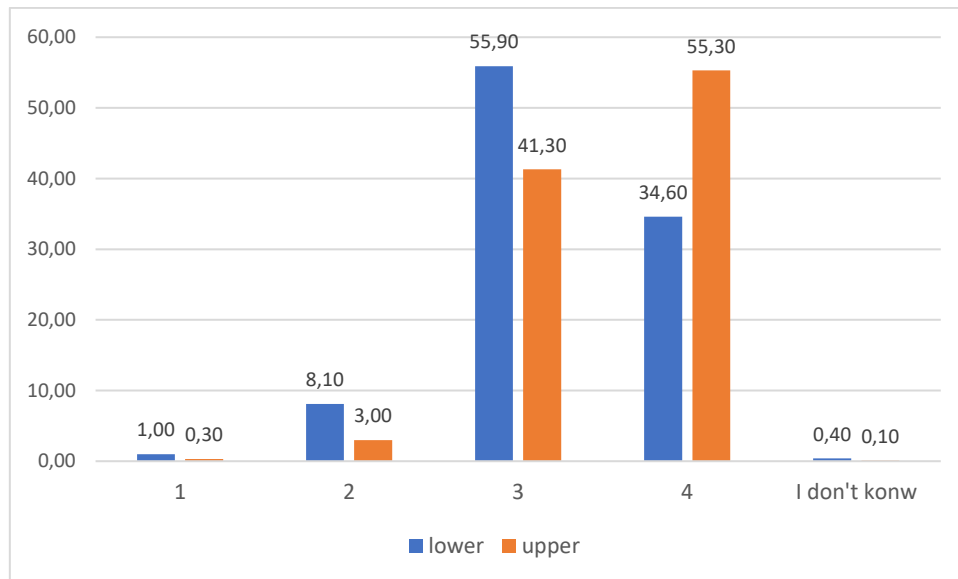
*Graphic 9: Usefulness of guidance activities in secondary schools (%).*

### 3.5    Needs and perceptions

Most parents felt fairly supported in their choice (levels 3 and 4: 77.7%) although 20.4% did not perceive the necessary support (Chart 10). The perception of support offered by the school to their children is only slightly lower (levels 3 and 4: 71.0%). These data are in line with the percentage of those who stated that the lower school did not organise guidance activities.

Consistent with the overall appreciation of the activities carried out, about half of the respondents (49.0%) did not feel the need for further information or accompanying actions. The remaining part (Chart 11), on the other hand, indicates that they would have liked more direct and individualised moments of discussion with lower school teachers (a: 21.8%) or in-depth discussion with upper school teachers (b: 19.6%). On the other hand, a small part of the respondents would like to see greater involvement of psychologists or other experts (c: 4.4%) or the possibility to have exchange opportunities with other parents (d: 3.8%).
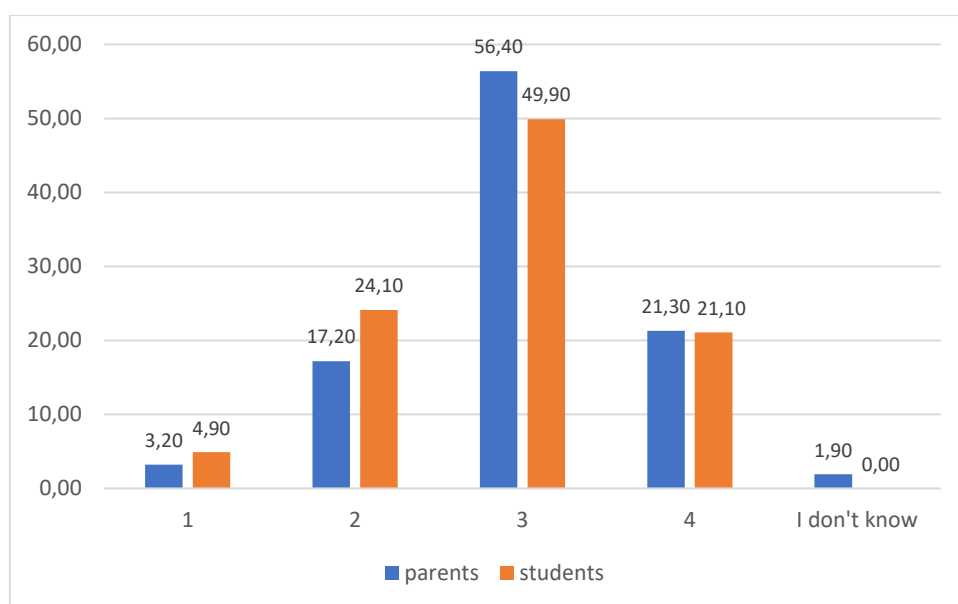


*Graphic 10: Perception of support from lower secondary school: students and parents (%).*
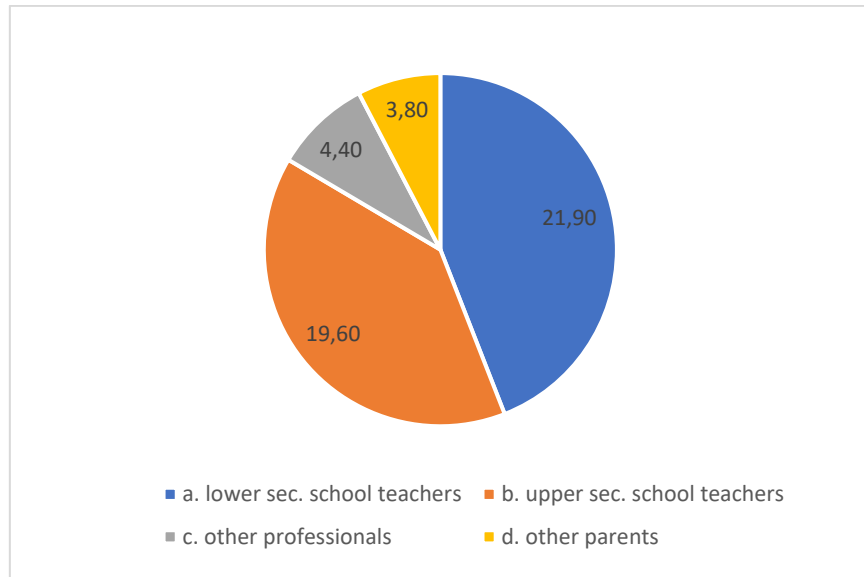
*Graphic 11: Perceived needs as parents (multiple answer) (%).*

## 4. Limits

The survey carried out takes into consideration only the point of view of parents; a structured questionnaire does not allow for an in-depth analysis of the various aspects but offers an overall representation. It might be useful to investigate the point of view of teachers and pupils and to analyse the guidance activities proposed by lower and upper schools; tools that allow a qualitative in-depth study could also be useful.

The sample considered refers to a limited territorial context: the data collected can be useful at local level to accompany the continuous improvement work of schools. Although it is not possible to generalise them, they can also offer useful indications for the Italian context.

## 5. Discussion and further analyses

The data collected show an overall positive scenario: most of the children chose upper secondary school independently and will have the opportunity to attend it. According to parents' reports, despite the choice was taken rather early (Brunello & Checchi, 2007), it was not particularly complex, was accompanied by the outgoing and incoming guidance activities organised by the schools and was consistent with the guidance advice given by teachers.

From an analytical reading of the data, however, some points worthy of attention emerge that seem to fall in line with the reference literature. These can be grouped around topics that, at the same time, open up to further research and improvements in the schools and in the area of reference.

- A satisfying choice: for many but not for all? The choice made convinces most of the children; some, however, will have to attend a school very different from the one they chose and are not satisfied with the change. Although these are only a few cases, from an educational perspective they are worthy of the utmost attention by the schools that will receive them; indeed, it cannot be ruled out that these initial difficulties may constitute a significant obstacle for the continuation of the school career. In general terms, such situations could conceal both ineffective guidance paths and structural problems linked to the number of places available in the schools in the area. In any case, accompanying the entire selection process, including any early reorientation, constitutes the first fundamental strategy to promote success at school

(Byrne et al. 2010; Psifidou et al. 2021; Agostini et al., 2022; Dodd et al. 2022). On a more practical level, a suggestion could be to investigate potentially problematic situations thoroughly and take charge of them early on in the process.

- Autonomous choice: myth or reality? The majority of parents preferred their son/daughter to choose the route independently. While on the one hand such behaviour demonstrates their trust in their children and their empowerment, on the other hand it could also indicate an educational difficulty for parents in presenting themselves as meaningful and authoritative interlocutors. Behind an excessively compliant accompaniment could be concealed a fear of contradicting one's own son/daughter: going along with the choice could therefore be an act of renunciation of one's own role. Similarly, choosing in place of children could be a behaviour dictated by the conviction of having to support them in the face of certain objective frailties (for example, in the case of students with disabilities) or, on the contrary, by the desire to carry on with the project conceived by the parent for him/her own child regardless of the latter's desires and inclinations, often re-proposing family traditions as documented in literature (Raque-Bogdan et al, 2013; Checchi, 2010; Argentin et al., 2017). A suggestion to address this issue could be to find a balanced position respecting the children's autonomy without giving up the educational task of guiding them to make important choices.

- The guidance advice: process vs. outcome? The majority of parents put their trust in the guidance advice while a portion did not. The latter could include cases in which the advice is interpreted by teachers as a mere bureaucratic fulfilment (Romito, 2016) and is not configured as the outcome of a process involving students, teacher, family. The guidance advice therefore calls into question, first and foremost, the relationship between school and family: only if this relationship is based on trust and educational co-responsibility is it possible to "team up", accompanying the children in the best way possible on their growth path. On the other hand, distancing from bureaucracy means considering things from a broader perspective and developing devices that follow the child and his/her family along a coherent pathway where each school segment plays its part within a horizon of communality. In this regard, it is fundamental to reinforce the specific skills of teachers and promote the use of guidance didactics (Haynes et al, 2012; Guerrini, 2017). More practically, a suggestion could be to find a space for authentic discussion to prioritise the interest of the student/child.

- Guidance: present vs absent? Despite the overall appreciation shown for the guidance activities organized by lower and, above all, upper schools, part of the families did not perceive them as useful even for their own children. It may prove fruitful to deepen through more targeted surveys the guidance activities actually organised by the schools also in order to accompany them to a possible redefinition. Dissatisfaction might concern merely informative rather than educational activities. As clarified at the outset, however, in the guidance process it is fundamental to teach how to choose (Marostica, 2019; Montalbetti, 2020): teachers' and families' efforts should be directed in this direction (Raque-Bogdan, 2013). Therefore, a suggestion could be to invest more resources to understand the real needs and consequently be able to respond to them effectively.

Accompanying each student to make informed and autonomous choices is a fundamental goal: the school and the family have the crucial task of promoting these skills and supporting the process.

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# Rethinking Teacher Training in Emotional Education Through Sports

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## Abstract

The article illustrates the theoretical approach, and the example of a strategy aimed at integrating school and sports contexts, recognizing and assigning a central role to emotional education in teacher training curricula. In an era of digital and cultural transition, acquiring such awareness can indeed contribute to improving the management of classroom dynamics and to developing and supporting students' emotional skills. These skills, ranging from self-awareness to self-regulation, from motivation to social management, are essential for addressing the social and emotional complexities of life.

**Keywords:** teacher training; emotional education; sport; reflective educational practices.

## 1. Managing emotions in the era of transition

Emotional education today assumes an even more crucial role due to the ongoing transition from analogue to digital environments, which is radically redefining the way people live, processing emotions, and developing their emotional skills.

Contemporary society is experiencing a transformation of emotional experience that, becoming more diversified and pervasive compared to the past, is increasingly difficult to manage. This complexity leads to a perception of reality as even more accelerated, fragmented, and contingent than it already appears. Rosa (2013) analyzes this phenomenon in terms of "social acceleration," highlighting how rapid technological progress shortens the timeframes of emotional interactions, requiring increasingly quick adaptations compared to the recent past.

Social complexity and acceleration have, in fact, a profound impact on emotions and life, creating a paradox in which the increase in speed generates a sense of timelessness and detachment (Rosa, 2013).

The frantic and fragmented nature of modern life, driven by digitalization, has reduced the capacity for empathy and the ability to form deep emotional connections, giving rise to the phenomenon of "moral blindness" (Bauman, Donskis, 2013). This phenomenon emerges within accelerated life rhythms and constant social flows, which increase complexity and make emotional responses increasingly contingent and situational.

The transition from an "analogue dimension," characterized by prolonged timeframes, to a "digital dimension," marked by instant communication and constant connectivity, dominated by technological devices that enable rapid access to situations, has profoundly altered the way emotions are experienced and expressed. This shift highlights the need to identify new experiential categories to understand and manage emotions in today's context, bringing to light new needs and requiring the development of innovative pedagogical frameworks and approaches to explore and teach emotional experiences.

To bridge the gap, which often sees emotional skills relegated to the background compared to cognitive skills, it is necessary to rethink and expand the scope of teacher training, incorporating into curricula the tools best suited to navigate complex dynamics and contribute to shaping emotional awareness.

The educational intervention of teachers is crucial to help students navigate the complexities of modern emotional experiences (Ewing, Waugh, Smith, 2021), mediating them through extracurricular activities such as sports, which provide practical contexts for developing emotional awareness and resilience. Integrating sports into the contemporary educational framework thus represents a dynamic and engaging way to explore and understand emotions, making it an essential component of contemporary emotional education strategies (Jones, 2006).

## 2. The benefits of emotional education for teachers

Teachers with well-developed emotional skills are better able to manage classroom dynamics, understand and respond to students' emotional needs, and create a positive and supportive learning environment, thereby helping to reduce conflicts.

Emotional intelligence enables teachers to build empathetic and strong relationships with their students, which are essential for fostering engagement, motivation, and academic success. In fact, only when students feel understood and supported do, they actively participate in their learning process, achieving better outcomes.

Teaching can be a highly stressful profession, with educators often exposed to emotional challenges such as burnout, frustration, and anxiety. Teachers with high emotional intelligence are better equipped to face these challenges, maintaining greater balance in their well-being and job satisfaction.

Emotional intelligence is also closely linked to professional growth and leadership. For this reason, teachers with strong emotional skills tend to engage in reflective practices and seek continuous

feedback to pursue ongoing professional improvement. Moreover, they are better prepared to take on leadership roles within schools, contributing to the creation of a positive school culture and climate.

## 3. The benefits of emotional education for students

Emotionally trained teachers directly influence their students' emotional education by teaching and fostering the same skills in them, promoting the creation of a school environment focused on emotional well-being.

Research shows that students with high emotional intelligence tend to achieve better academic results. Skills such as self-regulation and motivation enhance students' ability to focus, manage time effectively, and face challenges.

Emotional education helps students develop essential social skills, including communication, cooperation, and conflict resolution. These abilities are fundamental for building healthy relationships and participating in collaborative learning activities.

Emotional intelligence also contributes to maintaining mental health by providing students with the tools to manage stress and face difficulties while maintaining a positive outlook.

Integrating emotional education into school curricula and teacher training programs represents a key strategy for addressing the challenges of the digital era while ensuring the emotional well-being and academic success of future generations.

Consequently, teachers must rethink emotional education by incorporating extracurricular areas, particularly sports, which are recognized as an important part of the educational experience for discovering, understanding, and managing emotions. This complexity in education, therefore, requires a shift from linear models to more dynamic ones, interconnecting approaches and reflecting the diverse and intricate realities of learning environments (Hager & Beckett, 2019).

## 4. A multifactorial challenge

The transition from analogue to increasing digital models represents a multifactorial cultural challenge. At the anthropological level, it alters the ways emotions are experienced and expressed in different cultural contexts; at the sociological level, it introduces new forms of communication and interaction, transforming social relationships and the associated emotional experiences; at the psychological level, it negatively impacts emotional well-being, making new strategies for regulation and resilience necessary; and at the pedagogical level, it compels educators to identify and develop innovative methodologies to address these changes.

However, this transition and the multifactorial challenge it creates can also represent a significant opportunity and a source of personal and social enrichment. It promotes greater awareness of the ongoing changes and encourages attention to emerging needs, which must be addressed with care and renewed sensitivity.

## 5. Cultural and methodological perspectives of emotional education

Mastering emotional awareness is a shared challenge for teachers and sports educators, which can be addressed from two main perspectives: the cultural perspective, focused on the relevance of emotional education, and the methodological perspective, centered on the need to develop appropriate formative methodologies.

The cultural perspective involves recognizing the importance of emotional education as a fundamental element for the harmonious growth of individuals in contemporary society. Emotional awareness is essential not only for personal well-being but also for success in social and professional interactions. Consequently, the cultural perspective emphasizes the need to acknowledge and value emotional education as a crucial component of the educational curriculum.

The methodological perspective, on the other hand, focuses on the need to develop and implement suitable methodologies for emotional education. This perspective highlights the importance of updating the training of teachers and, simultaneously, that of sports educators, using specific, experiential, engaging, and adaptable methodologies and techniques, capable of ensuring effective teaching for the promotion of emotional intelligence.

In this context, a research group from the University of Turin has sought to integrate the fields of teaching and sports, building a dialogue between them with the aim of fostering emotional growth through innovative formative methodologies inspired by reflective educational practices.

Reflective practices, as discussed by Formenti and West (2016), can be instrumental in helping students process their emotional experiences and develop a deeper understanding of their feelings. By encouraging self-reflection and critical thinking, teachers can promote emotional growth and resilience.

## 6. The Stereo project: an opportunity to build a dialogue between school and sport

The dual challenge of mastering emotional awareness in educational contexts has been embraced by the Stereo Project (Sports Educator for New Society), designed and developed by a research team from the University of Turin.

This approach allows participants (selected on a voluntary basis from the sports and educational sectors within a specific geographical area) to put themselves to the test, in group settings, through educational situations shared between teachers and sports coaches, within school and sports contexts, with the aim of practicing and enhancing pedagogical skills. The training is structured around a pathway that employs a specific reflective-educational methodology called 3R-Play, based on the Pretext device. This device enables participants to engage in simulated educational situations to practice and strengthen their pedagogical competencies.

The initiative aims to establish a dialogue between school and sport, providing teachers and sports coaches/educators with practical tools to improve their mediation and teaching skills in emotional education. This is achieved through an approach based on humble inquiry, which fosters a culture of mutual respect and understanding (Schein & Schein, 2021).

This integrated approach fosters emotional awareness by promoting critical thinking through the problematization of educational scenarios introduced using a Pretext, a suspended situation visually represented in the form of a comic strip. It also strengthens the ability to analyze and respond to complex pedagogical challenges. Through this methodology, educators cultivate their own emotional awareness, which can in turn help develop in their students.

The results, still under analysis, will help outline the next steps planned for the research, allowing for reflection on potential future developments and directions for further exploration.

## 7. Methodology and tools (3R-Play)

The 3R-Play methodology belongs to the category of reflective-educational methodologies. Its practical application encourages teachers and sports educators to engage in three shared actions (represented by the initials of the three "R's"):

*Reflect*: Teachers analyze and explore various educational situations using the Pretext device to better understand emotional dynamics.

*Research*: Teachers apply these insights to their teaching practices.

*Reply*: Teachers implement changes to improve student engagement and emotional understanding.

This approach uses the methodological device of the Pretext (which takes the form of a comic strip simulating suspended and challenging educational scenarios), enabling participants to practice specific educational situations through a method based on problematization and inquiry. This approach is essential for developing critical thinking and consolidating reflective-critical skills.

Frame reflection involves examining underlying assumptions and beliefs, a critical process for addressing and resolving complex issues (Schön, 1995).

The 3R-Play educational approach uses the Pretext to stimulate critical reflection on hypothetical or real situations. These practices emphasize the importance of reflection, resilience, and relational skills in education, facilitating the development of innovative pedagogical solutions (Nosari & Guarcello, 2019, 2023).

Pretext is an exercise designed to stimulate reflection, deepen understanding, and develop critical judgment. It uses a specific methodological approach that creates a "suspended" situation, an open, non-hierarchical space where questions are not predetermined, and there are no better or worse questions, nor right or wrong answers. In this space, responses are meant to emerge gradually rather than immediately, and they are considered provisional rather than final.

Pretext must also be introduced with the "right distance", allowing participants to see themselves in the characters involved without fully identifying with them.

Mastering emotional awareness is a shared challenge for teachers and sports educators. The Stereo Project represents a viable model, providing teachers with the necessary tools to acquire and transmit emotional awareness through a shared dialogue with the extracurricular world, particularly that of sports.

## 8. Conclusion

The transformation of emotional experience in contemporary society, driven by the shift from analogue to digital dimensions, necessitates innovative teaching methodologies. Educators, by integrating sports and other extracurricular activities, can better prepare students to face the emotional challenges of the digital age, fostering emotional growth and resilience (Bauman and Donskis, 2013; Rosa, 2013; Ewing, Waugh, and Smith, 2021; Jones, 2006).

From a pedagogical perspective, the evolution of emotional experiences requires society to rethink the ways in which teaching and learning are approached. This challenge places teachers in a crucial role as mediators and educators of new generations, tasked with developing strategies to cultivate emotional awareness and sensitivity among students and to guide them with care and attention through the complexities of modern emotional life.

This demands a dual focus: on the one hand, recognizing the cultural importance of emotional education, which must be valued as an essential component of individual and social well-being; on the other, adopting innovative methodological approaches based on

reflexivity and the enhancement of critical thinking, which are indispensable for its implementation.

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# The question of non-cognitive skills and the "cheetah's coat" perspective

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## Abstract

The most recent scientific debates on teaching and learning challenges grant much attention to training non-cognitive skills, as they are considered more functional than cognitive ones for both effective daily-life management and academic and professional success. However, current theories about non-cognitive skills seem to have failed to recognize how the cognitive/non-cognitive relationship is actually configured. A different configuration of the cognitive/non cognitive relationship is thus needed, one that overcomes the conceptual limits and formative partiality of previous models. This paper proposes a new way of representing this configuration, significantly and effectively conveyed by the pattern of a cheetah's coat, and a new training approach consistent with this configuration.

**Keywords:** social challenges; teacher education; non-cognitive skills; educational practice; pretext.

## 1. The current pedagogical framework

The most recent scientific debate on teaching and learning challenges has paid a great deal of attention to training non-cognitive skills. This focus extends back to the idea that human beings have a 'dual' character (Iacono, 2004). The duality in question does not follow a binary logic and is not simply an indication of flexibility (Sennett, 1998). Rather, it indicates the co-presence and convergence of two functions, one cognitive and the other non-cognitive. Each function acts in a specific way. The cognitive function 'represents the functional aspect' and 'intervenes in subject-world interaction' by knowing, calculating, re-formulating, and planning (Albanese et al., 2003); the non-cognitive function expresses an 'embedded knowledge that arises not from calculation but from the tuning-sharing of subjective experience' (Damiano, 2009).

These distinct but not separable functions look at and question reality from two different positions (Giammusso, 2005). The two positions differ in terms of the questions they ask and the type of answers they seek (Authors, 2024a). For example, the cognitive position asks 'how does it work?' and responds by reconstructing the process of functioning, allowing people to intervene in a way that adjusts, modifies or enhances. The non-cognitive position asks 'what meaning does this modification have?' and responds by hypothesizing and deciding on the direction of meaning to be given to the modification.

They result in approaches that specify human beings' way of being in the world and which condition (and facilitate) the possibility of intervening. The cognitive position is simultaneously 'outside' and 'facing' reality: as such, it is a position characterized by an impartial and emotionally indifferent approach which opens up a field of attention which is interested and directed towards investigating (Plessner, 2007). The non-cognitive position, on the other hand, operates from 'inside' reality and seeks a unitary vision 'from above': it is a position marked by an immanent and critical approach that entails the partial character of participation and subjectivity (Giammusso, 2005).

The duality bond not only indicates the co-presence and convergence of these cognitive and non-cognitive functions (Authors, 2024a) but also and above implies the complementarity of the two functions. It is this complementarity that forms the necessary foundation for the rational and value-based sustainability of any change proposed by human beings, either as individuals or as collectivities.

However, although the two functions of humans' dual character are linked by a bond of duality, they do not automatically operate together (Paoletti, 2004). The complementarity of these functions is not a given: operating in a complementary way requires cooperation and must be intentionally chosen, intentionally sought out, and intentionally maintained.

This cooperation has become increasingly difficult. The development of the cognitive function, stimulated in part by the use of new technologies, and the ever-increasing recognition of its important role in humankind's progress have severely compromised the balance and complementarity of human duality, unbalancing research and putting the emphasis on training in cognitive skills by virtue of their being productive and performance-oriented.

To pursue truly humanizing progress (Morin, 2020), however, requires going back to the non-cognitive skills approach of human duality. Training in a non-cognitive skills approach thus represents a strategic focus for educating the next generations.

## 2. Toward a different configuration

However, there is one outstanding issue this focus on training non-cognitive skills must address before it can take the form of educational action: what does non-cognitive mean?
The issue is outstanding because the idea of non-cognitive has a broad semantic field. Considering documents on non-cognitive competences or projects aimed at non-cognitive aspects, there are multiple different meanings of cognitive at play. It is therefore necessary to take into account a theoretical approximation that has an inevitable practical consequence: educational disorientation.

The endeavour of resolving this theoretical approximation thus meets a practical need: if the non-cognitive field is not focused and centred, the educational project to train such skills runs the risk of being inadequate or, even worse, of acting on a false non-cognitive.

Current attention to non-cognitive aspects reflects both the recognition that a non-cognitive approach to the world is important and the fact that teaching has need of educational components that truly serve to inculcate such an approach.

This attention has led to the development of various theories proposing a definition of non-cognitive skills and hypothesising how they might be developed early, among young people in school. Theories such as life skills, soft skills, character skills, social-emotional skills, EntreComp, LifeComp, GreenComp, DigComp, etc. all share this aim (Boffo & Palumbo, 2018; Patera, 2019; Chiosso, Poggi & Vittadini, 2021).

Although this focus has made it possible to concentrate on the meanings and functions of non-cognitive competences, the various theories do not seem to have fully grasped or faithfully recognized the value of the specific skills that distinguish the non-cognitive domain from the cognitive one. Non-cognitive competences are always considered secondary to cognitive ones, as the cognitive arena continues to be pre-eminent and privileged (Authors, 2024a).

The assumption underpinning this paper is that this approximation derives from a problem of conceptual configuration. That is, when we think of the qualities and properties of the skills needed to exercise of humans' dual character, we think of them in relation to cognitive skills. Since it is not easy to demarcate and distinguish the qualities and properties of the skills needed to take a critical-immanent stance (value-based, participative, and subjective), we use the "differences method " (Mathieu, 1998) to define them and thus end up defining them by opposition as the set of skills that are not cognitive.
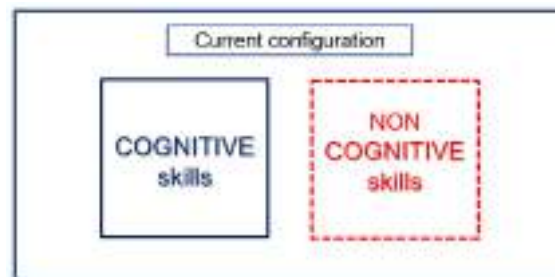


*Figure 1: The current configuration for cognitive/non-cognitive skills.*

On the basis of this difference, several theories have sought to define these skills as non-cognitive in relation to cognitive skills. And yet none has been able to fully represent the meaning of non-cognitive skills; above all, none of these theories has been able to represent their specificity and the relationship between the two kinds of skills.
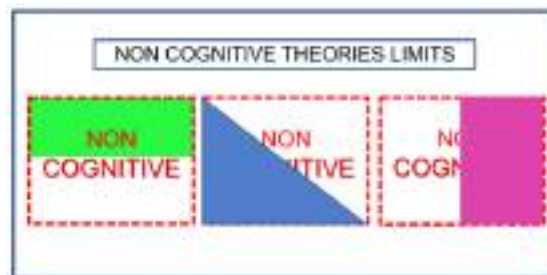


*Figure 2: The limits of non-cognitive theories.*

This is not an error as such, but rather a matter of viewpoint bias. Reading human duality through the "filter" of cognitive/non-cognitive offers an incomplete image of our duality. It is not simply a matter of widening the view and involving non-cognitive skills more fully and completely, however.

Nor is it a matter of interpreting complementarity by recognizing the two functions as equal. Rather, the step we need to take is to rethink the order of complementarity and the consequent bond of human duplicity.

The challenge, therefore, is to recognize the skills in question not only through a "negative" framing (i.e. as non-cognitive) that identifies them in opposition to the positive framing of cognitive competences but to instead identify the specific characteristics and qualities of these skills so as to effectively foster the duality of humankind, the only quality that is capable of giving rise to humanizing progress.

We have engaged this challenge by searching for an image that could best render the configuration of the duality of human character, the diversity of its functions and the relationship between these functions. Numerous images were considered, but discarded every time because they conveyed dualism. This is key because duality does not consist in actual opposition between independent elements, but rather in an original relationship between elements which exist solely in relation to each other.

At a certain point, the research also tried out different animal skins.
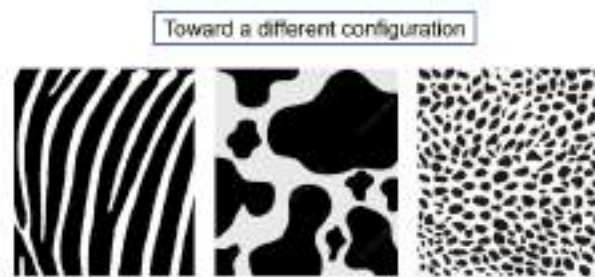


*Figure 3: A different configuration for cognitive/non-cognitive skills.*

The zebra pattern was discarded. It shows two kinds of skills, but gives no indication of the relationship between them. Its stripes reproduce the fallacy of thinking of human beings' dual character as characterized by parallel functions that, while specific (black and white), do not enter into any relationship with each other.

The research then turned to a cow coat pattern. This image suggests two types of skills related to each other, but there is no order to the relationship; it is random. The dual character can be represented by different-colored spots. Because of the irregular size of the spots, however, this pattern cannot offer an adequate representation of the relationship between the two functions comprising human duality.

Finally, we considered the pattern of a cheetah's coat (Authors, 2024a). Cheetahs have a spotted coat made up of an underlying tone, usually light yellow-beige, long with small round, black, and brown spots. It would not be a cheetah coat without the spots. And the spots are only perceptible because they rest on a different-colored base. Acting as a background, the base encompasses the individual spots in a way that allows them to stand out. By virtue of encompassing the spots, the base is also what unites the spots and holds them together.

A cheetah coat pattern is the combination of base and spots. Their amalgamation is governed by a relationship that specifies the parts: each part (the base and the spots) has a function. It would be impossible to either reverse them or separate them from each other.
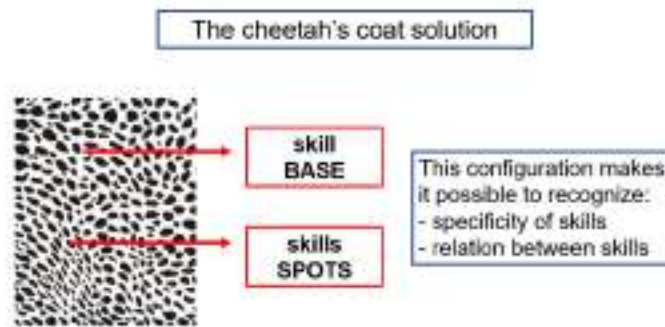
*Figure 4: The cheetah's coat solution.*

The "cheetah coat" configuration of the duality of human skills assigns each set of skills its own unique and non-contingent position. Human duality does not act through the parallel – and distinct – management of different functions. The configuration that represents the uniqueness of human skills is not cognitive and non-cognitive positioned next to each other, but both dimensions shown as rooted in a shared, sensitive background which grants them direction.
We will focus here on the skill-base.

## 3. "Cheetah coat" skills

Framed in this "cheetah coat" perspective, the skill-base has three basic qualities: sensitivity, reflexivity, and ethics. First, the skill-base is what allows human beings to come into contact with experiences through their individual *sensitivity* (Arendt, 2003, 2017). We do not know and analyze our experiences mainly or exclusively through logical-rational reasoning, that is, by describing them, taking them apart and putting them back together to assess their costs, benefits, and margins of effectiveness. Experience is instead understood first and foremost in terms of its sentimental aspects, subjectively perceived through our perception of the degree to which we genuinely agree or disagree with (or are even disgusted by) what is happening. Humans understand an experience through the motivations or aspirations that make it valuable or indifferent to them, the dreams and plans they deem to be indispensable and for which they feel it is absolutely worth investing, far beyond any reason-based calculation of effectiveness.
Within this "sensitive" terrain, the skill-base also grants human beings the ability to "think" about experience, that is, to investigate it and sound it out by means of their individual *reflexivity* (Arendt, 2009). Experience is thus sifted, called into doubt and questioned thanks to all those "heuristic" questions (Mortari, 2020) that do not explain reality or provide definitive solutions to its problems but rather nourish it and broaden our reflection on the grand themes that make existence human: justice, beauty, goodness, faith, trust, death, etc.
Through this reflection, people examine their own existence and life worlds to plumb their meaning: is mine a just existence and a just world? Is it beautiful? Good? Does it generate bonds of trust and hope? Etc. Clearly, such examination entails evaluating existence and the world itself in terms of their value and the transformative effort necessary to expand and nurture them. It is precisely in this sense that, finally, the skill-base gives human beings the ability to orient themselves and their experiences in the direction of meaning, thanks to our ability to decide and act along the axes of ethics-values. Indeed, thanks to *ethics* (Freire, 2018; Morin, 2021), approaching existence through our individual sensitivity and examining it through our reflexivity leads, step by step, towards horizons and goals capable of protecting and fostering the dignity and realization of the self, others, and the world at large.
The skill-base expresses these three qualities (sensitivity, reflexivity, and ethics) in the form of specific *skills* (*action competences*) through which the skill-base intervenes in a given experience to understand, manage, and transform it. The current frameworks used to conceptualize non-cognitive skills are so functionalistic, so dominated by concerns of efficiency and adaptiveness,

that they completely overlook the set of skills that make up the skill-base (Authors, 2024a): the Approaching Skill, Questioning Skill, Nuances-Creating Skill, and Re-enchanting Skill (Figure 5).



*Figure 5: The skills comprising the skill-base.*

The *Approaching Skill* is an action capable of reducing distances due to a "sentimental" approach, being in touch with others in a deep and nourishing way and thus exploring the uniqueness of people and situations with attention and interest (Stein, 2016; Weil, 2008; Bollnow, 2009). The *Questioning Skill* is an allows people to ask unanswerable questions about complex aspects of existence, about beauty, justice, the good, etc., and thereby expand the space of experience to be examined and deepen the immediacy of the experience. This skill allows humans to be able to approach the experience first by questioning, by reconstructing the hidden aspects of it and searching for some probable but non-definitive answers (Dolci, 2018; Monti, 2019; Mortari, 2020). Helped by the previous two skills, the *Nuances Creating Skill* allows people to differentiate among the elements of reality (whether they are people, feelings, assignments, objects, places, animals, etc.) to such an extent as to render them non-overlapping and non- interchangeable (Besnier, 2013; Heller, 2016; Mathieu, 1998). This is important in our hyper-accelerated world that tends to reduce all details to a superficial overview. Thanks to the operation of these first three skills, the *Re-enchanting Skill* relaunches people in a new action capable of re-enchanting the world, that is, imagining and making the world in a renewed way, with its problematic aspects (environmental, social, economic, and technological) transformed. This is a very important skill to train in new generations because it gives them the ability to engage in demanding, long-term projects of change, the ability to go beyond existing reality, transcend short-term objectives and work not only for some immediately useful aim but especially for values that can improve the quality of human life and, may be, identify a way to save the planet from ruin.

## 4. 3RPLAY. Reflective educational practice

Based on the "cheetah coat" perspective, we formulated a group training that is consistent with the reconstructed theoretical perspective and effective in educating students in the skills making up the skill-base. Named "3RPLAY", this training is a reflective-educational practice that leads participants to exercise their reflection, understanding and judgment skills. Indeed, 3RPLAY activities target the habit of asking questions, understanding the situation, and developing an answer in relation to the educational problems presented during the training process.

It thus encompasses the three Rs (3R) of reflecting, researching, and replying. The first "R", *Reflecting*, corresponds to the skill of asking questions about the educational problem being presented (e.g. rule management, relationship with parents or within groups, success and failure in sports, school, etc.). In 3RPLAY training, the group does not immediately work to solve the problem

but rather examines the problem to broaden and deepen their understanding of it. The second "R", *researching*, refers to specifically this skill of investigating the situation to clarify the known elements (who is involved in the problem? What did he/she do? How old is he/she? What role does he/she have? etc.) and focus on the elements that are not yet explicit or that the group needs to discuss to identify possible ways of managing the problem (what could be the objectives? What are the motivations justifying events or behaviors? etc.). Finally, the third "R", *replying*, is the competence of formulating an answer with respect to the problem under consideration. The answer is worked out collectively, as a group, with each person contributing their reflections and skills, and it remains provisional and open to review.

The 3RPLAY training is addressed to groups of education and health professionals, teachers, students, and citizens with the aim of increasing their skills in *problematizing* situations that present educational problems, situations that might arise in either daily life or professional contexts. To achieve this, the 3RPLAY training uses the methodological device of the *pretext*. The pretexts in this case are open-ended, pending situations that are interesting for the people involved. Requires unanswered questions and does not allow for linear and immediate answers.

Here we can see two different examples of pretexts. The first (Figure 2) is related to the topic of rules in the experience of football coaches while the second (Figure 3) has to do with a wider topic of human existence.



*Figure 6: Pretext regarding inclusion.*



*Figure 7: Pretext regarding a wider topic of human existence.*

As you can see by looking at the images, the pretexts are presented in the form of a comic strip (Girotti, 2016) and they stage a problem without describing all its details or suggesting solutions. Indeed, the main aim behind the design of these pretexts is to raise questions about the situation being presented and prompt a group discussion, allowing each participant to share his or her own point of view on the problem. The pretexts thereby seek to lead participants in exercising all the skill-base competences: the Approaching Skill, Questioning Skill, Nuances-Creating Skill, and Re-enchanting Skill. They investigate the situation under examination by approaching the problem on the basis of their own sensitivity, questioning it to understand its logic, characteristics, and

motivations and thus recognize the different nuances involved. By reflecting together with others, they can imagine possible ways to move toward a positive and constructive transformation.

In 3RPLAY training, of all the skills comprising the skill-base, the key one to be stimulated is undoubtedly the Questioning Skill. While we cannot explore this skill in depth here, we can note that it allows us to approach experience by posing a wide range of "reasonable questions to ask" (Thom, 2022). Such questions correspond to the different universal categories of the human spirit based on the Aristotelian lesson and have been identified through a phenomenological-hermeneutic analysis (Bagnasco, Ghirotto & Sasso, 2015; Lieblich, Tuval-Mashiach & Zilber, 1998) of about 2,000 questions collected from previous 3RPLAY training courses (with sports and school professionals).

The types of questions can be divided into five macro types. We use the first and second question macro type to try to understand the characteristics and meaning of the situation, for example who, what, when, how, how much, etc. (descriptive and interpretive questions). Using the second macro type, we try to understand how to act and manage the situation in question (operational questions). The third macro type is used to understand the reasons underpinning the situations and the aims that justify our actions (causal questions). Using the fourth macro type, we try to understand how the situation might be changed, that is, the different hypotheses of transformation (hypothetical questions).
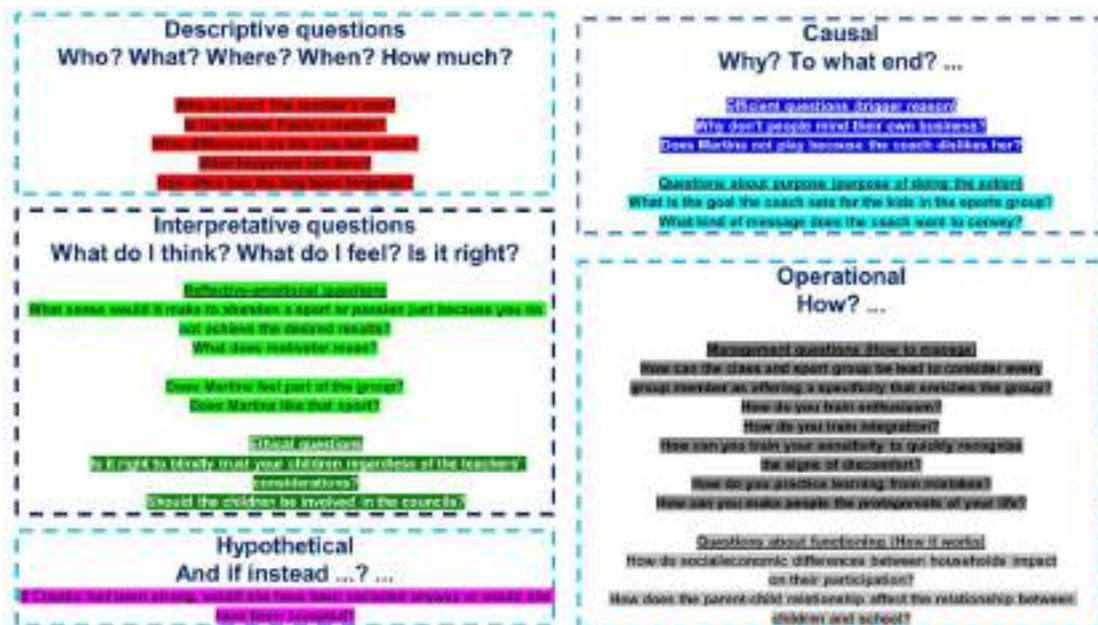


*Figure 8: Types of questions.*

The Questioning Skill is also central to 3RPLAY training because it is the main competence we assess to gauge participants' learning outcomes. Indeed, for 3RPLAY training evaluation plan course participants are asked to write down, individually, the questions each pretext elicits for them. The individual questions are then read in groups and discussed among participants to identify common points of interest and strategies for resolving them.

For purposes of evaluation, individual questions are collected in a personal portfolio containing the questions pretexts, each person asked in relation to each pretext presented during the session (sessions can vary from 3 to 6 or more). The portfolio is returned to each participant at the last session, where they engage in a self-assessment of their problematizing competence (ability to ask questions in the face of a problematic situation) and how it might have increased during the training. In view of the evaluation of the training's educational outcomes carried out so far, we can confidently state that all those who regularly participated in the training activities increased their problematizing competence (for example, broadening the types of questions used to understand the problematic situation). Moreover, participants self-assessment indicates that this competence is fundamental to analyzing and managing everyday and professional educational problems (Authors, 2024b).

## 5. Conclusions

In the face of change that continually transcends what seemed to be limits and thus creates new fields of action, paying attention to so-called non-cognitive skills is an act of responsibility. Indeed, these are the only human skills capable of directing change by maintaining and regenerating a direction of human meaning. This act of responsibility is, first and foremost, an act of recognizing the uniquely human ability to rethink experience according to an order of meaning: this recognition does not consist in merely recording what is, but rather in proposing a perspective on which the very future of humanity as a community of destiny depends. At the same time, it is an act by which we commit oneself to developing this ability: any perspective that does not work to translate itself into an action aimed at rendering that perspective a concrete reality would be meaningless.

As an expression of such attention to so-called non-cognitive skills, the cheetah coat perspective and 3RPlay model are presented as an act of responsibility: they establish the conditions for granting a direction of meaning and propose a methodology for carrying it out.

## Author contribution statement

Author 1 and Author 2 conceived the idea presented here. Author 1 developed sections 1 and 2. Author 2 developed sections 3 and 4. Both authors wrote the conclusion.

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# A formative assessment framework to develop primary school pre-service and in-service teachers' video analysis programs

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## Abstract

Formative assessment (FA) is a valuable means to sustain students' achievement of learning goals. Indeed, research has shown a positive effect of FA on students' learning in primary, secondary and higher education, although the debate is still open. In line with these suggestions, the contribution describes a FA framework and a related system of items useful to guide teachers' observation during video analysis activities within professional development programs for in-service and pre-service teachers. The system contains over 100 items divided into areas corresponding to FA strategies described in the literature. It provides teachers and students with the opportunity to notice their own and their peers' assessment practices and to reflect upon them to support students' learning processes.

**Keywords:** teachers' professional development programs; video analysis; observation; formative assessment; system of items.

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[1] The presentation has been developed equally by each author, while this contribution has been written by Alessandro Oro and Elisa Guasconi.

# 1. Introduction

Intended as a strategy to support and enhance student learning, formative assessment (FA) is currently a central element of educational policies worldwide (Birenbaum et al., 2015). Despite evidence of its effectiveness, teachers often struggle to implement FA strategies effectively, and its application frequently falls short of the standards necessary to make it beneficial in school practice (Baird et al., 2017; Yan & Brown, 2021).

In the Italian context, due to historical and educational policy reasons (Vannini, 2023), a widespread culture of formative assessment practices among teachers is still lacking. Specifically, Italian primary school teachers tend to think of assessment in a traditional manner and show limited knowledge of what FA entails (Pastore et al., 2019). Based on these findings, there is an evident need for targeted training on this topic to prepare both future teachers and those already in service. In this regard, it is crucial to promote teacher change of assessment practices by proposing teachers to reflect on their educational experiences.

Building on these premises, the proposed contribution describes a FA construct and its related system of items, a kind of instrument that does not yet exist in Italian language, and which could prove useful as a tool to support the initial and in-service teachers training. Initially conceived as a guide for use during training activities involving video analysis in pre-service teacher education programs focused on formative assessment, this system includes a definition of formative assessment and procedures organized into five strategies.

# 2. The ongoing debate on FA

Formative assessment refers to a set of activities aimed at eliciting evidence about students' learning, so that both students and teachers can use it to adjust their teaching and learning processes. By reading this general definition, it is easy to comprehend that the concept covers a wide variety of practices (McMillan et al., 2013): this is reason why in the literature the debate on FA framework is still open, and it is difficult to establish an unequivocal definition.

Currently, at least three distinct terms can be identified in the literature, each representing a different approach on FA. The first is "Formative Assessment", a term rooted in Bloom's (1971) theories and further developed by Black and Wiliam (1998). This concept refers to a continuous process occurring during teaching and learning, aimed at monitoring student progress and providing immediate feedback to improve instruction and learning. In this framework, the role of teachers is crucial because they identify areas where students may face difficulties and adjust teaching strategies accordingly.

The second term, "Assessment for Learning" emphasizes the intentions behind the use of assessment to support learning rather than describing specific actions (Wiliam, 2018). This approach encompasses actions to foster an environment where assessment is an integral component of the learning process.

The third term, "Assessment as Learning," focuses on the active role of students in the assessment process. In this approach, students are encouraged to reflect on their learning, monitor their progress, and use feedback to self-regulate and adjust their study strategies (Earl, 2004).

Furthermore, depending on the degree of premeditation, FA activities can be positioned along a continuum ranging from *informal* (embedded within everyday classroom interactions) to *formal* practices (pre-designed, systematic activities aimed at evaluating specific learning objectives) (Ruiz-Primo & Furtak, 2006). Formal FA typically involves planned activities or tools, such as quizzes or assignments, that are systematically implemented to evaluate student achievement. Informal FA occurs dynamically within the flow of classroom interactions. It involves ongoing strategies that help teachers acquire immediate information from students, which can be promptly used to adjust instruction. Particularly relevant for this approach are the *assessment conversations* (Ruiz-Primo, 2011), interactive dialogues between teachers and students focused on eliciting and interpreting evidence of students' understanding during the flow of instruction.

Within this landscape, it is possible to identify some of the trajectories that the debate on the FA framework is currently taking. In recent years, more attention has been given to promoting students' self-regulation skills stressing the relevance of involving students in the assessment process, and to ways for developing and delivering feedback (Lipnevich & Panadero, 2021; Lui & Andrade, 2022). In addition, a special and renewed attention to the needs of students emerges through personalization and reflecting on socio-culturally responsive assessment practices (Bennett, 2023) and, at the same time, recent studies emphasize the evolution of FA within emerging contexts such as digital learning and AI-supported instruction (Hopfenbeck et al., 2023). Furthermore, concerning effectiveness of FA practices in enhancing student learning, there is an ongoing in-depth debate (Bennett, 2011; Briggs et al., 2012; Kingston & Nash, 2011), but recent studies suggest that they have a positive impact across various disciplines, though the intensity of the effect may vary (Lee et al., 2020).

Such a variety of perspectives and research is bringing the issue of the definition of FA back to light (Andrade et al., 2019) together with the lack of that "theory of action" claimed by Bennett (2011). What is formative assessment? Which strategies do it include? Starting from these questions, we have developed a tool that enables teachers to acquire basic to advanced literacy of formative assessment practices and methods for operationally defining formative assessment.

## 3. The origins of the FA system

Even though the debate on the framework and the existing evidence on effectiveness is still open, the literature claims that FA, if used on a regular basis, allows teachers to collect information on students' learning and to adjust their teaching activities. This adjustment is precisely what students deserve to overcome eventual difficulties in achieving learning goals and to improve their skills, so the ability to develop FA moments and tasks, to provide students with feedback, and to use information to regulate teaching is a crucial tool in the "baggage" of the teachers, whatever their school grade would be. Anyway, changing pre-service and in-service teachers' assessment practices implies transforming also their beliefs, and this needs adequate time, a collective participation of teachers and, above all, a closer look into everyday teaching practice (Clarke & Hollingsworth, 2002; Darling-Hammond, 1995; Guskey, 2002). In this respect, reflecting on classroom situations with an expert's support could allow teachers to analyze their practices, find ways to improve them, and see the effects on students' learning. These were the assumptions of the VAHE project from which the FA system of items, the focus of this contribution, was born.

### 3.1. The VAHE project

*Video analysis for quality teaching in Higher Education* (VAHE) (Ciani et al., 2021; Rosa, 2024) has been carried out by a group of researchers from the Department of Education Sciences of the University of Bologna with the collaboration of the School of Education at University of California, Irvine and the University of South Australia, and the technological support of the Media Education Lab of the Department.

The project aimed to increase the quality of teaching in higher education by developing a professional development program for in-service university teachers based on the use video analysis methods. In particular, the focus of the training was on FA strategies.

First, an online platform was developed through which university teachers could watch their peers' videos while taking a class and reflect on specific events. In this phase, to help teachers in identifying implemented FA strategies, a construct of "Informal Formative Assessment for quality teaching in Higher Education" and a correspondent system of behavioral indicators was developed (O' Keeffe et al., 2020). Assuming the distinction between formal and informal FA, researchers explained that the choice of focusing specifically on the informal one was due to the evolutions of the debate regarding FA, which tends to enhance the use of *minute-by-minute* strategies, and to the characteristics of higher education contexts, such as the high number of students and the frequency of classes. The construct was structured in four sections (Rosa, 2021): *structuring:* share the learning goals, contents, and activities to give students the opportunities to self-regulate their process; *eliciting:* collect evidence of students' learning through interactions and questions; *reacting/using:* respond,

reflect, provide students with feedback, and encourage self and peer assessment; *learning climate:* use of a supportive communication and value students' contributions. For each of these dimensions, items were developed containing actions made by the teacher and they were then put into an online platform for video analysis and video annotation activities. University teachers, with the support of researchers, used the framework to identify actions and specific moments in a few videos; this operation led them to reflect upon teachers' practices and students' reactions and to interpret the situation employing their knowledge; at last, it brought them to decide how to improve the effectiveness of the implemented strategies for sustaining students' learning.

The project's second phase consisted of an evaluative study of the professional development program's effectiveness. We will not delve into this research, but we want to mention that the program significantly increased perceptions of FA knowledge and abilities of the participants (13 engineering teachers). At the end of the project, a growing interest emerged toward the use of video analysis techniques also in pre-service teachers' programs to foster the development of reflective habits and FA skills. In a short time, the research group, to which the authors of this contribution belong, has started to plan a new experimental study to explore the effectiveness of video analysis methods in Primary Teacher Education Degree Course at the Department of the Education Sciences of the University of Bologna. Thanks to the collaboration with SmaIL Lab, a renewed online platform for video analysis activities has been developed. At the same time, a new construct and system of items regarding FA in primary school was elaborated, whose structure is described in the following paragraph.

## 4. The FA system of items

We start by describing FA as "*an intentional process through which the teachers gather information about students' learning and interpret it to adjust their teaching and learning process. Teachers adopt formal and informal approaches and tools of information gathering, depending on the specific characteristics of the subject area, and use them to redesign instructional activities. They pay attention to adjusting teaching to each student's needs and provide all of them with feedback (consisting of strengths, weaknesses, and strategies for improvement) aimed at leading them to the established learning goals. During this process, students can reflect on the gap between "where they are" and "where they need to go," also through moments of self-assessment and peer evaluation.*"

By reading this definition, it is possible to catch some peculiar traits of FA concept. First, it refers to an *intentional* process, meaning that teachers know the learning objectives they are monitoring and the tools and techniques they have decided to use to collect information. Second, it includes *both formal and informal approaches* and techniques of FA, since in primary school teachers should use both depending on the circumstances and opportunities. Third, it is *domain specific*. Indeed, it underlines the need to consider each discipline's nature while developing FA moments. Still, it mentions the relevance of *using* inference on the FA results to *adjust* teaching activities and students' learning processes. Lastly, it refers to *each student* encouraging teachers to adopt an individualized approach, able to regulate teaching to every student's needs.

The construct is composed of the strategies described below:

1. Sharing learning goals and assessment criteria;
2. Collecting evidence on student learning by using different tools and approaches;
3. Providing students with formative feedback;
4. Promoting Peer and Self-Assessment;
5. Adjusting teaching and instructional practices.

The construct also includes a transversal element that refers to building a positive learning environment because it guarantees the essential conditions to make formative assessment effective. Starting from this framework, we searched in Italian and international assessment studies coherent and effective practices and techniques and developed a system of items describing teacher's actions. It has different levels: starting with six categories corresponding to elements composing the FA construct, which have been listed above, it continues with sub-categories for each area (Tab. 1).

| 1ˢᵗ level – Main elements of the construct | 2ⁿᵈ level | 3ʳᵈ level | 4ᵗʰ level |
|---|---|---|---|
| S) Sharing learning goals and assessment criteria | SG) Sharing learning goals | | |
| | SC) Sharing assessment criteria | SCr) Sharing assessment criteria with rubrics | |
| | | Sci) Sharing assessment criteria through quality indicators | |
| C) Collection of evidence on students' learning | FC) Formal collection of evidence | | |
| | IC) Informal collection of evidence | ICq) Informal collection through questions and interactions | |
| | | ICf) Informal collection through fast FA techniques | |
| P&S) Peer and self-assessment | P) Peer assessment | | |
| | S) Self-assessment | | |
| F) Formative feedback | IF) Individual feedback | Ifo) Oral individual feedback | |
| | | Ifw) Written individual feedback | |
| | CF) Collective feedback | CFf) Collective Feedback (Formal FA) | |
| | | CFi) Collective Feedback (Informal FA) | CFiq) Collective feedback after IFA through questions and interactions. |
| | | | CFif) Collective feedback after IFA through fast FA techniques |
| Ad) Adjusting teaching | | | |
| LE) Learning Environment | LEm) Effective practices toward the mastery of learning objectives | | |
| | LEe) Embracing errors as learning opportunities | | |
| | LEt) Trust in each student's abilities | | |
| | LEl) Calm and adequate learning environment | | |

*Table 1: The structure of the FA system of items.*

Two examples of items belonging to the "sharing learning goals and assessment criteria" and "collection of evidence" areas are listed below.

- The teacher shares the learning objectives with students through various didactic mediators (iconic, analogical, and symbolic), focusing attention on the use of images, examples, and appropriate and understandable language (both written and oral).
- The teacher emphasizes the formative purpose of the assessment before its administration, paying attention to the use of understandable language.

One of the main strengths of this system is its *mouldability.* To understand this feature, one can consider a scenario involving a video analysis activity. Attention might be directed toward the "collection of evidence" as prompted by the observed situation in the video. If the teacher in the video is collecting evidence of students' learning using informal FA techniques, only the relevant items (IC, informal collection of evidence) would be considered. On the contrary, one limit of the FA construct is the high number of its items (tot. 127). Of course, it is crucial that the system passes through a validation process. In this regard, a structured validation design has been planned and is currently carrying on. It is composed of two main phases: the verification of the system's validity (content and concurrent validity*)*, and the validation of interrater reliability.

## 5. Which uses of the FA item system in teachers' professional development?

The original purpose of the system was to help teachers analyze videos of FA moments in primary school, so its main use is related to professional development programs for pre-service and in-service teachers, which are based on the employment of video analysis methods. This means it could be used by teachers who observe a video to identify FA strategies in a classroom situation and reflect on them. In this regard, the ability to recognize specific elements in a situation is what literature calls *teacher noticing* (König et al., 2021), one of the most important abilities that distinguishes an expert from a novice teacher and that allows the former to develop a more effective and responsive teaching (Stahnke et al., 2016).

FA construct and its items could also offer a strong reference for in-service teachers who want to implement FA strategies in their classrooms. In consideration of the lack in Italian schools of a proper assessment culture able to improve teaching and educational actions and the confusion on the way FA is implemented and used in classrooms (often mistaken for exercises or an "active" approach to teaching), the system could provide that "theory of action" (Bennett, 2011) they deserve to understand what FA really means. Indeed, it contains different practices who can be used together or separately by teachers, in a conscious manner depending on learning objectives, disciplines and students' characteristics. Likewise, it could be the content of a program for future teachers who intend to understand how FA could be implemented in primary schools.

Finally, items can also be used as elements of an observation grid, that could be employed to carry out peer observation activities within professional development programs in primary schools, even without using videos. In this case, the trainer could encourage in-service teachers to focus on FA strategies implemented by their colleagues with students, to provide formative feedback and enhance the group of teachers to reflect on which assessment actions they could make to improve students' learning.

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*Exploring Coding and Educational Robotics in Primary Schools.
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Teaching Innovation*

# Exploring Coding and Educational Robotics in Primary Schools.
# Results and Perspectives from an Action Research Approach to Teaching Innovation

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## Abstract

This study explores the integration of coding and innovative teaching methods in primary education through an action research approach. Pre- and post-training surveys and teacher logbooks were used to assess changes in perceptions, practices, and student outcomes. Findings show shifts in teacher attitudes, greater collaboration, and improved student critical thinking. Coding fostered creativity, problem-solving, and digital skills. Challenges included time limits and the need for tailored training. The study outlines implications for teacher education and future research, emphasizing innovation's role in preparing students and educators for 21st-century learning.

**Keywords:** coding; innovative teaching; educational robotics; teacher training; action research.

# 1. Introduction[1]

The increasing presence of digital tools in education calls for innovative and student-centered methodologies. Coding and educational robotics are recognized for fostering 21st-century skills such as computational thinking (CT), critical thinking, creativity, and collaboration (Grover & Pea, 2013; Shute et al., 2017; Resnick, 2018; Bers, 2020).

To integrate these tools effectively, pedagogical approaches must support experiential and iterative learning. The Situated Learning Episodes (EAS) model (Rivoltella, 2013), structured in anticipation, production, and reflection phases, offers a flexible framework that complements coding and robotics, particularly in primary education.

This paper presents an action-research study evaluating a teacher training program based on EAS and coding. The project aimed to equip teachers with innovative strategies for integrating digital tools into everyday teaching. Through mixed methods, the study explores how these practices impact teacher attitudes, instructional approaches, and student engagement.

# 2. Theoretical Framework

This study is grounded in three interrelated domains—Computational Thinking (CT), coding, and educational robotics—which together frame a broader pedagogical vision oriented towards 21st-century skills such as creativity, collaboration, and problem-solving (Grover & Pea, 2013; Shute et al., 2017; Bers, 2020).

Computational Thinking (CT) refers to a set of cognitive processes for analyzing and solving problems in systematic and innovative ways (Wing, 2006). CT CT bridges technical and transversal competences, forming a key educational literacy (Denning & Tedre, 2021). CT can be fostered from early years through unplugged activities—hands-on, screen-free experiences that model computational logic in accessible formats (Brackmann et al., 2017; Rücker & Pinkwart, 2017). These activities allow learners to internalize core CT principles even before engaging with digital tools, thus supporting inclusive and progressive curricular implementation. CT promotes critical thinking, adaptability, and metacognition (Pelizzari et al., 2023b), supporting students in reflecting on their learning strategies.

Coding concretizes CT by offering interactive and creative problem-solving tasks. It enables learners to engage in real-world problems through experimentation and logical reasoning (Lye & Koh, 2014; Grover & Basu, 2023). Coding is also a vehicle for imagination and play (Hennessy, 2016), especially when implemented through block-based platforms like Scratch (Resnick et al., 2009; Brennan & Resnick, 2012). These tools democratize access to programming and foster agency and confidence among young learners (Moraiti et al., 2022). In addition, coding offers strong cross-curricular potential, allowing integration with disciplinary content in mathematics, science, art, and language education.

Educational robotics adds a tangible and collaborative layer to coding. It brings together engineering, programming, and design-based learning, enhancing both cognitive and socio-emotional skills (Atmatzidou & Demetriadis, 2016; Angeli & Valanides, 2020). Robotics aligns with Resnick's (2018) Creative Learning Spiral—imagine, create, play, share, reflect—which integrates constructionist and iterative learning cycles. Robotics encourages resilience and teamwork, particularly in group problem-solving tasks (Rusk et al., 2008; Sullivan & Bers, 2016; Yu et al., 2024).

The interplay among CT, coding, and robotics fosters not only technical literacy but also transversal competences such as collaboration, empathy, and ethical thinking (Chevalier et al., 2021). These methodologies support learners in navigating complexity and transferring knowledge across domains (Sengupta et al., 2013).

From a teacher training perspective, effective integration of these tools requires targeted professional development. Educators need both technical skills and pedagogical vision, aligned with

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[1] This article was collaboratively developed by the authors. F.P. contributed to Section 1, "Introduction", 3. "Research Design", 4. "Results", 5. "Discussion" and 6. "Conclusions"; S.F. authored Section 2, "Theoretical Framework".

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holistic competence models such as Le Boterf's (2011) slider of competence. Experiential, collaborative training programs, supported by mentoring and peer exchange, are essential to develop confidence and didactic creativity (Di Battista et al., 2020; Fagerlund et al., 2021).
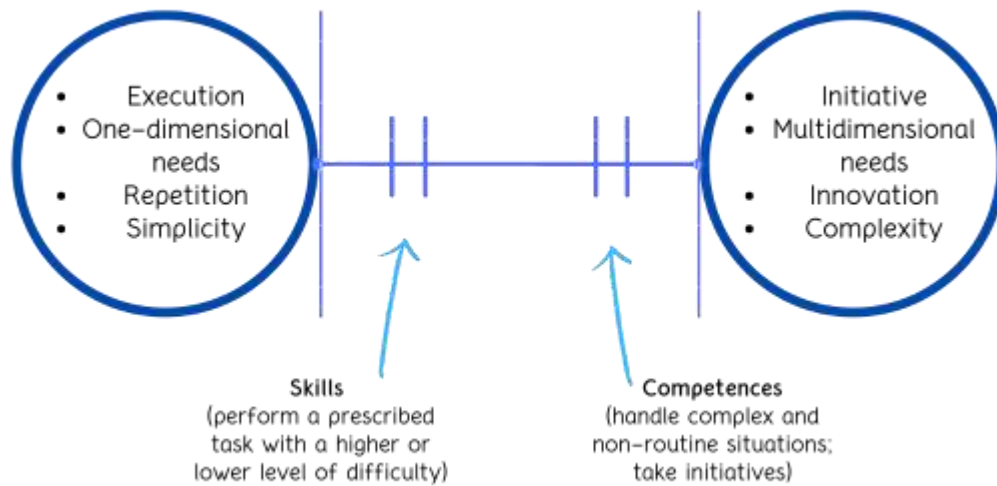


*Figure 1: Le Boterf's Slider of Competence (2011).*

## 3. Research Design

This study adopts an action research approach (Kemmis & McTaggart, 2005) to address the need—identified by a primary school in Iseo (Brescia, Italy)—to integrate digital skills and coding into teaching practices. Action research offers a responsive and participatory method, enabling iterative improvements through cycles of planning, action, observation, and reflection.

### *3.1 Research Methodology*

The intervention centered on a teacher training program combining theoretical input, hands-on experimentation, and classroom application. The study explored how coding and the EAS model influence teaching practices and teacher perceptions. The training is aimed to:

1. Foster innovative teaching experimentation.
2. Assess the applicability of EAS and coding.
3. Understand teachers' pedagogical shifts following the coding-based intervention.

Three research questions guided the inquiry:

      RQ1: How does the training foster innovation in teaching?
      RQ2: What are teachers' views on integrating EAS and coding?
      RQ3: How do teachers experience the impact of coding on their practice?

A data alignment table matched each question with relevant sources (e.g., surveys, logbooks, classroom observations) to ensure coherence.
To ensure alignment between data and research questions, the following mapping was applied:

| Research Question | Data Sources |
|---|---|
| RQ1 | Classroom observations; post-training surveys |
| RQ2 | Pre/post surveys; teacher reflections in logbooks |
| RQ3 | Logbook content; survey items on practice change |

*Table 1 - Alignment between data and research questions*

## 3.2 Design Model for the Classroom: EAS & Coding

The EAS model (Rivoltella, 2013) structures lessons in three phases—anticipation, production, reflection—promoting active, student-centered learning. Its iterative and contextual nature aligns well with coding's logic, supporting both skill development and metacognitive awareness.

EAS activities begin with a motivating prompt (anticipation), continue with hands-on problem-solving (production), and end with critical reflection. This model enables interdisciplinary integration of coding in the classroom, fostering creativity, problem-solving, and resilience.

The EAS model offers several advantages in the integration of digital tools in primary education. First, it structures the learning process in a way that supports student agency and teacher flexibility, allowing educators to adapt activities to diverse learning contexts. Second, it emphasizes the iterative and circular nature of learning, particularly well-suited to the logic of coding and robotics, where testing, debugging, and refining are intrinsic to the process.

Within this study, the EAS framework provided a pedagogical backbone for designing interdisciplinary learning units that combine curricular content with digital creativity. It allowed teachers to scaffold coding experiences in a meaningful and structured way, making them accessible even to students with no prior exposure to digital technologies. The model also helped teachers manage classroom time, support differentiated instruction, and introduce reflective practices that extended beyond technical skills.

**Reflect**

Fix the key elements

- Return to the path, regain possession of contents and experiences.
- The student must be guided to reflect, even presenting his work aloud
- Development of critical sense. Different debriefing techniques

**Anticipate**

Activate a first appropriation of the contents

- Problem solving: advance hypotheses and have a first access to the contents.
- Stimulus: the student is confronted with a new topic that has not yet been addressed in class.

**Produce**

Work on constructs

- Organize individual and/or work group.
- Delivery must be clear and precise.

*Figure 2: EAS model (Rivoltella, 2013).*

## 3.3 Training Intervention Design

The training intervention was structured into five sequential phases. It began with two online meetings focused on the theoretical foundations of coding and the Situated Learning Episodes (EAS) model. This was followed by an in-person session dedicated to hands-on exploration of educational technologies, including unplugged activities, Scratch, and educational robotics. Subsequently, teachers participated in design workshops aimed at co-constructing interdisciplinary learning units based on the EAS model, integrating coding into meaningful curricular contexts. During the implementation phase, teachers implemented the planned activities with tutoring support. Finally, each participant completed a structured logbook documenting the key elements of the learning experience, aligned with the three phases of the EAS model: anticipation, production, and reflection.

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*Figure 3 - Training Intervention Design.*

### 3.4 Data Collection Tools

The study adopted a mixed-methods approach (Creswell & Plano Clark, 2017), integrating quantitative and qualitative tools to ensure effective data triangulation and a comprehensive understanding of the phenomena investigated.

1. Pre-/Post-Surveys were administered to assess teachers' prior knowledge, expectations, and perceptions of coding and educational robotics before and after the training. The questionnaires included both closed-ended items using Likert scales, allowing for statistical analysis, and open-ended questions to collect qualitative reflections. Quantitative data were used to identify significant variations in self-reported competencies and perceptions, while qualitative responses offered insights into teachers' personal experiences and beliefs.
2. Reflective Logbooks were compiled during the classroom implementation phase. Teachers documented the structure and execution of the learning activities, student reactions, and their own reflections. These logbooks provided rich qualitative data, revealing challenges, adaptive strategies, and the practical application of coding and the EAS model. Thematic analysis was conducted to identify recurring patterns and meaningful narratives across cases.
3. Classroom Observations were carried out during the implementation to assess the integration of coding and robotics in real educational settings. Observations followed a structured protocol focusing on key indicators such as teacher-student interaction, peer collaboration, and engagement in problem-solving tasks. These direct observations enriched the qualitative dataset by capturing classroom dynamics and contextual factors not always evident in self-reports.

The combination of these tools enabled methodological triangulation, increasing the validity and reliability of the findings. The integration of quantitative measures with narrative accounts provided a holistic view of the training's impact, highlighting both measurable changes in teacher competencies and more nuanced shifts in pedagogical practice and innovative attitudes.

### 3.5 Participants

The study involved 43 women primary school teachers, who participated in a coding training program. The participants were diverse in terms of age, teaching experience, prior exposure to coding, and technological proficiency. Among them, 46% were aged between 40 and 60 years, while 37% were between 21 and 39 years. In terms of teaching experience, 37% had been teaching for more than 10 years, 34% had between 3 and 10 years of experience, and 23% had been teaching for only 1 to 3 years. Their specializations were similarly varied, with 35% teaching in the mathematical-scientific-technological field and 33% in the linguistic field.

Participants were selected based on their voluntary enrollment in the training program, which aimed to explore the integration of coding and digital skills into pedagogical practices. To respect international standards, all teacher comments and reflections originally written in Italian were translated into English during analysis and in the final reporting of findings.

## 4. Results

This section presents findings based on the three research questions. Quantitative and qualitative data are integrated to provide a comprehensive understanding of the impact of the training program.

### 4.1 Survey (RQ2, RQ3)
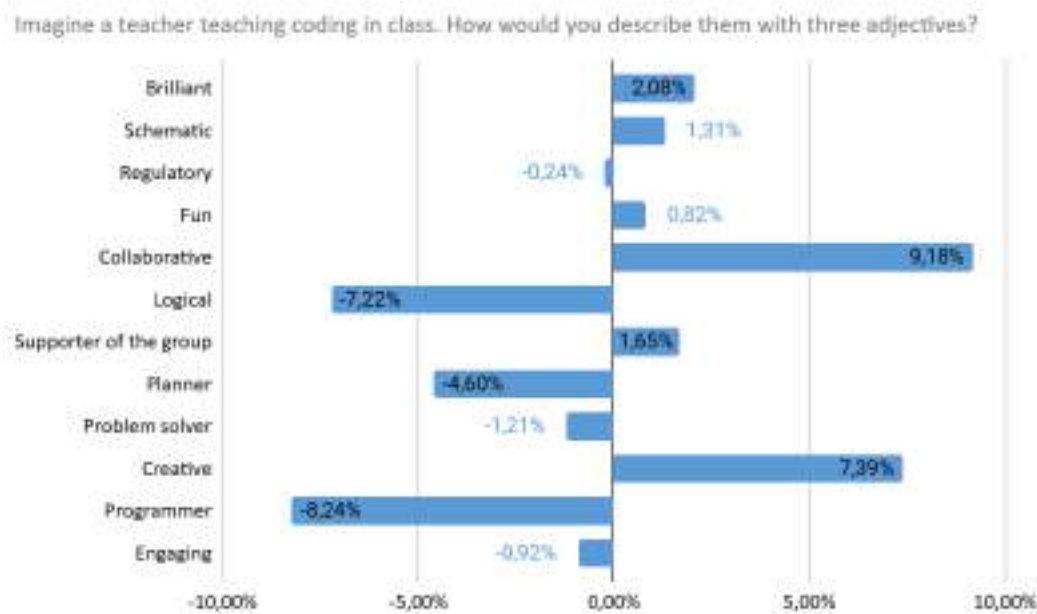


*Graphic 1: Adjectives used to describe a coding teacher (pre/post).*

When asked to describe a teacher who uses coding, participants' perceptions shifted notably after the training. Initially, "engaging" was the most frequent adjective, but "creative" became dominant post-intervention (19.79%). The term "programmer" declined sharply (from 12.4% to 4.17%), while

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collaborative" more than doubled (from 8.53% to 17.71%). These changes reflect a shift from a technical view of coding toward a more creative and collaborative pedagogical perspective.
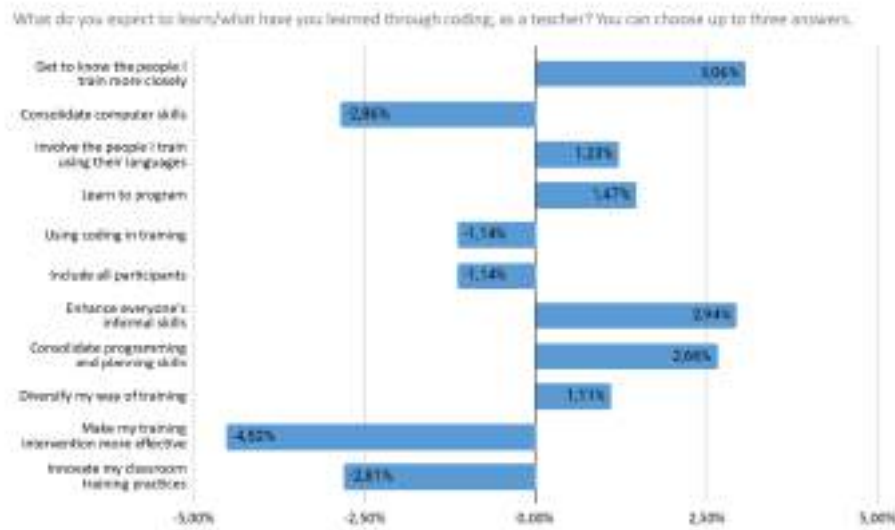


*Graphic 2: What teachers expected vs. what they learned through coding.*

When comparing their expectations with what they learned, teachers confirmed the anticipated value of innovation (20.16% pre vs. 17.35% post), while perceived improvements in teaching effectiveness (−4.53%) and technical skill consolidation (−2.86%) declined. Notably, social aspects gained unexpected relevance: 3.06% of teachers highlighted collaboration as an emerging outcome, a theme absent in initial expectations. These findings reveal a partial alignment between expectations and outcomes, with innovation validated but technical gains perceived as limited, and a growing appreciation of the social dimension of coding and robotics.
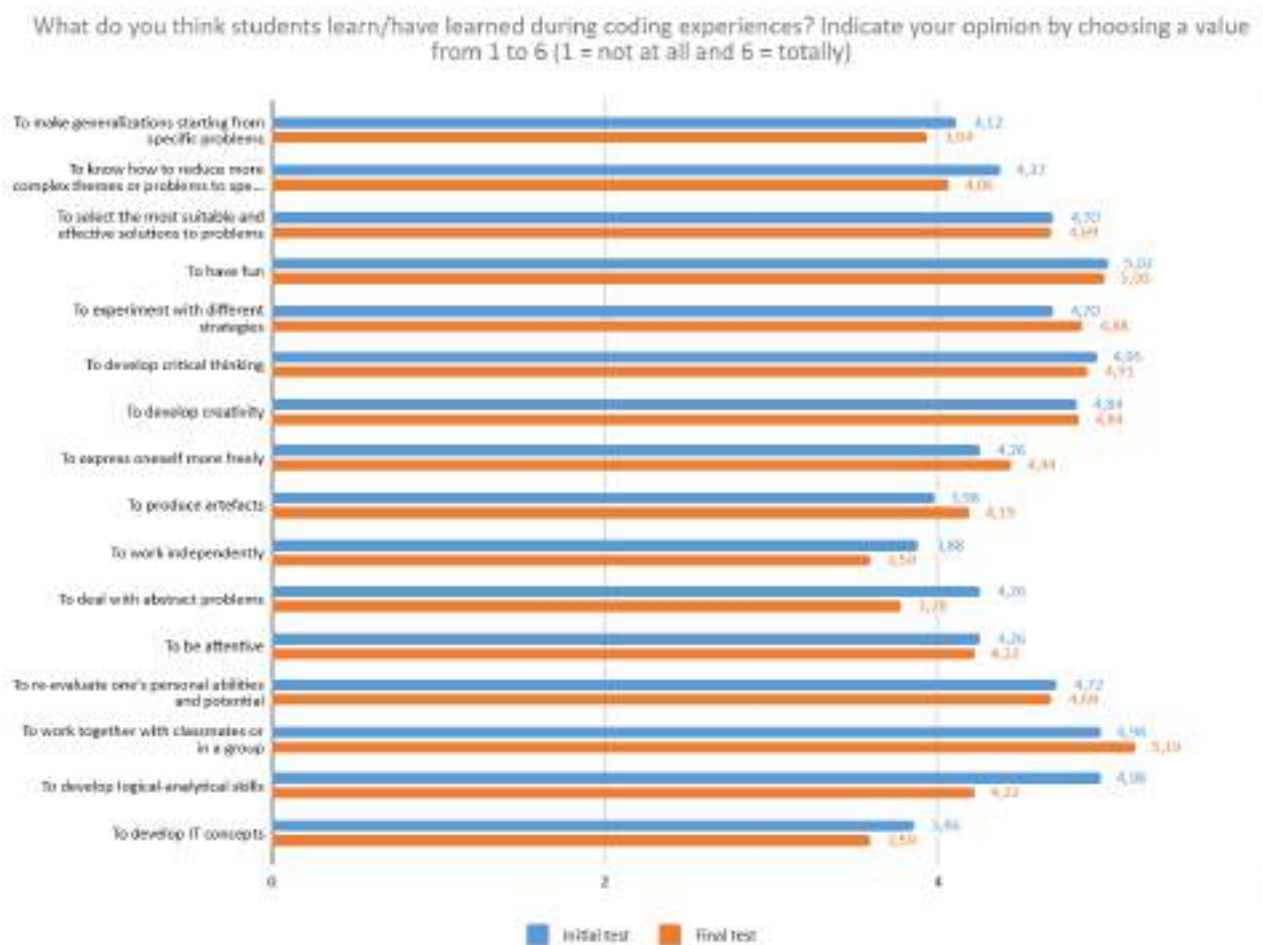
*Graphic 3 : Perceived student learning outcomes.*

The questionnaire assessing students' perceived learning during the coding experimentation showed stable overall scores, but certain items recorded notable declines. Logical-analytical skills decreased by 15% (from 4.98 to 4.22), and the ability to deal with abstract problems dropped by 11% (from 4.26 to 3.78). Smaller declines were observed in developing IT concepts, working independently, and simplifying complex problems (each around −7%). These results suggest that while the experience offered valuable learning opportunities, some skills—particularly those related to abstract reasoning—were either less reinforced or more difficult for students to recognize. Contributing factors may

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include task complexity, misaligned expectations, or a more critical self-assessment after the intervention.
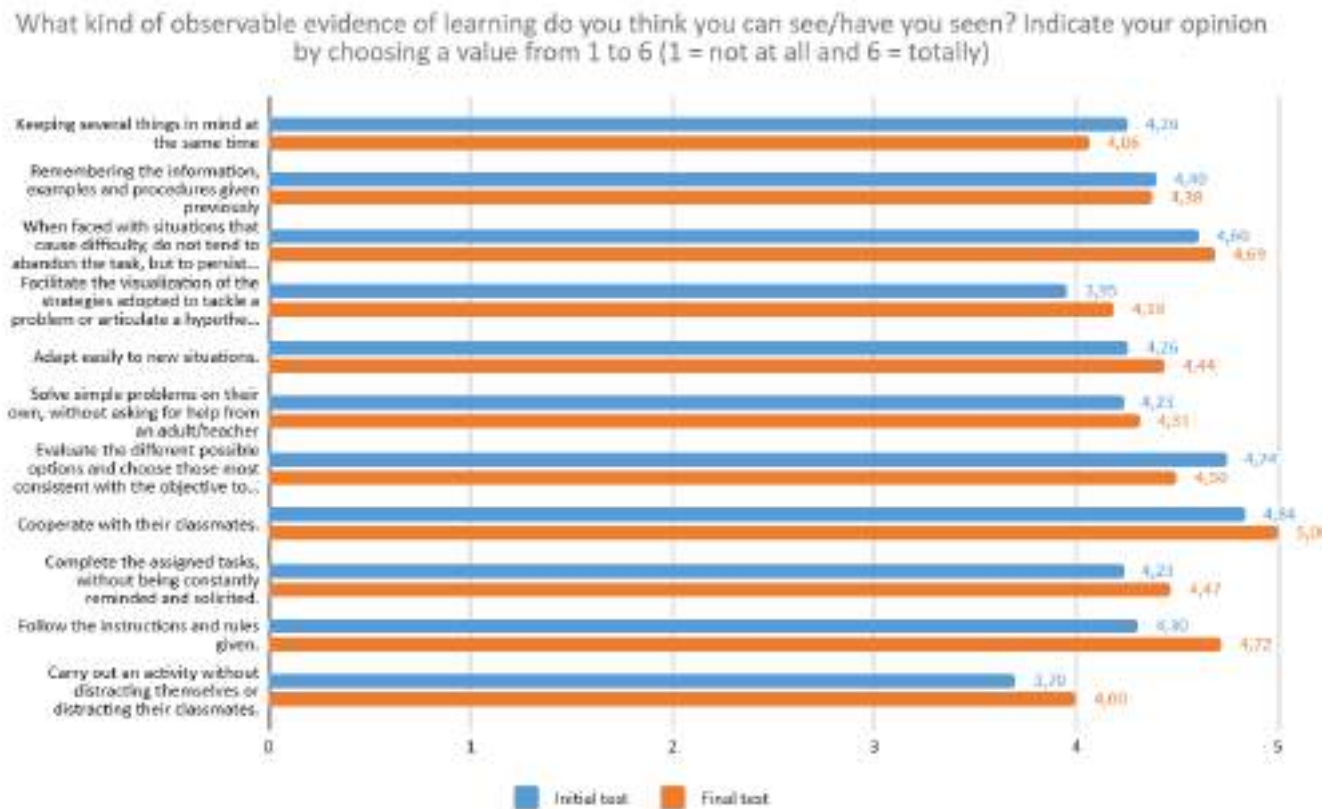


*Graphic 4: Observable student behaviors.*

Among the observed indicators, four items showed significant changes. Adaptability and perseverance both increased by 12%, suggesting that coding activities helped students better face new situations and persist through challenges. Conversely, multitasking ability (−14%) and independent task completion (−9%) declined, possibly due to cognitive overload or the need for greater structure in unfamiliar contexts. These results reflect the experiment's dual impact: it

fostered resilience while revealing areas—such as autonomy—that may require further scaffolding in future implementations.



In your opinion, how much coding and educational robotics have the potential to facilitate the development of the following skills:
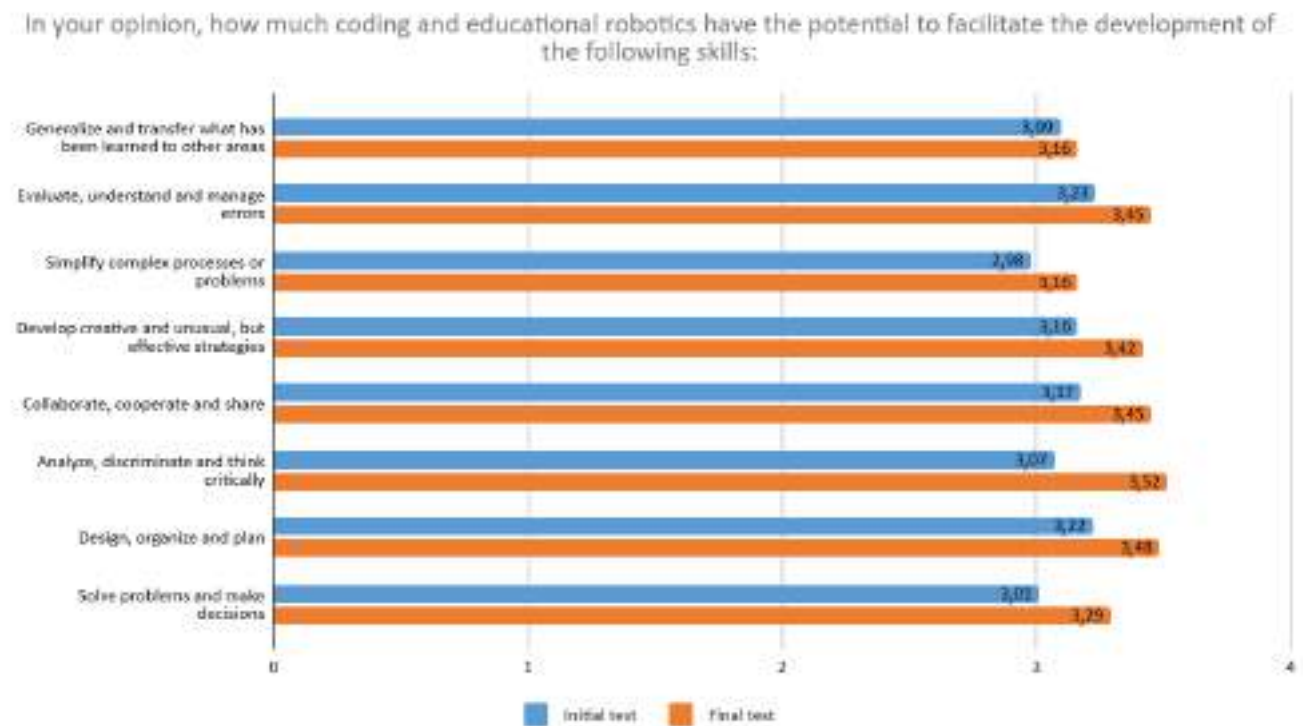
*Graphic 5: Skills supported by coding and robotics.*

Teachers reported overall improvements across all assessed skills, reinforcing their confidence in the educational value of coding and robotics. The most significant gain concerned critical thinking (from 3.07 to 3.52), highlighting their perceived impact on higher-order cognitive skills. The smallest increase was observed in the ability to generalize and transfer learning (from 3.09 to 3.16), suggesting that broader knowledge transfer may require more targeted support. The overall average score rose from 3.12 to 3.37, reflecting a positive shift in teachers' perceptions, while also pointing to areas—like generalization—that future interventions could strengthen through more explicit real-world connections.

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In your opinion, coding and educational robotics have the potential to facilitate the development of the following dimensions:
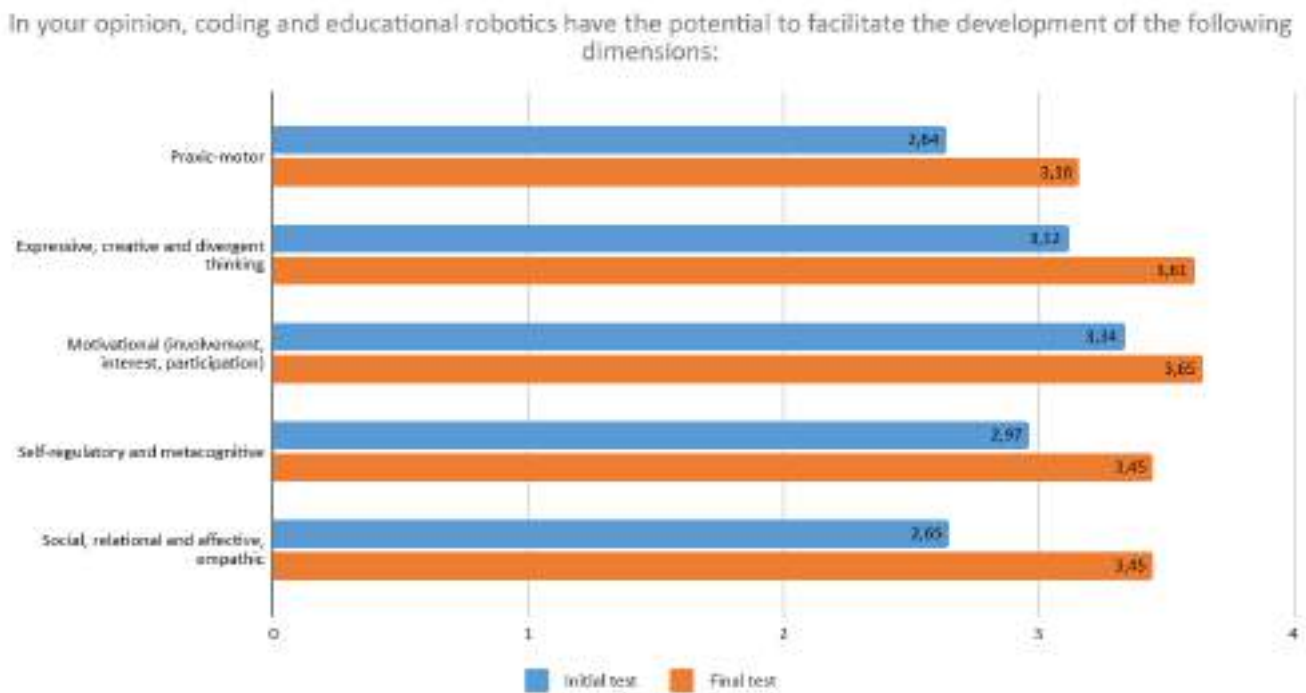


*Graphic 6: Developed dimensions.*

Teachers reported increased scores across all personal dimensions assessed, confirming the perceived positive impact of coding and robotics. The most significant gain was in the social, relational, and empathic domain (from 2.65 to 3.45), followed by praxic-motor skills (from 2.64 to 3.16). The overall average rose from 2.94 to 3.46. These results suggest that beyond cognitive benefits, coding and robotics also support interpersonal development and hands-on coordination, reinforcing their value in promoting holistic student growth.

To what extent do computational thinking, coding and educational robotics support the development of key skills for lifelong learning? Indicate your opinion by choosing a value from 1 to 6 (1 = not at all and 6 = totally)
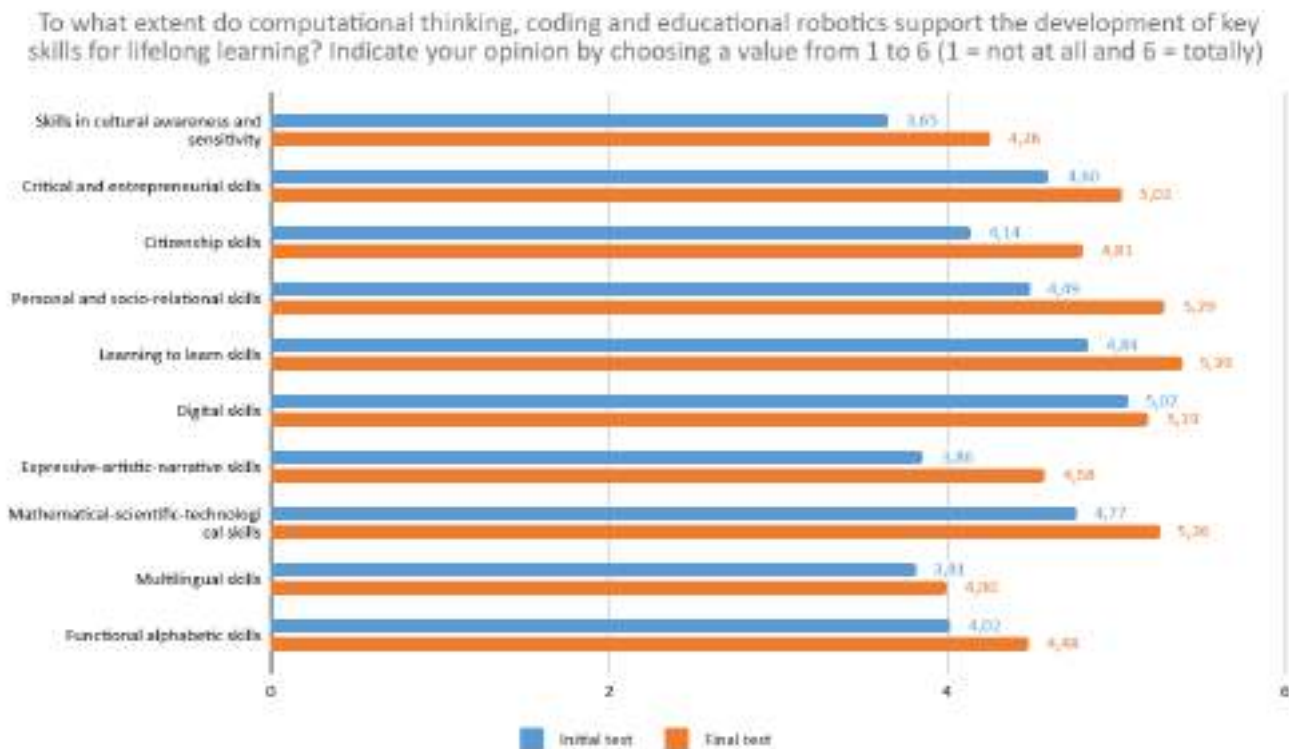
*Graphic 7: Key competences for lifelong learning.*

Teachers confirmed that coding and robotics can enhance lifelong learning skills, with all indicators improving post-intervention. The strongest gain was in expressive-artistic-narrative skills (from 3.86 to 4.58), showing the creative potential of these tools. Socio-relational skills also rose significantly (from 4.49 to 5.29), highlighting benefits in empathy and collaboration. Digital skills improved only slightly (from 5.07 to 5.19), likely due to already high pre-existing confidence. Correlation analyses (Pearson and Spearman) showed that older teachers rated coding and robotics more highly for developing citizenship and cultural awareness. Overall, the intervention supported diverse and often underexplored skill areas, especially creativity and interpersonal growth.

### *4.2 Logbook (RQ1, RQ3)*
The qualitative analysis of teachers' logbooks provided valuable insights into the implementation of the EAS model and coding activities. Five key thematic areas emerged: successes, group dynamics, assessment, challenges, and suggestions for improvement.

1. Success: Teachers consistently reported high student engagement and enthusiasm across all EAS phases. Activities involving tablets, group work, and narrative tasks were particularly effective. Despite some technical challenges (e.g., with Lego Spike), students demonstrated autonomy, curiosity, and collaboration, validating the educational potential of the intervention.

   «The students showed enthusiasm in all phases of the work: story completion, use of the tablet with Wordwall, group work on the grid to arrange the stones to reach Hansel and Gretel's house, and finally the sharing of the work» (1_III_Mathematical-scientific-technological field).

2. Group Dynamics: Effective collaboration was observed, supported by clear role distribution, and structured tasks. Students displayed initiative, leadership, and self-regulation. While occasional conflicts required teacher mediation, the overall cooperative climate facilitated the successful execution of activities.

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«The students, organized in islands, worked while respecting time, roles, and instructions. The class often practices cooperation, which certainly benefited the proposed activity» (6_III_Linguistic field).

3. Assessment: Tools such as checklists and peer/self-assessment strategies were appreciated for supporting observation and reflection. However, several teachers noted their time-consuming nature, suggesting a need for more agile evaluative formats that maintain rigor without overburdening the process.

   «Using the checklists was a valuable support for observation during the various phases» (14_IV_Expressive field).

4. Challenges: The most frequently cited difficulties included time constraints and limited familiarity with some tools. Adapting to these obstacles required flexibility and on-the-spot adjustments, which many teachers managed, though highlighting the need for more planning and training.

   «The biggest challenges were related to using the tool, due to limited knowledge both on my part and the students'» (20_V_Mathematical-scientific-technological field).

5. Future Improvements: Suggestions included diversifying tools to boost engagement, refining the planning phase with clearer instructions and times, and better aligning activities with students' prior knowledge. Several participants stressed the importance of matching tools to student readiness levels and of revisiting the intervention timing across the school year.

   «In future projects, I will aim to propose activities using multiple tools, as I observed this increases students' enthusiasm and participation» (24_IV_Expressive field).

In summary, the EAS model provided a robust pedagogical framework that enhanced engagement and structure. However, its efficacy was closely tied to the teachers' planning capacity and familiarity with the technological tools, indicating the need for sustained support and reflective iteration in future implementations.

## 5. Discussion

The integration of coding and the EAS methodology revealed valuable insights into teacher development and classroom practice. Teachers increasingly perceived coding not as a technical skill but as a creative and collaborative pedagogical tool, shifting their language from "programmer" to "creative" and "collaborative." This reflects broader research emphasizing coding's role in fostering critical thinking, adaptability, and peer learning (Resnick et al., 2009; Shute et al., 2017).
The training promoted a stronger sense of professional identity and community among teachers, who valued peer support, shared reflection, and increased confidence in implementing innovative strategies. Logbooks confirmed high student engagement, especially during the "production" phase, with notable gains in social and relational skills—aligned with the Spiral of Creative Learning (Resnick, 2018).
Despite evidence of skill transfer, especially in problem-solving, connections to real-world issues were limited. Teachers also reported lower perceived impact on logical-analytical and abstract thinking, indicating a need to better align task complexity with cognitive demands. However, positive group dynamics, mutual support, and students' ability to manage conflict suggest strong potential for coding to support inclusive, empathetic learning.
Challenges included time constraints, technical tool mastery (e.g., Lego Spike), and the burden of assessment tools, which were appreciated but often demanding. Simplified, integrated assessment practices are needed to support teachers without compromising depth.
The study's limitations—small, all-female sample; short intervention duration; limited longitudinal data—suggest cautious interpretation. Yet the findings offer clear implications: coding and EAS can

nurture creative, collaborative, and reflective competencies if supported by sustained, practical teacher training. Key recommendations include:

- Expanding hands-on modules and tool practice;
- Providing ready-to-use materials and tutorials;
- Streamlining assessment tools for daily use;
- Encouraging interdisciplinary co-design;
- Framing coding as a pedagogical, not just technical, resource.

Ultimately, successful integration requires not only tools, but a cultural shift toward reflective, collaborative, and creative teaching practices.

## 6. Conclusions

This study confirms the transformative potential of coding and educational robotics in primary education, particularly when integrated with structured pedagogical models such as EAS. Teachers shifted their perception of coding—from a technical task to a creative, collaborative, and inclusive strategy—and reported greater confidence in experimenting with digital tools. Students showed increased engagement, resilience, and socio-emotional growth, especially in collaborative settings. However, the findings also point to persistent challenges: time constraints, unfamiliarity with tools, and difficulties in connecting coding to disciplinary and real-world contexts. Addressing these issues requires more structured professional development that moves beyond technical instruction to include pedagogical planning, classroom management, and reflective practices. Equally important is the development of simplified and integrated teaching and assessment tools that ease teachers' workload while maintaining quality standards.
To fully harness the potential of coding in education, three key directions should guide future efforts:
1. Reinforce professional development through blended programs combining theory, hands-on practice, and continuous support;
2. Expand research on interdisciplinary skill transfer and real-world application;
3. Experiment with emerging technologies to increase accessibility and engagement.

The success of such initiatives depends on a systemic approach involving all educational stakeholders. Teachers need ongoing training and institutional support; students should engage actively in creative, reflective learning; and educational communities—families, policymakers, school leaders—must foster an innovation-oriented culture. Coding and robotics should be understood not merely as technical skills, but as pedagogical tools for nurturing critical thinking, creativity, and lifelong learning habits.
Future research should explore long-term impacts, more diverse samples, and direct assessments of student learning outcomes. Framing coding within a broader educational vision will help equip learners with the skills to thrive as creative and critical thinkers in a rapidly evolving world.

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# Internationalization in Teacher Education: How can student practice in Southern Africa contribute to strengthening the professional work as teachers in Northern Norway?

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## Abstract

How does international practicum during teacher education affect the professional role of a teacher? Can this experience provide new perspectives and practices in the classroom, and does this type of experience in teacher training expand students' competence in global teaching and diversity? This paper builds on a recent research study titled *Teachers in a Globalized World*, involving five teacher education programs in Norway. The study aims to generate knowledge about the long-term impact of international practicum programs. Our contextual framework is based on a teacher education program at UiT – The Arctic University of Norway in Tromsø. As teacher educators, we run a practice-abroad project where student teachers can participate in a four-week teaching practicum in Zambia or South Africa during their five-year master's program. With over 20 years of experience working with international school practice in Southern Africa, we have gained a broad overview of the field. However, research on the long-term impact of student teachers' practice is still lacking. By interviewing former students who have worked as teachers for a minimum of five years in Northern Norwegian schools, we evaluate the value of this focus in teacher education programs. Specifically, we ask how these experiences are utilized in their professional roles as teachers.

**Keywords:** teacher education; internationalization; professional development; rural schools; diverse classrooms.

## 1. Introduction

Several studies have shown that international practicum during teacher education can affect the professional role of a teacher in various ways (DeGraaf, Slager, Larsen, & Ditta, 2013; Shiveley & Misco, 2015; Baecher & Chung, 2019; Klein & Wikan, 2019; Steele & Leming, 2022). Baecher and Chung (2020) found that student teachers who completed teaching practice abroad developed problem-solving skills, self-confidence, and flexibility. They argue that international experiences hold significant potential for learning and claim that "international experiences are underrepresented in the literature on teacher professional development yet resonate with theoretical approaches to how teachers learn" (Baecher & Chung, 2020, pp. 33–51).

The development of intercultural competence and global awareness is also frequently highlighted in studies on teaching abroad (Klein & Wikan, 2019; DeGraaf et al., 2013). Short-term teaching experiences can have long-term impacts on the development of the teaching profession (Shiveley & Misco, 2015).

In this study, we explore how such experiences provide new perspectives and practices in the classroom after teachers have worked professionally for at least five years. We also examine how these experiences may have expanded their competence in global teaching and diversity, ultimately strengthening their professional work as teachers in Northern Norway.

We begin by providing the context for this study. Diversity in Northern Norway differs from other parts of the country. Compared to more central areas, population density is low, and the region struggles with depopulation in rural areas. This has led to the closure of several smaller schools, which can have severe consequences for local communities. A common misconception is that the population is homogeneous based on statistics. However, with borders to Finland, Sweden, and Russia, and a population that includes the indigenous Sami people and the Kven ethnic group, the region has historically been highly diverse.

A recent study highlights how Norway's population has rapidly changed in terms of ethnic background, religious beliefs, sexual orientation, and cultural diversity, and the impact this has had on the school system. In 1980, only 1% of learners had an immigrant background. By 2001, this figure had risen to 6.3%, and by 2022, it had reached 19.4%. In the northernmost region of Finnmark, the percentage is 22% (Aakvaag & Bæck, 2024). The fishing industry attracts labor migrants from across Europe, as well as other sectors of the labor market. Regional district policies also play a significant role in the multicultural classrooms of Northern Norway, as rural municipalities host refugee reception centers, creating jobs and income for struggling regions.

Against this backdrop, which provides a brief overview of the diverse classrooms in Northern Norway, we argue that it is essential to prepare students with intercultural competence. This leads us to our research question: How can student practice in Southern Africa contribute to strengthening the professional work of teachers in Northern Norway?

## 2. Theoretical aspects

Jack Mezirow and Albert Bandura, prominent figures in the fields of education and psychology, have both influenced how we understand learning practices and behavior change. Mezirow is best known for his theory of transformative learning, while Bandura is recognized for his work on social learning theory.

The theoretical framework for this study is based on Bandura's theory of self-efficacy. Bandura (1986) argues that through self-reflection, individuals evaluate their experiences and thought processes. They engage in activities, interpret the results of their actions, and use these interpretations to develop beliefs about their ability to succeed in similar domains. The reflective and critical aspects of teaching abroad are essential components of students' learning processes, as highlighted by Klein

and Wikan (2019). They emphasize that conceptualization, reflection on learning, and cultural diversity, as well as the processes of briefing and debriefing after teaching experiences, are crucial for personal and professional development.

We also draw on Jack Mezirow's transformative learning theory (Mezirow, 2006). This theory focuses on how individuals construct meaning from their experiences, which are shaped by cultural backgrounds and language. These factors influence worldviews through what Mezirow terms "frames of reference." Within this framework, he identifies two key aspects: (a) habits of mind and (b) points of view. Habits of mind encompass ingrained inclinations and perceptions formed during upbringing, which affect conscious and unconscious thoughts about the environment. Points of view, on the other hand, relate to specific attitudes and values that emerge in particular situations.

When individuals encounter new information that conflicts with their existing frames of reference, they face what Mezirow calls a "disorienting dilemma." This dilemma prompts critical reflection, leading to a reevaluation—and often transformation—of their initial perspectives. Critical reflection and dialogue are essential components of transformative learning. They help learners understand why previously held knowledge may not apply in new contexts and encourage the expansion of conceptual frameworks to include new understandings and practices. This process is particularly relevant in cultural settings where professional practices differ.

Mezirow's concept of critical reflection complements Bandura's notion of self-efficacy. As learners critically reflect on their assumptions and undergo transformation, their enhanced self-efficacy motivates them to implement changes and act based on their new perspectives. Both theories emphasize the importance of learner agency. Mezirow's transformative learning leads to greater personal empowerment, while Bandura's belief in observing others' success fosters confidence in one's own abilities.

## 3. Method

As mentioned earlier, this project is part of a larger initiative, *Teachers in a Globalized World*, involving five teacher education programs in Norway. The ambition is to produce knowledge about the long-term impact of international practicum programs. Our research framework is rooted in the teacher education program at UiT – The Arctic University of Norway. The teachers interviewed in this study all completed their teacher education program at UiT before 2017 and currently hold full-time teaching positions in various schools across Northern Norway.

This study adopts a qualitative approach. We conducted interviews with teachers who had completed practicum experiences in Southern Africa during their teacher training. To identify participants, we reviewed records of students who had participated in practicum abroad in Southern Africa prior to 2018. From this list, we contacted a random sample and received positive responses from five individuals, all of whom are now working as teachers. The interviews were conducted digitally via Teams in the fall of 2022, with each session lasting 1–1.5 hours.

We asked participants to describe what they considered the most significant outcomes of their practicum abroad. Specifically, we inquired whether their practicum influenced their teaching of global issues and cultural diversity, and whether it changed their approach to becoming professional teachers. Participants were also asked to provide examples of episodes during their practicum that they felt were pivotal to their development as teachers. Ethical considerations were addressed and approved by the Norwegian Agency for Shared Services in Education and Research (SIKT, 2024).

Using Bandura's theory of self-efficacy and Mezirow's transformative learning theory as our conceptual framework, we analyzed the teachers' reflections on their experiences. Bandura (1986) emphasizes that self-reflection enables individuals to evaluate their experiences and develop beliefs about their capabilities. Mezirow's transformative learning theory highlights how adults experience fundamental changes in their worldview through critical reflection on disorienting dilemmas.

Together, these theories provide a lens for understanding the transformative and empowering aspects of international practicum experiences.

We employed an inductive-abductive method to analyze the material (Coffey & Atkinson, 1996). According to Timmermans and Tavory (2012), an abductive analysis approach aims to generate creative and novel theoretical insights through a dialectical process between theory and methodological heuristics. In our material, descriptions of mastery were interpreted through Bandura's concept of self-efficacy, while transformative aspects were analyzed using Mezirow's framework.

While the small sample size limits the generalizability of our findings, the study offers valuable insights into the field of internationalization in teacher education programs—particularly regarding the added value this type of practice can bring to the profession. Internationalization fosters cross-cultural competence, adaptability, and a deeper understanding of global educational challenges, all of which are essential for preparing teachers to navigate increasingly diverse classrooms. By engaging in such programs, future educators are exposed to alternative pedagogical approaches, diverse cultural contexts, and the opportunity to critically reflect on their own teaching practices.

Our long-standing involvement in student exchange programs to Southern Africa further informs our perspective. This experience has provided us with a rich understanding of the transformative potential of such exchanges, both for students and for the communities they engage with. However, we also recognize that our sustained engagement in this region may shape our approach to the students and the lens through which we analyze our material. For instance, our familiarity with the context may lead us to emphasize certain aspects of the exchange experience while inadvertently overlooking others.

Moreover, the power dynamics inherent in international exchange programs—such as the relationship between sending and receiving institutions or the socio-economic disparities between participants—must also be critically examined. These dynamics can influence not only the outcomes of the exchange but also the narratives we construct about its impact. By reflecting on these complexities, we aim to provide a more nuanced understanding of how internationalization can contribute to teacher education while remaining mindful of the ethical and contextual considerations that accompany such initiatives.

## 4. Findings & discussion

When interviewing the teachers, we asked them to identify specific episodes during their practicum abroad that they felt had changed their attitudes toward being a teacher. We aimed to map out what Mezirow calls a "disorienting dilemma," a process in which individuals encounter new information that conflicts with their existing frames of reference.

When faced with new and unfamiliar situations, individuals must adjust their perceptions—their "frames of reference." These experiences often lead to changes in preferences and curiosity about new issues and phenomena. The informants shared several examples of such situations. One teacher described:

> «I remember the first time the teacher just left me in the classroom with the learners. They went mad. I remember I ended up locking the door, standing in front of it, and yelling, 'NO!' After that, it gradually got better. I started to think about how to reach them and communicate with them. It wasn't the last time she left me alone with them [laughter]. I remember it was a culture shock. But something about that experience made me a better teacher».

Other informants shared similar experiences. One teacher reflected on how she struggled with a challenging class (as described by the local teacher) and how the experience gave her the courage to

"go fearlessly into unfamiliar situations." Another informant described how the practicum group encountered challenges in addressing the special needs of some learners. They realized they needed more theoretical knowledge, as one participant explained:

«I remember we talked about how we wished we had paid more attention to the professor back home when we had that subject, or that we had a book that could help us out. We wanted desperately to learn more to understand how to help them».

The informant further reflected on their lack of competence at the time but concluded that they had done their best. They adapted their lesson plans and experimented with different teaching methods. As one participant put it: "We learned so much by working like that."

### 4.1 Mastering the Role of a Teacher

Several teachers recalled the conditions in the classrooms, noting how language barriers and a lack of equipment initially made teaching difficult. However, overcoming these challenges also made them more resilient as teachers. One teacher remarked:

«I remember thinking, if we can stand in front of 40–50 learners in a tiny room and teach in Africa, then we can manage anything [as teachers]. Teaching 20–25 learners in Norway would be no problem in comparison. [The practicum in Africa] made us robust as teachers. We mastered it, and we quickly realized we had to perform, think fast, and be creative».

Another teacher described how the experience made him more professionally conscious:

«I remember I became more aware of my role as a teacher. I remember [they told us] that, on average, there is one teacher per 57 learners in Africa. Classroom management was completely different because of the conditions. When you don't have learning materials, you have to create your own, which makes you more conscious about planning and reflecting on your teaching».

One teacher also reflected on how the practicum experience enhanced his professional awareness, including his appearance and work ethic:

«I grew so much [professionally] from the challenge [of being in practice]. Expecting to dress professionally in a shirt and nice pants, and having to submit a handwritten, detailed plan for your teaching to the vice principal every morning [did something to my professional understanding] ».

According to Bandura (1997), overcoming struggles can create a positive feedback loop. Experiencing a sense of accomplishment builds a foundation for self-efficacy in future situations. Reflecting on their experiences, several teachers noted that while the practicum was challenging, it heightened their professional awareness and understanding of the broader aspects of teaching. One teacher highlighted the importance of empathy:

«Maybe we didn't learn as much new subject content in terms of didactics and pedagogy, but we became more professional as teachers. We understood the importance of empathy—how to be a fellow human being—and how essential these qualities are for being a good teacher».

### 4.2 How Does the Practicum Experience Influence Teachers' Professional Practice Today?

All the informants emphasized how their practicum experiences in Southern Africa gave them a more "global" perspective in their roles as teachers. Some noted that seeing themselves and their own culture from a different perspective deepened their understanding of cultural diversity. One teacher explained:

«I feel the experience gave me knowledge about how to teach in a diverse classroom, and, more importantly, about diversity in different cultures. We have learners from other cultures in my classroom, or learners who have Norwegian as a second language. Having the knowledge to understand that, okay, these parents raise their children differently than I'm used to because they come from a different culture—that understanding came from being in practice in a different culture. [As a teacher], trying to respect different cultural frameworks, I now look at children differently than I did before the practicum».

This teacher's reflection illustrates how teaching in another cultural context initiated what Mezirow calls transformative processes, involving critical reflection and changes in practice. Another teacher expressed a similar sentiment:

«The experience had an impact on me as a teacher. I think, in general, the education didn't prepare me enough to become a teacher, but that practicum experience gave me an opportunity to reflect at the highest level about my professional attitudes and values».

Since all the informants worked in schools in Northern Norway, where cultural diversity is relatively high, the ability to understand different cultural frameworks was considered essential. One teacher described cultural diversity as a resource for teaching:

«I find cultural differences resourceful, and then it's about how you teach about it [cultural differences]. I use my experience teaching social science, and we focus on relevant subjects. I can use my experience [from the practicum in Southern Africa] as a resource. The [experience] has shaped me as a teacher in the way I meet learners from different cultures».

The teachers also used various resources from their practicum in Southern Africa in their classrooms, including photos, videos, stories, and extended knowledge about the region. One teacher shared:

«I still think a lot about the experience from being there [in Southern Africa]. I talk about it a lot and share it with my learners. We made a video during the practicum to show the other students when we returned home. I've shown that video to all my learners. I remember one class in particular—they wanted to see it over and over».

## 4.3 Being a Global Teacher in a Rural Context

In this study, we initially asked how student practice in Southern Africa could contribute to strengthening the professional work of teachers in Northern Norway. Our findings suggest that the diversity in Northern Norway requires an adapted approach to intercultural competence. Much of the research on multicultural encounters in Norwegian schools focuses on refugee and asylum-seeker immigration in southern Norway, where the population is larger, and infrastructure is better equipped to support immigrants. However, the diversity in Northern Norway is more complex, involving indigenous Sami and Kven populations alongside labor migrants and refugees.
As cultural diversity continues to grow in Northern Norway, the need for teachers with intercultural competence becomes increasingly critical. The insights gained from international practicum experiences provide valuable resources for teachers, enabling them to create inclusive and empathetic learning environments that respect and celebrate diversity. In conclusion, international practicum programs within teacher education play a vital role in preparing teachers to meet the demands of a globalized world. By fostering transformative learning and enhancing self-efficacy, these experiences contribute to the development of teachers who are not only skilled in their craft but also attuned to the cultural nuances of their students. This enriches education in Northern Norway and beyond.

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# Educating on complexity at the time of transitions

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## Abstract

The complexity today requires a rethinking of the governance models of work organizations, including the school environment. Learning in all phases of life is now strongly connected to needs that change unpredictably and precisely and for this reason require development and adaptability skills to a world of emergencies that generate learning, development and transformation.

Growing in complexity determines that even formal learning, of a scholastic nature, must change to educate young generations to the challenges of our time through an environment and a culture that lead them to learn how to grow.

It becomes strategic to create a "team to innovate" by shifting the attention from the stable rigid structures of the Team and in this sense, school activities, lead by tutor, teachers and coaches, become places of informal learning and Transformative Learning.

**Keywords:** complexity; transformation; innovation; tutor; coach.

# 1. The influence of the complexity on the Organizations

The society of the 21st century is mainly characterized by an aspect that can be found in all sectors: the change.

Otto Scharmer (2018, p. 21) identifies the change as a point of no return that our society have to face, highlighting how change now belongs to the person's being and for this reason it is necessary to understand it through a flexible approach to mutation of the systems, as well as of the structures, that have governed society and its organizations over the last century.

In this sense, Scharmer invites us to reflect on the fact that it is no longer possible to face and see life with the eyes of an "ego-systemic awareness" but rather an "eco-systemic" one, capable of taking charge of everyone's well-being. (ivi, p. 23).

This complexity, which influences action, also and above all, modifies and transforms the nature and needs of learning.

And if in the twentieth century the dominant model of organizations, at work as well as at school, was a Top-down model, now, in this epochal change, in relationships and with an environment increasingly influenced by globalization and technologies, a Bottom-Up approach is increasingly making its way in which informal and non-formal learning and soft skills play an increasingly important role. (Watkins, Marsick, 2023).

In fact, transversal skills allow us to deal with the complexity and ambiguity that characterizes our time, since systems, structures and organizations could hardly carry out long-term planning, as happened in the twentieth century.

Educating on complexity through soft skills is not only a necessity of the present, but also a preparation for the future. Skills such as effective communication, critical thinking, creativity, collaboration, time management and emotional intelligence are, in fact, crucial transversal skills for adapting to changes, but also the ability to work with others, the ability of problem solving and Leadership (Marsick, Spennati 2024).

This awareness must lead us to accept the fact that in our time we must not learn only through the structures coming from past experiences, but also by actualizing emerging possibilities (Scharmer, 2018, p.30).

Crossing that threshold, Scharmer argues, means being willing to let go, letting go old patterns, assumptions, and even letting go our old ego-self. Only then, it is possible to enter into our latent potential, our "emerging Self" (Scharmer, 2018, p.84).

From a more strictly pedagogical point of view, all of this is possible if our being a person is part of a systemic relationship with others. This is not an easy aim to achieve without intentional accompaniment because, as Mowles claims, " we live I highly individualized times where we are encouraged to think of ourselves as separate and closed off from others. There has been a dramatic falling away of membership of and identification with collectivities such as trade unions, community groups and voluntary associations in the last 30 years or so (Mowles, 2022, p. 39).

On the other side, the challenges that the person faces, following the transformation of society, determine new ways of learning in changing situations dominated by complexity.

Learning, therefore, is also strongly linked to the time of emergency defined with the acronym VUCA: Volatile, uncertain, complex and ambiguous (Edmondson, 2012).

The past, which remains part of our cultural baggage and experiences, and which until now has determined our future actions, must be questioned through attitudes of discovery and research, in order to be able to readjust it in a continuously changing context and make so that action can be appropriate to the circumstances.

As Friedman (2016) points out, in order to survive this new mode of organization, the rate of learning must equal or exceed the rate of change.

For this reason, the need for an investment in informal and incidental learning is affirmed that it must not replace formal learning but it can expand it by looking beyond the boundary that was previously considered useful for the purposes of understanding one's own actions.

The 21st century will be therefore, increasingly, characterized by the need to change the governance models of organizations.

Working in complexity determines, then, that formal learning must also change to educate people about the challenges of our time, through an environment and a culture that lead them to learn how to grow (Marsick, Spennati, 2024).

Marsick and Watkins (2023) use the pandemic experience to demonstrate how, in a short time, the pre-Covid normality has been eliminated and how the "new normality" is radically different from how each of us used to live before. More than ever, we have come to terms with the three key forces that characterize our society: interdependence, speed and complexity itself.

Interdependence strengthens networks, communities of practice and collective approaches.

Speed shortens the time for learning, also emphasizing micro learning or experiential learning.

Complexity is everywhere and is determined by factors such as: the number of information contained or the number of components in the system, interconnections and non-linearity which is the key to complexity.

Therefore, if in the twentieth century Learning and Development originated in certainties, in good practices and in training to acquire new knowledge, through successful Top-down learning controlled by winning models, complexity revolutionizes these schemes and rather puts Bottom Up learning in the foreground which favors models driven by the passion and objectives of the learner.

As Watkins and Marsick (2023) argue, if in the past the synthesis of the learning phases could be recognized in the acronym ADDIE (Analysis, Design, Development, Implementation and Evaluation), the present and the future focus, instead, and much more, on design thinking, on creativity, on the creation of knowledge and innovations.

Learning and its development become much more effective if people learn and build patterns of meaning through interaction with others and with the stimuli of situations.

Behaviors adapt to changing situations and these will emerge if you are supported to do so.

In this sense, teachers are asked to promote the seven dimensions that Watkins and Marsick list (2023) in a new learning model that refer to necessity:

- to create learning opportunities;
- to promote dialogue;
- to encourage collaboration and group learning;
- to encourage a collective vision in people;
- to create systems to capture and share learning;
- to create systemic connections with the environment;
- to provide strategic leadership for learning.

In a learning situation, Watkins and Marsick suggest, for this reason, to include the following phases:

- diagnose the situation;
- create a desired change;
- build a path along a vision;
- give life to collaborative experiments;
- generate learning to produce changes, control results and produce new experiments  through a cooperative model between all interested parties.

## 2. The need of a new way of teaching

At school, as well as in the workplace, it becomes strategic to create Teams to innovate.

So far, especially during school hours, Teams have been seen with clear boundaries, common objectives and collective responsibility for results.

However, complexity changes the image of the Teams, how they work and all the conditions linked to the new thinking of learning of the Team itself.

The attention shifts from the rigid and stable structures of the Team (passive concept) to the active concept introduced by Edmondson (2013) of Teaming, that is, teaming up (different roles and people who, regardless of the hierarchy, introduce something new).

The success of these teams depends on each person's learning ability, therefore on the ability to adapt quickly and efficiently to new knowledge.

In the absence of past experience and knowledge, Teams needs learning to acquire answer and manage opportunities. All of this, through conversation that brings out different visions and integrated perspectives. Through the results, new perspectives, new approaches, new behaviors and initiatives are created.

In this sense, the school experience itself becomes a place of informal learning, unlike what happened in the past, when it was possible to distinguish certain, routine and formal learning from informal and non-formal learning.

Overcoming the transmission of knowledge in teaching, in the era of transitions, where complexity becomes a determining part of the life of each person who learns, it must therefore lead to a new conception of knowledge.

Observing the learning method in the school context during the 20th century, the teacher's skill was evaluated through the broad and in-depth mastery of the knowledge to be taught, but with the advent of scientific and technological progress, knowledge quickly becomes obsolete.

It is necessary, therefore, to go beyond the challenge of simply transmitting knowledge, especially because it becomes a waste of time for students, compared to the challenges that young generations will be called upon to face in all fields of their adult lives.

For this reason, the importance of integrating disciplinary mastery (which obviously remains central) with the addition of pedagogical preparation (which transforms the learning of knowledge into skills and competences) is fundamental for the teacher (Spennati 2023).

Therefore, to the teacher of the third millennium will be asked to do much more than prepare disciplinary lessons, perhaps carried out alone, to fulfill the program, albeit with competence.

As Bertagna and Magni (2022) highlight, this situation requires a new magisterial nature in the dynamics of school teaching-learning. A magisterial nature that must also contribute to reversing the trend of school failure through the personalization of the paths.

A magisterial nature that therefore becomes pedagogical, because it enhances the personal relationship between teacher and student and that refers directly to a need for personalization of learning paths, in order to enhance the student for what he or she really is and at the same time, ensuring that the student can recognize in the school and in the teacher the recipients of his or her questions, his or her curiosities, his or her disorienting dilemmas. (Spennati 2023).

All this together with the enhancement of the context and times for learning, in order also to allow the acquisition of more complex skills.

Through the personalization of the paths we can also face, with greater awareness, the time of transitions dominated by complexity, which influences the learning method inherited from the last century. Thus contributing, in the school context, to go beyond a rigid, uniform and even standardized learning organization that has seen its realization in all levels of school, from primary to secondary school up to today, but that, compared to the 21st century, is no longer able to answer to the needs of the person in the learning phase, precisely because of the change in the learning method and consequently of being a person in a community context.

Educating on complexity in times of transitions means, therefore, that the school Organization, like all work Organizations, must build a learning that can be continuous, encouraging autonomous and therefore informal learning, giving life to skills and competences and not just to knowledge.

A learning, therefore, that can be generative, and that can therefore allow us to understand complex situations and answer to disorienting dilemmas.

«[...] changing economic and social conditions demand that adults continue to learn in order to keep up with rapid changes in our professions and our adult roles in this fluid environment» (Marsick in Spennati 2020, p. 5).

But even in the school context it is necessary to rethink that learning should not remain only a notional or conclusive aspect of a path, but instead be the tool that allows us to continue learning and understanding.

It is therefore possible to face the time of transitions, dominated by complexity, with a strong participation of people (of all ages, Marsick speaks about adults in the work Organizations, Bertagna

and Magni about students in the school Organization) where by reflecting critically and continuously on one's own experiences and valorizing one's own critical issues and curiosities, one can arrive at answering the questions of the complex society.

In particular, it is desirable that teachers increasingly encourage informal learning, which determines incidental learning, through the methodological practices of Action Learning (Marsick in Marsick, Watkins, Spennati, Lorusso, 2019) and Action Science (Watkins in Marsick, Watkins, Spennati, Lorusso, 2019), which lead to the transformation of the person, through an involvement of the person's own meaning schemes.

Therefore teachers are called to give life to a transformative type of learning, through questioning their own knowledge, "reskilling" and therefore building new meaning schemes that derive from the new perspectives of meaning generated by peer comparison.

In the Action Learning methodology, the figure of the coach (which in the school situation may coincide with the teacher) is fundamental. The coach guides the group in diagnosing the situation, creating a vision, encouraging highly collaborative situations, recording the changes of the subjects that make up the group and creating new experiments.

According to Gibson (2012) the coach's intervention in the group dynamics leads participants to behave differently from how they normally act in the organization, and above all encourages the individual to seek solutions to the problem or problems in the group and no longer alone.

For this to happen, the coach must create a positive environment in order to allow the members of the group to feel at ease as much as possible. The coach can encourage all of this, both through his free initiative and intuition, but also by receiving feedback from the members of the group.

According to O'Neil and Marsick (2007), if the coach manages to create these positive situations, this also allows the group to learn how to learn. The Coach's attitude must therefore always be maieutic, in the sense that rather than intervening and giving answers, within the group, he dedicates himself to asking questions.

The Coach can coincide with the "tutor teacher" who, as Bertagna indicates, must be a:

> «peak performance coach, who is able to promote and control step by step the student's learning and actions in the most different learning environments available, from real to digital (coaching); to break down the expected skills into a series of tasks shared with him (shaping); to provide or find someone who provides exemplary models of action (modelling) to promote them; to direct and support the cognitive and metacognitive processes (scaffolding) activated by these experiences; to identify the set of adaptive mechanisms put in place by the student to deal with emotional and interpersonal problems, manage, reduce or tolerate stress and conflict (coping) to progressively reduce the expert's help (fading) making the student increasingly autonomous ... a new professionalism that must become central» (Bertagna, 2020, p.229).

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# Collaborative and epistemic advances: a study on teacher agency

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## Abstract

Teacher collaborative skills recall more than a joint collection of individual performances. The research aims to explore teacher agency in two work groups of teachers involved in collaborative and problem solving tasks. A multi-method approach was selected. The case study explores the teachers' interactions in co-building of shared knowledge objects, while following focus groups lead us to describe the teacher agency. To deepen the shared knowledge processes, the study took advantage from a reflective and meta-cognitive key by interviews, in order to weigh the value of the collaborative experience. The results help to lead out new criteria to develop collaborative and working-group methods, and inform training policies how to better qualifying teacher education curricola.

**Keywords:** teacher agency; collaborative skills; collaborative groups; teacher education; epistemic agency.

## 1. Introduction

For decades, education and training policies have been calling for the centrality of the teaching role in improving students' outcomes, focusing the importance of professional collaboration in knowledge advancement and learning environments adjustment.

Among the objectives described by the UNESCO document on Life Comp (Scott, 2015), the competence referred to "learning to know" calls upon the teaching professionalism to commit to both acquiring new knowledge and developing other more performative ones, in a continuous state of cognitive evaluation-revision-reconstruction. Processes of this kind require a change of mentality in the way of "looking" at knowledge, which implies the ability to read social conditions and resources such as collaborative ones as concrete opportunities to be exploited to knowledge expanding, to innovate and transform educational contexts (Mezirow, 1991).

In scientific literature the active contributions of teachers on student learning assumed increasing importance: that concerns not only their competence to design and develop instructional settings, but also organizational and school management too: so, the collaboration between teachers involved becomes crucial to affect productive school performances. The continuing professional development (CPD) of teachers must address and integrate «both individual and organizational development. It will need to build individual learning, but also collaborative learning as teachers move forward together to develop their communities of practice» (Bull & Gilbert, 2012 in Scott, 2015, p.15). This statement emphasizes how is important strengthening teachers' capacity for and awareness of their own learning. Teaching should be professionalized as a collaborative effort in which teachers are recognized for their work as producers of knowledge and key figures in educational and social transformation. Collaboration and team work should characterize teachers' activities (*ibidem*, 2015).

Regarding the correlation between collaborative activities and training effectiveness, both the 2018 TALIS results and the scientific literature agree in identifying how some collaborative forms of CPD, such as peer learning (Kraft, Blazar & Hogan, 2018) and participation in professional networks (Paniagua & Istance, 2018) have more incisive and long-lasting effects on the change of teaching practices than more traditional training/updating activities, such as participation in courses or seminars. Considering the importance of diversifying opportunities for discussion and exchange of ideas in productive interaction (Jensen *et al.*, 2016), it would be necessary to invest in the creation of new education and training options capable of giving new structure to collaboration in a professionalizing sense, also through their integration within traditional formal paths.

## 2. The study

The first step of the study required a scientific literature review to identify the theoretical framework. We investigate the concept of teacher agency (TA), which defines the teacher's action endowed with intentionality and aimed to achieving personally chosen objectives (Bandura, 2018).

Recent studies indicate that simply bringing people together in groups and giving them tasks, or pooling a group's knowledge, are necessary but not sufficient conditions for productive collaboration (Barron, 2000, 2003; Perkins, 2003; Salas, Sims, & Burke, 2005; Scardamalia & Bereiter, 1991). Creating the premises for collaboration that brings about both the production of new knowledge objects and the advancement of individual knowledge necessities more than just individual performance of assigned collaborative tasks (Damşa *et al*., 2010, p.145). The knowledge objects that emerge from collaborative practices, understood as products of collaborative agency, would be capable of point at the advancement of knowledge that is progressively structured in the shared interaction.

This paper aims to present a study on collaborative teacher agency, to describe its ability to support the knowledge creation and the development of group learning processes. The identification of the conceptual framework of agency and teacher agency (TA) in a socio-cultural perspective (Biesta & Tedder, 2007; Emirbayer & Mische, 1998; Priestley, Biesta & Robinson, 2015), has allowed us to outline the construct of epistemic agency and shared epistemic agency. Epistemic agency refers to the action directed at increasing in knowledge: in the research project design, it is understood both as a

self-activation of knowledge and as a production of new knowledge (Heikkilä *et al*., 2023). Shared epistemic agency refers to the knowledge creation that develops within actions focused on collaboration and sharing among participants in team working. The research project design therefore postulates that the teacher's ability to provide a shared epistemic agency in interaction contexts appears positively correlated with better cognitive and collaborative performances addressed at solving practical questions at work.

The research aims to investigate collaborative agency and shared epistemic agency of special needs teachers involved in the initial education and training course TFA at the University of Trieste. From a preliminary survey realized on these students, it was highlighted that only a part of them declare to dedicate time to discussion and collegial collaboration to deal with complex situations at school, both in relation to specific work activity and in reference to other roles or functions covered in the school organization. The aim of the research concerns the identification of the characteristics of teacher agency useful for the project design of shared and collaborative experiences to improve teacher initial education and training. This allows us to hypothesize and look out a sustainable change within practices and their contents, and in CPD throughout the whole professional career, in accordance with the paradigm of lifelong learning.

The goals of the survey specifically concern two operational objectives: i. to explore and describe the characteristics of the shared epistemic agency that teachers put into play while interacting in facing a task in problem solving mode; ii. to explain and deepen the meaning of the collaborative actions undertaken, which teachers attribute to emerging group practices. The empirical investigation employed a qualitative multi-method (Trinchero & Robasto, 2019). The socio-constructivism learning framework recalls the concept of learning community (Hord, 2004), since it considers the advancement of knowledge as a progressive acquisition of learning that arises from mutual contributions. Knowledge objects, understood as cognitive artefacts (or ideas) elaborated in group's interaction, conceptually and operationally actualize collaborative efforts. They allow participants to remain anchored to the objective and constantly involved to its achievement, focus them on the creation and structuring of ideas and influence participation, involvement and regulation of shared collaborative efforts (Damşa *et al*., 2010). Therefore, the shared knowledge objects represent the concrete products that arise from collaborative learning.

The survey method therefore includes both the analysis of the ideas created by the group, understood as knowledge objects, and that of the verbal interactions that occurred between participants to find agreements or develop work directions, with the aim of observing the collaborative ways and dynamics within which these objects progressively develop. Further levels of study aim to notice the perception of the teachers involved on the quality of the collaborative work carried out, in relation to the products processed, and to deepen its effectiveness in a reflective way.

## 3. The research project design

The qualitative survey expected multiple tools, methods and data collection activities (Fig.1). The case study involved two groups of teachers, who differ in their previous work experience at school (with/without experience). An instructional project design task in a problem-solving manner was given to them. Each group of teachers received the request to imagine and develop an educational experience for high school students, including those with special educational needs, based on the discovering and valorization of a modern art museum resources. The task is formulated into multiple intermediate steps (hypothesis; analysis of the idea and its applicability; design/planning of the educational proposal to solve the task). These steps affect the supporting of the creation, in the group, of shared knowledge objects which teachers elaborate in verbal interactions. As intermediate or final products of group work, these shared knowledge objects will constitute the significant units for data analysis, with the double value of supporting participation and collective negotiation, as well as stimulating their creative potential.

The case study is followed by the teachers' elaboration of a group self-assessment report on the activity carried out, which allows for the collect of information about the aspects that they consider important, and on the ways in which they perceive and attribute value to the shared epistemic agency.

The final moments of the investigation have expected the use of the focus group practice, supported by semi-structured interviews, which introduced the participants to the in-depth analysis of the collaborative actions undertaken, facilitating them in observing the phenomenon in a multi-perspective mode (Speer *et al.*, 1992) in order to rethink the experience carried out in a reflective manner (Schön, 1993).
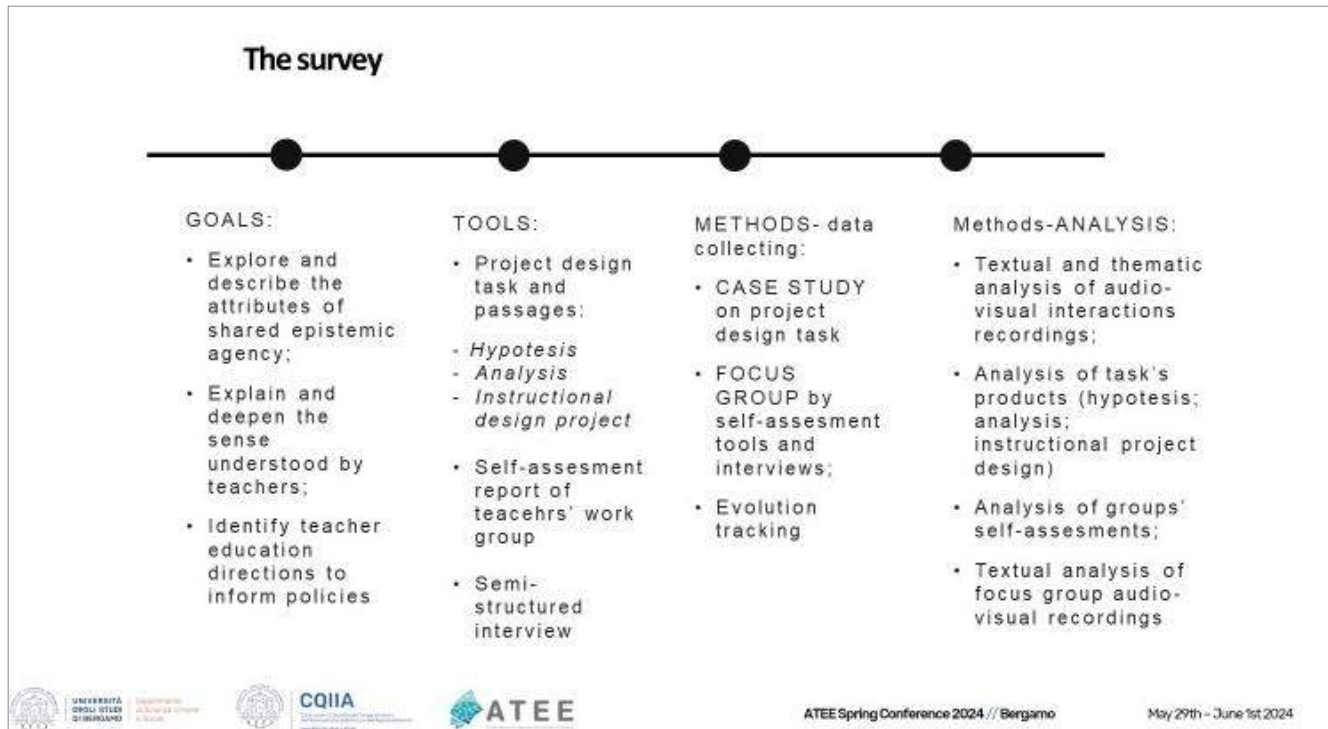


*Figure 1: The research project design.*

The research methodology expected a preliminary check of the participants' acquisition of instructional project design skills, carried out within the initial education and training courses for special needs teachers-TFA. The limits of the research concern those related to the selection of the sample (volunteer), which reduces the level of representativeness of the qualitative study, both in the context of the teacher education and training, and in reference to the all of teacher population. With the multi-method approach, the descriptive intent of the research prevailed over the exploratory one: the tools selected by the researcher tended to investigate by an in-depth analysis the teacher agency, gradually compressing the focus on the reading and reflexive understanding of the experience. Even the identification of preliminary conceptual categories (Damşa *et al.*, 2010) for the case study has in fact limited the field of analysis in terms of their description: by reducing the possibility of identifying new categories in addition to those represented, the selected significant units respect an idiographic intent rather than a qualitative-informative one.

The conceptual categories assumed as reference for the study are those connected to epistemic agency, constituted by epistemic intentional actions, as the follows:

- actions of information gathering and declarative knowledge: its concerns the exploration and searching for sources and materials as a starting point for the creation of new ideas;
- actions aimed at sharing and negotiating ideas: from the exchange and comparison of opinions a shared conceptual structure is composed which acts as a common basis for undertaking further cognitive efforts;
- actions of active participation in epistemic creation: its consists in the creative production of new ideas.

The regulative agency instead indicates the actions that guide and support the processes of epistemic advancement, such as:

- projective actions, which look at the perspective of future opportunities, and look at the choice of objectives for the project development;
- actions of control and monitoring of the progress of activities, and those used to overcome obstacles;
- actions aimed at the care and maintenance of relationships that support the group in the management and resolution of procedural obstacles.

## 4. First findings

From the findings of the multi-method survey, we observe that the professional experience of the teachers involved does not influence the characteristics of the collaborative agency expressed in the group work, nor their quality. However, it emerges that some socio-relational aspects, such as familiarity and the degree of confidence between the participants, play an inclusive role in fostering the collaborative interactions of the participants of both groups, simplifying their common work, as indicated by an extract recording of the case study:

> «X, mi dispiace, non c'è mai stata occasione, durante il corso, di interagire. E invece con Y e Z siamo molto affiatati. Dai viaggi in treno a, proprio, le relazioni durante il corso, *e questo probabilmente ci faciliterà anche nel fare* [...]. Questo pomeriggio, invece, X, ci conosciamo e spero che, tanto quanto siamo affiatati con Y, lo saremo anche con te, ecco. *Sicuramente il proposito è buono e di più*»

> «X, I'm sorry, there was never a chance, during the course, to interact each other. Instead, with Y and Z, we are very close. From the train rides to, indeed, the relationships during the course, *and this will probably also make it easier for us to do* [...]. This afternoon, instead, X, we get to know each other and I hope that, as close as we are with Y, we will also be with you, that's it. *Surely the intention is good, and more*»

The level of familiarity given by the previous connection between the participants, and the disposition based on the willingness to be involved in the task assigned, become elements capable of influencing the productive collaborative interaction for the resolution of the problem solving task, as also demonstrated by the analysis of the knowledge objects produced, which are richer in the ideational proposals and more articulated in the explanation of the project design planning.

Within the epistemic agency, also called *collaborative agency with focus on knowledge* (Fig.2), the first findings refer to the importance of relational practices that support collaborative learning for the creation of knowledge and for its advancement, benefiting then from the comparison and negotiation between diversified reciprocal contributions. It is necessary, however, to point out a certain lack, in the two groups, of collaborative actions systematically pointed towards at the knowledge increase, while there is greater awareness of the importance of acting jointly in order to solve the problem solving task. The hypothesis is that this result may refer to the lack of specific professional collaborative experience, related to the structural lack of initial education and training activities systematically addressed at its development (Fig.2).

The regulative agency or *collaborative agency with focus on the processes* observed in the two groups tends to express a way of progress forward that is based on the composition of a "fusion of perspectives" between participants. Strongly characterized by socio-relational components such as inclusive willingness, propensity to agree, and use of narrative strategies for sharing experiences, the regulative action of the two groups appears to be aimed at creating an "empathic proximity" capable of facilitating procedural steps, supporting productive comparison and simplifying the overall work. The preference given by the groups to take care of the regulation of socio-relational dynamics, however, leaves the final quality of the shared knowledge objects unchanged. These results should be correlated to the concept of team entitativity, which underlines how groups vary in relation to the degree of entitativity gathered, referred to the psychological cohesion that is established in social

groups which, in relation to the tasks assigned, determines substantial differences in collective performance (Meneses *et al.*, 2008, p.498).



*Figure 2: First findings in epistemic agency and regulative agency.*

## 5. Conclusions

The results of the study reveal that social-relational skills are strongly correlated with professional collaborative competence, but they do not prove to be predictive of greater quality in the advancement of knowledge directed to solving problems. This leads to the importance of the appointment, within the initial teacher education and training, to professional induction and CPD, both in forms and ways of collaborative learning and in epistemic skills.
In educational settings' design, epistemic advancement should be linked to the following criteria:

- take control over the collection and clarification of information and ideas to better qualifying epistemic advance;
- take collective responsibility towards the effective creation of knowledge;
- take care of decision-making processes.

Into the regulative agency, it becomes necessary to support the control of procedures through the acquisition of logical structures and positive behaviors for the management of collaborative interaction processes, as well as in the planning setting. It thus becomes necessary to provide joint opportunities assigned to establishing concrete references to guide operational and reflective behaviors, the latter aimed at systematically questioning ideas and hypotheses to qualify the evaluation of their necessity and relevance, supporting decision-making processes.
Teacher education and training should know new solutions centered on collaborative practices, linked to other active and heuristic ones (inquiry education; research skills; collaborative problem solving tasks). Teacher induction could benefit from peer-tutoring methods on epistemic and regulative collaborative processes, while traditional collegial contexts could turn in a collaborative-agentive direction to support CPD.

In the field of teacher education, the results show how teachers need to acquire pedagogical and professional awareness of the value of collaborative practices, which are implicit and/or unrecognized in their potential for strategic and professional growth. The development of shared epistemic agency is related to the choice and progressive creation of personal fulfillment goals (Sen, 2000). Their conversion into practices displays the transformation of teacher agency. That is, the choice of what really matters to the teachers becomes an essential condition for giving meaning to actions aimed at the development of self-fulfillment paths in a human agency sense (*ibidem*, 2000). This allows us to look at teachers as "change agents" in work contexts for their commitment to the creation and transformation of actions in a bottom-up way, which aspire influence contexts and the educational system as a whole. The sense of collaborative and epistemic agency, supporting the rethinking of teacher work and professionalism, thus becomes a key reason for the achievement of a personal and social emancipation in school context in a sustainable and pedagogical direction.

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# Global Teachers and Practicum in the Global South. A study of Long-Term Impact of International Practicum in Namibia

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## Abstract

This paper analyses the long-term impact of an international practicum in Namibia. By surveying teachers who participated in international practicum during their initial teacher education to find possible impact on the personal and professional development. We find that for most, their experience increased their self-esteem, helped them to become creative and flexible as teachers and made them focus on global issues, poverty, and Africa in general in their teaching. The practicum experience in Namibia thought most of the participants to be more open to differences, see the complexity in the people they meet, and be more cautious with stereotypes.3 spaces after the abstract.

**Keywords:** teacher education; international practicum; long-term effects; Namibia.

# 1. Introduction

This paper analyses the long-term impact of an international practicum programme for student teachers in Namibia.

Increased cultural diversity in Norwegian schools has forced the traditionally nationally oriented teacher education programs to include a more international and global focus in the curriculum. This is reflected in the new curriculum for teacher education and for primary and secondary schools (Wikan & Klein, 2017). The new curricula focus on global issues, democracy, sustainable development, and intercultural understanding. In addition to the increased global focus, international student mobility is being encouraged. University of Inland Norway has been running an international practicum programme in Namibia for more than 25 years. The rationale for his is that exposure to teaching and living in another country gives the students substantial knowledge, along with the lived experience of another culture as well as experience of education in an unfamiliar context. This might lead to a consciousness of other perspectives and recognition of multiple realities. The objective is to examine how the participants view the value of the experience they gained during their participation in international practicum for their work as teachers in diverse classrooms.

# 2. Theoretical and Empirical Perspectives

The potential transformative power of being part of an international practicum program is based on Mezirow's study of adult learning (2018). Adult learning involves a change in meaning perspectives, which are defined as "broad sets of predispositions resulting from psychocultural assumptions that form an individual's worldview". Dramatic changes in culture, affective learning, relationships, as well as collaboration with others might induce transformative learning. To learn to be mindful of other people and open to diversity implies recognition and experience of otherness. The culture shock that many will experience may catalyse a change in frames of reference, which again might lead to increased cultural competence as defined by Deardorff (2006). The experience of otherness is an important aspect of becoming more interculturally competent (Abdallah-Pretceille, 2006). Hence, living and working in a different culture challenges the perception of oneself, of others, and of the home culture and country. This is a prerequisite in the transformative learning theory and students may develop "perspective consciousness" that helps them understand other cultures and conflicting viewpoints (Stachowski & Sparks, 2007).

There is a plethora of research on the short-term impact of international practicum. Most conclude that student teachers who take part in international practicum programs develop a more sophisticated worldview, become more interested in exploring other cultures, increase their self-esteem, experience personal growth, increase their openness and tolerance towards other cultures, gain a greater understanding of global issues, and strengthen their ability as teachers (Cushner & Mahon, 2019; Wiggins et al., 2007). Compared to the richness of studies on the short-term impact, the long-term effects of international practicum are less examined (Fitzgerald & Cooper, 2022; Nunan, 2006). However, the few studies that are conducted find lasting personal and professional impacts for student teachers who did their practicum abroad (Baxter, 2011). On the personal level, they found improved language skills, increased self-esteem, and a greater interest in international affairs. On the professional level, studies found an impact on curricular and instructional practices (Kim, Yun & Sol, 2021; Maynes, Allison & Julien-Schiltz, 2013; Klein & Wikan, 2019).

# 3. Methodology

The research approach is phenomenological, which means that the collection and analysis focus on the informant's perception. "It is assumed that the experiences and knowledge that a person has gained in a particular social context affect his/her way of interpreting and giving meaning to the surrounding world" (Jokikokko, 2005, p. 70). That is, "we are interested in the participants'

interpretation of their experience on their development as a classroom teacher" (Larsen & Searle, 2017, 199).

The main data collection method is a questionnaire with open-ended answers. The participants of study are former student teachers who are now working as teachers. We contacted 35 former students via email and SMS to ask if they were willing to participate in the study. Twelve responded positively, but for various reasons, we only conducted 7 interviews. They had all competed a 3-month practicum in public schools in Namibia. At least 5 years have passed since their graduation. The sample consists of 6 female teachers (FT) and 1 male teacher (MT). This small sample limit the value of the findings.

The questionnaire addresses issues such as professional growth, gaining a global perspective, and intercultural competence. We asked the participants open-ended questions, focusing on professional, personal, intercultural, and global dimensions. The categories are inspired by other empirical studies on the effect of international practicum.

The data is analysed using general inductive approaches. Each participant's response is analysed based on themes deduced from the literature review, so the organization of the material is mainly empirically derived. When analysing the qualitative data, they were initially categorized into the themes of global understanding and intercultural competence. These were further broken down into subcategories of substantive knowledge and new perspectives, as well as the ability to communicate across cultures and personal development. Based on these categories, the analysis was conducted according to the main research question: What has the stay meant for you as a professional today, as well as the sub-questions of teaching about global issues and in multicultural classrooms.

Drawing firm conclusions on the impact of the teachers' former experience in Namibian schools on their present professional development is not possible. The direct impact of this experience might have faded as time has passed and the informants have had other important life experiences. However, Dewey (1938) cited in Baxter 2011, p.27 says, "the quality of an experience is in its 'influence upon later experiences'". Given the distance in culture from their former experience it is plausible to infer that the stay in Namibia was an experience that might have had an influence on present-day teachers.

## 4. Results

### 4. 1. The Impact of International Practice on Professional Development

To develop a teacher identity is an ongoing process. The informants have worked as teachers for at least 5 years after completing their teacher education when they took part in this study. Trial and error during these years and the process of getting older are likely factors that have formed their teacher identity (Fitzgerald & Cooper, 2022). "Identity is not fixed but being made and remade as we live out an experience" (Kamler and Thomsons's 2006). The stay in Namibia was an experience that might have influenced them, as well as the role models observed during their own education together with what they experienced during initial teacher education. It has been a long time since they had practicum in Namibia, and it is not possible to isolate the specific impact on their teacher's identity. Given these limitations, many claim that it gave them input to reflect upon their own identity and their confidence level and self-esteem increased. Statements like "I became more mature as a person,"(FT2) "I gained increased confidence and security as a person," (FT3)"I got to know myself, figured out who I was, and feel comfortable with it", (MT1)""I gained increased calmness and patience" (FT4) typically come from the interviewees.

Although the role of a practice student is known, everything else is unknown. Most of them encountered teaching situations with large classes, few teaching aids, language barriers, and an unfamiliar school culture. They experienced periods of challenges, otherness, and discomfort which initially were problematic to handle, but when they succeeded, it increased their confidence, which also spilled over to their confidence as teachers (Wikan & Klein 2017). Some mentioned that the stay was "absolutely crucial for me to become a teacher." This is in line with what Kim, Yun, & Sol (2021) found.

Through firsthand experience of a different school system and a different type of teaching style than what they had experienced in the Norwegian school, it confirmed for them the mode they believed was best for teaching and students' learning. It is a common finding that professional practice is shaped by how education looks like in a foreign context (Fitzgerald & Cooper, 2022; Steele & Leming, 2022).

"Do you think that the stay in Namibia has made you a better professional practitioner?" was one of the questions we asked. Everyone we spoke to believed that it had. They had been challenged in the classroom, witnessed different living conditions, felt empathy for students coming from such poor backgrounds, and gained a lot of factual knowledge about a different culture and school system. A couple of them mentioned that they had become better at English.

Namibia is a developing country with a large population growth that qualify the need for more infrastructure is being built and resources. There is a significant increase in the number of school children, necessitating a rush to build many new schools. Often, it's not always possible to equip schools with sufficient resources like books. Additionally, only a few schools have access to modern technology in the classroom, although some schools now have internet access for teachers. This situation was unfamiliar to the Norwegian teacher students. However, today they highlight the lack of available teaching materials and technology as something that was very educational and beneficial for them as teachers in the Norwegian school. Quotes such as "I learned to teach without many aids, such as technology," (FT3) "I learned that you could achieve a lot with limited resources in school," "I have acquired a broader repertoire," (FT2)"I have become more creative because I had to,"(FT5) portray the interviewees' experiences. Most of them indicate that they have benefited from this experience and that it has made them more creative as teachers. The stay in Namibia has been "the most educational time in my teacher education," as one of the interviewees said. To sum up, the stay in Namibia was an experience that further personal and professional growth. They had to adjust to a new and challenging teaching situation, and they had to figure out how to live and communicate in another cultural setting.   "The combination of experiences gained as a professional practitioner and the development as a person made has made me a better professional practitioner", said FT1.

### 4.2.  Better Teachers on Global Issues?

During their stay in Namibia, the students got to know people with a completely different background than their own and observed how they lived, what they ate, what music they listened to, what they believed in, etc. They travelled around the country and learned a great deal about this semi-arid country. They witnessed wealth and poverty firsthand and learned about the education system. Furthermore, they have realized how privileged their Norwegian lives are and the magnitude of global injustice. In other words, they returned home with many impressions, new perspectives, and a wealth of new knowledge. Many emphasize that being able to use their own firsthand experiences makes the teaching more interesting, more credible, and, above all, provides better education.

Furthermore, they have focus on global and multicultural aspects in their own teaching. Some say that they teach about issues such as poverty, wealth, inequality, and Africa more frequently than what is stated in the curriculum. With their firsthand knowledge and experience from Namibia, many find it natural to draw upon it in their teaching when, for example, contrasting Norway with other parts of the world or discussing indigenous peoples like the San while also teaching about Norway's indigenous people.

When it come to the causes of poverty most blame internal factors as the main cause to poverty and inequality. A typical statement is "I have seen that Namibians prioritize the wrong use of money and can be the cause of their own poverty. They are to blame for their own poverty, laziness, and mis prioritization" (MT1). Only a few state that they have become aware of the structural conditions in the world that hamper development and create poverty in certain part of the world.

### 4.3.  Better Teachers in Diverse Classrooms?

Many claim to believe that they are better teachers in diverse classrooms than they would have been if they had not attended an international practicum in Namibia as part of their teacher education program. One might ask what they mean by the statement "better teacher." Various aspects are

mentioned. Some say that they have gained a better understanding of how immigrants feel and the problems they may face in Norway. This can be related to the experiences they had when they arrived in Namibia and the feeling of being the outsider who did not understand the codes and norms of society. The enormous difference between Namibian and Norwegian society in every possible way and the experience of being the "other" might reasonably have had a transformative learning perspective, as Mezirow (2018) point out as a possible lasting effect of this type of international practice. Having felt this on their own skin has made some of them more empathetic, to be less judgmental and more tolerant as a person. They have experienced what it is like not to be able to make oneself understood and, as a result, have become more aware of what it is like not to be able to communicate in one's mother tongue. One says that this has made her better at working with foreign-language students. Others emphasize that the international experience has made them more curious about other countries, people, and cultures. And, as one person says, "I have gained increased respect for other cultures, particularly the experience of togetherness, community, and respect has given me increased respect for other cultures and ways of life." Another says that she has become more open to cultural differences, realizing that there are many ways to do things differently but equally valid.

A clear picture emerges that those who have had international practice in Namibia feel better equipped to work with students from other countries and cultures. They highlight that they have become more curious, attributing the importance of having experienced being the foreigner as the reason why they believe they have become better at working with non-ethnic Norwegian students. It seems that the stay has provided them with experiences and insights that have contributed to them, as teachers, having a certain intercultural competence. This is in line with Bernardes, Black, Otieno Jowi, and Wilcox, 2019, on the effect of a stay in Kenya for student teachers from Canada.

The experience from the practice in Namibia may have also contributed to some becoming better at adapting teaching to different students' abilities and needs, not just those with a different cultural background. "It was a useful experience with different languages, cultures, and ages in the classroom. I have become better at adapting my own teaching to the classes I have at any given time," says FT5. Another emphasizes that she has developed "increased respect for diversity, increased respect for the students' differences, not just those with a different cultural background."(FT2) Based on these statements, it appears that some of the teachers can transfer their experiences of working with students in a foreign culture to their work with and attitudes towards diversity in general.

## 5. Conclusion

International practicum in Namibia seems to have some lasting impact on the personal and professional development of the participants. Increased confidence, a comparative perspective of education, and increased creativity are lasting impacts.

Furthermore, in line with Kim et al. (2021), we find that the stay in Namibia has had an impact on curricular and instructional practices. The teachers claim to have gained substantial knowledge that makes them put a special focus on global issues, poverty, and Africa in their teaching. They incorporate facts and knowledge from their stay in Namibia, which they believe makes their teaching more authentic and interesting.

In addition, the practicum experience in Namibia has led most of the participants to be more open to differences, see the complexity in the people they meet, and be more cautious with stereotypes. Consistent with other researchers, we find that many teachers have developed a broader worldview and a greater international understanding. The practice in Namibia has provided all participants with knowledge about a distant and economically challenged country. They have witnessed both poverty and wealth and have gained a better understanding of the complexity of African societies. Many have got "perceptual understanding", which includes open-mindedness, anticipation of complexity, resistance to stereotyping, and a more open attitude towards others. These experiences have made many of them more critical of media representations of other countries, particularly Africa. They now approach textbooks and news reports with a more discerning eye.

Another significant finding is that all participants have become more conscious of their own values, culture, and privileged lives. The practice in Namibia has given them a new perspective on their lives in Norway and has taught them to appreciate simple things. However, it is noteworthy that most participants do not connect their privilege with the structural inequalities and global economic system that perpetuates poverty in one part of the world and wealth in another. Only one teacher demonstrates an understanding of the global unequal power structure and recognizes the structural nature of her privileged position and the injustices it represents. Our findings align with Larsen and Searle (2017), who also found that few teachers gained insight into global power relations and the asymmetrical North-South relationships as the underlying causes of poverty and inequality. In contrast, a few participants attributed Namibians' poverty to their own misuse of money or laziness. This finding is consistent with Klein & Author (2017) study, which addresses the short-term effects of international practice in Namibia. Considering this, we must question what these teachers are teaching when they claim to place great emphasis on poverty, inequality, and African societies. There is a risk that if many teachers fail to understand power relations and structural conditions as the root causes of poverty, their teaching may perpetuate the notion that Africa is full of poor people who need pity and help, rather than emphasizing the need for systemic changes within the global economic system to promote development in impoverished regions (Bernardes, Black, Jowi, and Wilcox, 2019). Therefore, international practice in the global South can inadvertently reinforce the perception of Western superiority.

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# Teachers Reflect on Their Identities as Former Students and Future Teachers

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## Abstract

The purpose of this qualitative research was to describe the educational experiences of 49 preservice teacher candidates enrolled in educational courses. Theories of teachers' beliefs and qualitative constructivist epistemologies framed the study. The preparation of preservice teachers is an important area of research. Two primary questions guided this qualitative research: 1) How do preservice teachers describe their experience as students? 2) How do preservice see themselves as teachers? Data were collected over the course of one college semester. The following themes emerged following inductive data analysis. As a student, I was procrastinating, lazy, uninterested, and extroverted. As a teacher, I want to be a leader, knowledge imparter, impact others, and inspire students.

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## 1. Introduction

Teacher identity is an important research focus. Insights into how teachers think about their past and future role as teachers promises to be a fertile area of research. This research should highlight important didactic and practical insights into how new teachers think about the role as teachers. Reflection is an important asset in teacher candidates. Furthermore, looking at how teachers think about their role as teachers can be an avenue for teacher education programs to introduce sustainable training programs aimed at improving the professional growth of young teachers. Significant to this effort is to investigate the introspective nature of role identity of teachers. However, it would be a little naïve to think of a monolithic view of teacher identity, since we do not know how preservice teachers describe their experience as students and relate it to their future identities as teachers. Therefore, the purpose of this research was to explore the identity of preservice teachers and how they relate that to the future identity they want to have as teachers in practice. Two primary questions guided this qualitative research: 1) How do preservice teachers describe their experience as students? 2) How do preservice teachers see themselves as teachers? Participants were asked to respond to the following prompts: As a student I was ___, and as a Teacher, I want to be ____ . The statements of the participants were analyzed using Braun and Clarke's thematic analysis (2006).

More of the procedural aspects of this study will be fully explained in the methodology section of this discussion. The framework underpinning this study is theories of teacher beliefs and qualitative constructivist epistemologies. The findings from the investigation are discussed in the results section of this article.

## 2. Literature Review

There is not a paucity of research when it comes to research on teacher identity. In fact, the incremental interest in teacher identify formation has gained significant momentum across the spectrum of different veins of research studies (Beauchamp & Thomas, 2009). First, higher education institutions have recognized the critical role research on teacher identity has played in the professional approaches to teacher education (Beauchamp & Thomas, 2009; Rodgers & Scott, 2008). Furthermore, those who work in the preparation of new teachers should take a closer look at results from research on teacher identity and teacher thinking as important constructs with regards to teaching and teachers. Researchers have identified several key factors contributing to the development of an identity as a teacher, proposing that teacher identity in the classroom is influenced by age, gender, and education along with the sociocultural and economic dynamics of the institution (Danielewicz, 2014; Duff & Uchida, 1997; Li, 2020; Olsen, 2008). This suggests that perhaps this construct is fluid and influenced by multiple variables.

Other scholars who have researched this topic have indicated that the development of teacher identity is an ongoing process. Beijaard et al. (2004) conceptualized it in transitional dimensions from student to teacher. However, how is teacher identity constructed? Researchers tend to agree that teacher identity is influenced or scaffolded in social venues, giving room to broader interpretations of this construct (Rodgers & Scott, 2008). Interestingly, other scholars have detected the role of affect or emotion in a teacher's identity as an important influencer in identity construction by teachers. This suggests that emotion plays a significant role in what a teacher may consider when thinking about ideals on identity (Akkerman & Meijer, 2011; Beauchamp & Thomas, 2009). However, others have placed identity in self-awareness (Freud, 1961). This gives rise to the notion that identity is a process of self-analysis, something preservice teachers are asked to do as a result of being engaged in reflection during field practicums (Gee, 2000; Sachs, 2005). Furthermore, this has led researchers to examine cultural context in constructing the development of identity. Social psychologists suggest that identity is socially constructed, thereby, suggesting that individuals are influenced by the ecosystem they interact with (Erikson, 1959; Moshman, 1999; Vygotsky, 1978).

Another area of research is teacher thinking, especially when thinking is related to visions of teaching. Metaphors and preservice teachers are a significant corpus of research, which has resulted in several qualitative narrative studies on the impact metaphors have on their thinking. Starting with the

seminal work on metaphors by researchers Lakoff and Johnson (1980), researchers have argued that metaphors are important because they are a window into the thinking of people, in this case the teacher candidate. The work by researchers on metaphors in preservice teachers by Brown et al. (2005) illuminates their role as mediating knowledge of teaching. Other significant research conducted by Patchen and Crawford (2011) and Stylianou et al. (2013) on preservice teachers elucidates the fine line between teacher thinking and the reality of practice.

### 2.1 Theoretical Framework

We recognize that there are many lens to frame our study. Nevertheless, based on the research questions of our study, we framed this research within cognitive and sociocultural constructivist epistemologies. Two primary reasons contributed to the theoretical frameworks. First, we recognized that ideas about a corpus of knowledge can be influenced by the individual cognitive structures, and secondly, we felt that because students share experiences in a collective social milieu, constructivist principles have an impact on the ways these ideas about role identity are shaped (Charmaz, 2014, 2015; Lave & Wenger, 2001; Piaget, 1966; von Glasersfeld, 1989; Vygotsky, 1978).

However, the preparation of preservice teachers is a complex undertaking, since individual's professional growth can be influenced by many factors, such as social, cognitive, affective, and practical factors. Therefore, it can appear limiting the scope of teachers' identity to a fewse only one theoretical framework. Social and cognitive constructivist perspectives on teachers' knowledge creation help guide professors and practitioners to model the best practices aimed at scaffolding our understanding of teachers' growth and development. However, researchers can integrate additional knowledge of theories that can prove helpful in navigating the complexity surrounding teachers' identity, and indeed, the seminal work on metaphors by Lakoff and Johnson (1980) suggests that metaphors can help in this task because they can simplify complex ideas, and therefore, can be utilized as frameworks in constructing teachers' knowledge and teachers' identities.

Because the thinking of teachers is also connected to practical knowledge in terms of how preservice teachers envision their teaching and how they relate this construct in terms of real experinces, researchers have encouraged colleges and universities in investigating how new teachers arrives at this knowledge of teaching and learning (Thomas & McRobbie, 1999). This soul searching work by professors and practitioners alike is essential if we have any hope to make positive changes in how pre-service teachers construct their identity as teachers, because as some scholars have indicated, teachers do not change their views about teaching from the time they enter their teacher preparation programs. We need to positively channel those pitfalls and misconceptions new teachers have now before they enter their teaching profession (Byra & Coulon, 1994).

### 2.2 Research Questions

The research was guided by two main questions:
1. How do preservice teachers describe their experience as students?
2. How do preservice see themselves as teachers?

The phenomenon of this research was understanding how preservice view themselves and their identity as students versus their identity as future teachers. This research followed prior efforts understand teacher identity development.

## 3. Methodology

### 3.1 Participants

The participants of this study were a group of teacher education preservice teachers enrolled in two courses in education. Convenience sampling selection was used, based on the purpose of the study. The rationale of convenience sampling for qualitative research is to provide researchers the opportunity to collect data from the sample selected (Jupp, 2006). Additionally, researchers utilizing this sampling technique can gain specific understanding into the problem researched (Merriam, 1998).

### 3.2 Data Collection

Data collection took place during one university semester. Prior to the beginning of the study, the researchers explained the scope of the research and allowed the participants to ask questions. They were informed that they did not have to participate or complete the study once begun. Students did not have any questions. The participants were 29 female and 20 male student teachers. All were declared candidates to the teacher education program at attending a teaching institution in the United States.

Data were collected using the following prompt: As a student I was ___, and as a Teacher, I want to be ____ . All participants completed this prompt on paper at one time during data collection.

The point of the prompt was to have participants candidly answer the questions posited.  We acknowledge that the questions have the potential to prompt negative experiences with idealized self-identities.  This can be problematic since it can provoke polarized perspectives.  However, the essence of the experience is that it has the potential to create a dichotomy, but instead it is how professors and practitioners alike can tap upon this knowledge to guide preservice teachers to measure idealistic visions of teaching from the perspective of the self against the actual reality of the situation. Preservice teachers may have idealized views of what the profession may be like or how they themselves will actually act in the future. Therefore, it is important to conduct this type of research emphasizing the ideal versus the actual.

### 3.3 Data Analysis

Following data collection, the two researchers looked at the data together in order to create a map of several congruent ideas categorized around repetitive patterns that were clustered into several themes. Thematic analysis could be interpreted as a stage or step-by-step approach to data interpretation, containing three distinct steps the researchers do in order to generate reliable findings. The six steps described by Braun and Clarke (2006) provided the process of data analysis.

A qualitative inquiry such as this research requires that the study be well-seated within the theoretical research designs grounded in qualitative epistemology.  We acknowledge that the rigor of the study is grounded within the systematic approach qualitative research offers, from data collection to data analysis to the presentation of the results (Glaser & Strauss, 1967).  Throughout the process of data collection and data analysis, we relied on our skills as instruments by carefully positioning ourselves as researchers.  We looked at the data first individually, and then as categories of themes started to emerge, we reflected on them and argued to the purpose of our analysis, asking repeatedly if we were getting it right.  We compared and contrasted our data analysis together, and then triangulated our findings with each other.  Through this process, we arrived at a consensus from our individual assumptions we had originally from the data analysis. (Check & Schutt, 2012; Creswell, 2014; Denzin, 1978; Greene & McClintock, 1985; Merriam, 1998).

Once we achieved familiarity with the data, we moved into initial coding of the data (Braun & Clarke, 2006). This is where we laid each piece of the puzzle together, which eventually gave structure to the final themes. This process has been called the building block of the analysis (Braun & Clarke, 2006). The process of coding allowed us to provide the interpretation of the data by focusing on the semantic meaning of the language from data. Coding helped us to provide a brief overview of the themes. The final aspect of our thematic analysis moved us from coding to the actual themes. This last stage allowed us to capture something important from the data that was connected to our research questions. Our final stage revealed the following themes: As a student, I was procrastinating, lazy, uninterested, and extroverted. As a teacher, I want to be a leader, knowledge imparter, impact others, and inspire students.

The triangulated results emerged cogently and consistently with our individual and collective analysis. The initial codes were coalesced into categories, and then themes were developed from the categories. Thematic saturation of the data resulted from the multiplicity of our lenses of data inquiry. The more we analyzed the data, the more the categories clustered significantly around the major themes we discovered. No contrary evidence was found after multiple reviews of our data, meaning that the more we looked at the data, the same results came from it. This means that our analysis

achieved thematic saturation, and no new significant properties emerged from the categories of themes. Triangulation was achieved, not through multiple sources of data, but though multiple researchers reviewing the data.

## 4. Results

The results of our investigation provide a picture of teacher candidates who expressed their past and future visions of students and teachers. The first research question is answered by the following themes:
As a Student I was:
1. Procrastinator;
2. Lazy;
3. Uninterested;
4. Extroverted.

In theme one, students expressed they were a procrastinator. From our data analysis, the first major theme revealed that multiple teacher candidates express a sense of disinterest while they were students. Most of the participants wrote about procrastination as students. This is an interesting theme because it shows that the majority of this students were turned away from education as students. Participants wrote:

«I want to be diligent and prepared so that I can be the best I can be once I graduate and start»;

«my career. Right now, I have a record of procrastinating things that I want to break this semester»;

«yes, I was very negative as a student»;

«I tend to procrastinate, but still manage to be successful as a student».

Another participant wrote the following:

«I was procrastinating on the heavy side as a student, but aspiring to be successful. I was not involved. I did not care much about school».

The convergence of students' responses to the questions merged in another unified theme, Lazy. Many future teachers felt that they were not good students in secondary school or at the university. Some of their comments are as follows:

«I was lazy. For the past couple of years, I have been lazy, have not cared. I am trying to change that, so that I can be the best teacher/coach I can be».

«I was lazy. For the past couple of years, I have been lazy, have not cared. I am trying to change that, so that I can be the best teacher/coach I can be».

«I did not care about education. I did not care about school. I wanted to be left alone. I was not a good student. I did not do my homework. I was apathetic about learning».

Theme three describes the feeling of not being interested in education or schooling. The message portrayed here is one of detachment from schooling and education. Sample comments follow:

«I did not care about school, and I made sure every teacher I had knew that except, Mrs___ I loved her class. I was not very serious about my education. Often I lacked the foresight to see the importance of a good education. I look back and I wished I would have applied myself».

«I liked a few classes. I did not like most of my teachers. I was highly unmotivated as a student».

The fourth theme was about recalling themselves as extroverted as students. One participant explained:

«I was extroverted, I enjoyed my peers. I wanted to be at the center of everything. I was popular. People looked at me. I liked being around people».

In answering the second research question, the following themes emerged:
As a Teacher I would Like to be:
1. Leader;
2. Knowledge Imparter;
3. Impact others;
4. Inspire students.

The first theme explains that the participants saw themselves as future leaders. For example, one wrote:

«I want to be a leader that turns kids into respectful adults to better the future».

This statement was repeated many other times by the participants.

«I want to be a leader and make a difference in a kid's life».

In the second theme, participants expressed the notion of the metaphor of knowledge imparter. This is interesting because it underscores the propensity of the majority of the teacher candidates to think about knowledge. One participant wrote:

«I want to be able to pour my knowledge of school and real-life situations into my students. I want to be the mentor or someone they could always come back to for advice and tips».

The third theme as a future teacher was that of making an impact in the lives of students. The majority of our teacher candidates felt that as teachers they would prioritize a positive rapport with their students in the form of making a difference in the lives of their students by impacting them. As one participant wrote,

«I want to have a positive impact on kids' lives. Coaches had the biggest impact on my life. I hope to have that same impact on someone and be a role model to someone».

Another wrote:

«I want to be fair and leave an impact on life, and a role model».

The last theme is reminiscent of the metaphor of someone who inspire students because participants expressed the desire to become involved in the lives of others (students). However, in this theme, there is the emphasis on being an inspiration. One participant wrote:

«I want to be someone who inspires someone. I was very outgoing and wanted to be involved in everything because you get out what you put in. I want to be the best that I can be. I want to inspire the little kids I will be working with. I want to inspire them to learn and be excited about learning».

## 5. Discussion and Conclusions

This qualitative research aimed at providing an overview of teacher identity via the past and present, by asking the teacher candidates to respond to two basic questions. Following a thorough review of

the data, recurrent patterns saturated from data analysis revealed some interesting findings. This section covers the discussion of the findings and conclusions.

Eight themes were identified in the findings, four answering each research question. For the first research question, participants reflected on how they viewed themselves as students. For the most part, participants reflected negatively on their past experiences, see things they wanted to change going forward as teachers or things they were currently changing in expectation of their careers as teachers. They noted procrastination or negative attitudes that clouded their student atittudes and behavior. However, there was one theme where they talked about extroversion as it related to the social context of education and being with their peers.

For the second research question, participants talked about the ways they wanted to influence their future students when they become teachers. For some, they realized that their own backgrounds as students were in opposition to the kinds of teachers they wanted to become. However, their aspirations of the teachers they want to be speak to the positive way they could interact with future students. Both of these themes can contribute to ways teacher preparation programs can prepare students to be the types of teachers they want to become.

Interpreting the themes that emerged from our study has a twofold meaning. First, we want to be cautious skeptics about making more than what each theme stands for. It is important that while the teacher candidates in our study analyzed their scholarly experiences in a frank way, the images that are portrayed suggest the existence of many ideals about teaching. Indeed, we argue here that most likely those ideals or visions about teaching will change as a result of experiences since those are unavoidable. We concur with some researchers who have suggested that identity is a dynamic process because teacher development is ongoing and dynamic (Beauchamp & Thomas, 2009; Beijaard et al., 2004; Maclean & White, 2007). The second point we want to make from the results of our qualitative study is to let our data not be silent and proactively realize that our student teachers will change.

Furthermore, we need to validate those experiences since they are important from the standpoint of capturing teacher emotions and ways to represent them. We feel that emotion plays a significant role in our candidates' projection of their future role as teachers. We believe that our teacher candidates are not unique in their assessment of their role as future teachers and that those experiences have been instrumental in shaping current views about identities.

Finally, we feel that the results of our study underscore a more important aspect of conducting qualitative insights into teacher identity because we can help new teachers to have positive learning experiences that guide their professional development as teachers. Teacher education programs must be cognizant of the role identities play in the formation of a teacher attitudes and behaviors. Teacher education programs have an important role in shaping the professional identity of new teachers by gaining a better understanding in the design of pedagogical practices aimed at informing teacher education programs (Beauchamp & Thomas, 2009).

The participants in our study through their responses to two prompts offered several important insights into their conceptualization of past and future ideas about who they would like to be as teachers. Secondly, our study's main findings would suggest that it is important to view teacher thinking and ideals of identity formation as important milestone experiences researchers can utilize to have a better understanding of what programs, professors, and practitioners can do to help new teacher candidates to develop their professional growth as teachers.

We think that the major contribution of this study lends toward a better understanding of the nature of teacher and teacher education. We wanted to highlight the importance of qualitative research such as ours to contribute to the complexity of research on teacher thinking and knowledge. We believe our study indicates how complicated the morphology of teacher identity is, underscoring that we need additional study likes this one to bridge theoretical knowledge with the practical applications to teaching.

Only by investing in the preparation of new teachers can we improve our knowledge of teaching and learning. Narrative-based research can help unfold important knowledge that teacher preparation programs can use to better support how preservice teachers create their identity as teachers. Additionally, narrative research can enhance collaboration between scholars and practitioners alike to better create curriculum and practicum that can benefit the preparation of new teachers.

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# Supporting Active Learning in Online Learning: Creating a Culture of Care

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## Abstract

Online learning is a valuable learning tool for students. However, online courses can present difficulties in engaging students in the learning process. This qualitative research examines the influence of teacher caring behaviors on student engagement. Participants were asked to provide check-in summaries of their learning and any questions they had. Responses were analyzed using thematic analysis. Key findings were that participants sought help on assignments, asked questions on course material that extended beyond the textbook presentation, and reached out to create a rapport with the instructor. Participants expressed that the check-in assignments provided opportunities for self-regulation of learning while demonstrating teacher caring.

**Keywords:** active learning; engagement; online learning; teacher caring.

# 1. Introduction

The teaching and learning context has changed in important ways over the last several decades. One of those is the increasing importance of online or virtual learning to supplement in-person learning in schools. The convenience of virtual, asynchronous learning has enabled many learners to continue studies in situations, such as public health crises, that would have otherwise caused learners to drop out. However, research has provided consistent evidence that student engagement in learning and student motivation are critical to student success. The challenge is to identify and implement ways to increase student engagement and motivation reliably in online courses. Learner-instructor relationships are particularly important in creating effective learning environments and increasing student motivation, but there are challenges to creating and maintaining these environments. Therefore, the purpose of this research was to examine the influence of teacher caring behaviors on student active learning and engagement. It is based on the findings that teacher interactions with students affect student motivation and achievement.

# 2. Literature Review

While we know many of the factors that facilitate learning and motivation in classroom learning, it is not known how students perceive the interaction with teachers to influence their learning. Prior research has found that teacher interactions with students affect student motivation and achievement (McCombs, 2001, 2010, 2015; Umbach & Wawrzynski, 2005). However, many of these studies were conducted with in-person learning. The problem is whether active learning and caring behaviors by teachers can increase engagement in older learners in academic courses online and in-person.

## 2.1 The Importance of Positive Communication

The social interaction component of learning is an important part of the learning context. Interactions that are student-to-student or student-to-teacher are both critical components in helping students stay motivated and engaged. Hammer et al. (2010) emphasized that effective teachers implement active learning strategies and foster positive communication with and between learners.

Communication between teachers and students is an important factor in creating a positive learning environment. Positive communication with teachers in and out of the classroom can increase motivation. For example, Umbach and Wawrzynski (2005) found that the more students interacted with faculty, the more meaningful their learning experiences were. Positive teacher-student relationships contribute not only to increased motivation but also to an increased sense of belonging in the classroom (Wong et al., 2019). Additional research supports the finding that positive student-teacher relationships increase student achievement in the classroom (Kim & Sax, 2009; Kim & Schallert, 2011; McCombs, 2001; Veldman et al., 2013). Kim and Lundberg (2016) found that positive student relationships increased student engagement.

## 2.2 The Role of Learner-Centered Teaching

According to McCombs (2010, 2015), learner-centered teaching moves the lesson away from emphasis on the teacher, common in behavioral approaches to learning, and places it on the student. As Santrock (2021) wrote, learner-centered teaching emphasizes the use of methods that increase student engagement and motivation. Therefore, it is vital that teachers consider ways to put learners at the center of the lesson. Emphasizing positive communication and feedback is one way that teachers can enhance learning through their behavior. Umbach and Wawrzynski (2005) found that teacher interaction can lead to more meaningful learning experiences for students. Both student-to-student and student-to-teacher interaction contribute to increased student learning (Braxton et al., 1997; Hurtado & Carter, 1997; Pascarella & Terenzini, 1991; Stage & Hossler, 2000). According to Astin (1993), student interaction is the key to active learning and engagement, and active learning leads to increased student engagement and sense of belonging (Armbruster et al., 2009; Blumenfeld et al., 2006; Marbach-Ad et al., 2001; Mills & Cottell, 1998; Preszler et al., 2007; Prince, 2004).

### 2.3 Theoretical Framework

Kort et al.'s (2001) learning spiral model of emotions and learning served as the theoretical framework for this study. This model asserts that teacher interactions with students have a strong effect on student motivation and achievement and that teachers who show their concern for students are able to motivate students to be successful. The learning spiral model is often applied to adult learning, such as for secondary and university students. In the learning spiral, learning intersects with affect so that affect can enhance learning, as in places where curiosity moves one to continue learning, or inhibit learning, such as when frustration or confusion take over and prevent learning from occurring. This research was also based on social constructivism, where active learning is facilitated and scaffolded in a community of practice. For this study, positive affect created through communication and interaction in the classroom or virtual space can lead to increased engagement and learning by increasing motivation and a sense of connectedness.

### 2.4 Research Questions

The research was guided by three main questions:
1. To what extent would a check-in prompt generate interaction from students?
2. What kinds of concerns would students be writing most?
3. What would students like most about the assignment?

The phenomenon of this research was understanding the usefulness of the check-in prompts for influencing student engagement and motivation in the courses. This research followed prior efforts to increase student engagement through the addition of writing prompts to online courses.

## 3. Methodology

This qualitative descriptive study explored the responses of participants to check-in assignments in online classes. Check-in assignments were created to provide opportunities for learners to engage with the instructor and the material to be learned, based on recommendations through prior literature (see Armbruster et al., 2009; Blumenfeld et al., 2006; Marbach-Ad et al., 2001; Mills & Cottell, 1998; Preszler et al., 2007; Prince, 2004). Each assignment prompted students to respond to a "Check In" of how they were doing in the course and whether they had any questions. There were two types of assignments. One asked for students to respond to an announcement of the week's assignments with any questions they had. The other was a course assignment that asked students to respond to three questions:
1. What was the most interesting thing you have learned so far?
2. What are you struggling with?
3. Do you have any questions for me?

These check-in assignments were given three to four times over the duration of a course. Because this was an assignment, there was a high degree of completion, over 90% submission of responses to the questions. However, only the responses of those who volunteered were analyzed qualitatively, with a total of 62 assignments that were used in the final analysis. The data collected were analyzed using Braun and Clarke's (2006) thematic analysis of the responses and simple descriptive statistics for the frequency of responses. MAXQDA was used to assist in the coding of the data. The initial codes identified from the data were 110. These initial codes were coalesced into 19 initial themes. After reviewing the initial themes, we identified six final themes: Concerns over Technical Issues, Concerns over Missing Work (Begging for Mercy), Troubleshooting Problems, Success in the Course, and Questions to and about the Instructor. MAXQDA was also used in generating the coding and themes that answered Research Question 3. Two final themes were identified that addressed the reasons participants liked the check-in prompts: Concerns Dealing with Self-Regulation and Teacher Care and Concern.

# 4. Results

In looking at Research Question 1, almost all students in the courses completed the check-in prompts. For those who responded through email, the interaction increased in the two days around the posting of the prompt than the other days. For those who responded through an assignment link, the majority of the postings were in the day the assignment was due.

In answering Research Question 2, the following themes were identified through the analysis:

1. Concerns over Technical Issues;
2. Concerns over Missing Work (Begging for Mercy);
3. Troubleshooting Problems;
4. Success in the Course;
5. Questions to and about the Instructor.

The first theme was that students responded with concerns over technical issues completing their course assignments. For example, one participant wrote, "My computer is worthless." Another added, "I'm having issues with my laptop." Another response was "Power was out due to the recent storms, and I couldn't complete the work."

The second theme was that students responded with concerns over missing work or engaged in begging for mercy. One participant wrote, "I am going to *knock out* all the assignments." Another participant wrote, "I know I did not turn in the assignments." Another participant tried to excuse the delay with, "I want to be thorough in all my assignments."

The third theme was that students responded with troubleshooting problems. For instance, "I would like clarification about the submission." Another participant wrote, "Sorry to bother you, but I do not understand." One participant wrote, "I was trying to make sure this is correct." Another common concern was asking questions about plagiarism.

The fourth theme was that students responded with comments about their success in the course. An example of this is in the comment, "I think I get it now." One participant said, "I'm surprised this wasn't my first thought." Another participant wrote, "I can correct this."

The fifth and final theme was that students responded with questions to the instructor and about the instructor that were focused on building rapport with the instructor. For example, several students asked, "How are you?" One participant asked, "What do you like most about the material?" and another wrote, "What is your favorite chapter?" Another asked, "Why did you choose to be a professor?"

These prompts generated a lot of interaction between students and teachers. Many students responded with, "I don't have any questions." However, there were many other responses on a variety of topics that led to the creation of the themes.

In order to answer Research Question 3, participants were asked to rate their reaction to the check-in prompts on a Likert scale of 1-5, with 1 being "strongly disagree" and 5 being "strongly agree." Then participants were asked to explain their responses. In total, 90% of the participants liked the assignments. Their reasons for explaining their response were grouped into two themes: Concerns dealing with self-regulation and Teacher care and concern.

For the first theme responding to what they liked about the assignment, participants stated they helped with self-regulation. For example, a participant wrote, "It gave me a good review for the chapter." This participant explained that in order to complete the check-in, they would review through the chapter to identify what they liked most or found the most interesting in the chapter. Another participant wrote, "It helped prepare me for other assignments." This participant used the check-ins to consolidate learning and carry over information from one chapter to another. One participant added, "It helped me review where I am in the class." This is a classic example of self-regulation because the learner used the prompts to evaluate their understanding. This statement was similar to another participant's, "It helped me grasp the content and what it meant to me." This learner was using the prompt in order to reflect on the material to be learned and relate it to their life. Finally, one participant explained, "It helped me helped me absorb what I was reading." This statement also reflects self-regulation in the explanation that the assignment supported monitoring of learning.

For the second theme responding to what they liked about the assignment, participants stated the assignments showed teacher care and concern. While these check-in prompts seem like simple assignments, they appeared to represent a crucial part of creating a positive climate in the classroom and positive relationships between the teacher and students. Some of the comments were "They showed that you care about your students' success," and "It gave me a sense of care from the professor, as if she really wanted to know how we were doing in her class." Some participants noted that the prompts allowed for freedom to discuss many topics, not just the course material. For example, a participant explained, "I also like that the questions didn't necessarily have to be about class but our career and educational goals as well!" There were also statements that explained the importance of a teacher-initiated prompt like the check-in assignments. One participant wrote, "They gave me an opportunity to ask you questions and express concerns without having to reach out to you." Another participant added, "Sometimes students don't want to reach out because they feel it is not worthy of an email." This idea was echoed by another participant, "Sometimes you don't want to go through the process of reaching out to your professor for help." In other words, participants appreciated that they did not have to initiate the communication and they felt that the teacher's asking for questions first showed care and concern from the professor.

## 5. Discussion and Conclusion

The results indicated that learners appear to look at these types of assignments as a chance to make a personal connection with the professor. They share concerns that are course-based, but they also reach out to the professor to know more about them. Other participants appear to be concerned primarily with course-related activities. However, it is clear that frequent communication is important in online education. It was also found that students who are active in their learning appear to be more involved in their success. By reaching out to students to ask about their assessment of their own progress in the course, teachers can strengthen student motivation by showing concern for students as human beings. Whether online or in person, students want to be noticed and asking students how they are doing in the course serves the purpose of showing concern while fostering engagement in the classroom.

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# Inclusion in teaching and learning processes and school improvement

*Cultivating Inclusive Education:*
*A Collaborative Journey of Secondary School Teachers in Promoting*
*Cognitive and Linguistic Accessibility through Picture Books and AAC*

# Cultivating Inclusive Education:
# A Collaborative Journey of Secondary School Teachers in Promoting Cognitive and Linguistic Accessibility through Picture Books and AAC

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## Abstract

This contribution describes an action-research initiative carried out by secondary school teachers who formed a local network to address a pressing need identified in their everyday practice. Confronted with students presenting complex communication needs, these teachers faced the challenge of guaranteeing these students' right to participate in cultural life, as mandated by Article 30 of the 2006 UN Convention on the Rights of Persons with Disabilities. The outcome is a picture book, translated into AAC symbols, that tells the story of Telemachus's journey.

**Keywords:** picture book; literature; AAC symbols; action research; inclusive education.

## 1. Introduction

In this paper, we present an action-research project aimed at designing and creating a picture book with text translated into symbols of Augmentative and Alternative Communication (AAC). The picture book offers a simplified version of the story of Telemachus, son of Odysseus, as recounted in the Odyssey, with the intent of fostering the learning of cultural content and participation in the social practices typical of daily school life for students (grades 9–14) with intellectual disabilities and complex communication needs (Angelone & Festa, 2024).

In our action-research project, ethical goals have taken center stage, consistent with the latest developments in the social sciences (Scheper-Hughes, 1995; Burawoy, 2005), which emphasize the extra-scientific rationale behind research activities. In Italy, this perspective has been revisited more recently by Porcellana and Stefani (2016), as well as by Semi and Bulzoni (2022).

This initiative arose from our everyday practice as specialized support teachers in IIS Giulio, a secondary school in Turin, Italy, where we are committed to promoting inclusive education. On the initiative of one of us, and based on the needs of certain students, a large working group was formed, bringing together representatives from the world of education, universities, and the third sector. Together, we collaborated to produce the picture book as the concrete outcome of a shared cultural and practical effort. We hope that this article conveys the complexity of the collaboration, which involved two different schools and a diverse network of external parties whose specialized contributions were crucial for achieving our goal.

Viewing access to literary works as an essential tool for advancing inclusive practices, our work aligns with the rights framework promoted by the 2006 UN Convention (Curto & Marchisio, 2020). Indeed, the ability to enjoy high-quality cultural content is an inalienable right, to be understood both as a guarantee of an inclusive education system (Art. 24) and as the opportunity for full participation in cultural life (Art. 30).

After outlining our objectives and theoretical framework, we will present our methodological strategies, paying particular attention to the collaborative path undertaken in our action-research project.

## 2. Inclusive Education and Accessible Narratives

Italian school regulations encourage shared educational pathways in a "school for all," covering every order and level (Bruschi, 2023). Nevertheless, various studies highlight the concrete difficulties in turning these principles into fully inclusive teaching practices, especially in upper secondary schools (Dell'Anna et al., 2023). Our daily work in the context where this action-research project took shape has confirmed that such difficulties can be traced, at least in part, to the lack of appropriate teaching materials to support an integrated educational approach that meets the varied educational needs found in classrooms. In particular, there is a notable shortage of materials specifically designed to fully engage students with intellectual disabilities and complex communication needs.

The exit profiles for students in upper secondary school (ISCED 3) emphasize goals and objectives related to cultural aspects. Although over the years the idea of a fixed list of required readings has weakened, certain texts continue to hold an indispensable place. For this reason, we chose to work on the Odyssey, a classic of literature traditionally encountered in educational settings.

The decision to work with literature also stems from recognizing the dual value of narratives: on the one hand, the cognitive component tied to the acquisition of cultural content; on the other, the strong social component related to the pleasure of telling and listening to stories. Accordingly, we set out to promote the usability, cognitive accessibility (Ciaccheri, Cimoli, & Moolhuijsen, 2020), and comprehensibility (Lumbelli, 2009) of cultural content, regardless of

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the degree of intellectual disability or communication needs of the students. While also acknowledging the value of partial outcomes, we drew on the mental model theory (Johnson-Laird, 1983), which posits that understanding a text means constructing a clear, coherent mental representation of it. In this light, we believe that the concepts of cognitive accessibility and usability describe modes of cognitive interaction with cultural content that do not necessarily require complete mastery, yet they pave the way for the social dimension of narrative. The social value of storytelling has been highlighted by Bruner (1986).

Once we had precisely identified the need emerging from our context, we endeavored to find an effective tool capable of seamlessly integrating into teaching/learning processes while broadly encouraging the social participation of all students. We decided to develop a picture book designed for read-aloud sessions, enhanced by visual resources such as illustrations and symbols of Augmentative and Alternative Communication (AAC).

AAC symbols, derived from specific clinical practices, take the form of pictograms associated with words, serving to supplement or replace verbal language for individuals with complex communication needs. Our work fits into an existing practice already widespread in the Italian context, where AAC is also used to make narrative texts accessible that do not have an immediate communicative function (Costantino, 2011). The decision to employ AAC symbols was supported by routine observations in the school environment, indicating that their presence extends the attention span of students with intellectual disabilities and complex communication needs during read-aloud sessions. This evidence, noticed in the field, is also supported by early research findings (Dalai et al., 2019).

Opting to create a picture book with symbols was merely the first in a series of decisions we made. A decisive impetus to the action-research project came from establishing a solid partnership with a third-sector entity in the City of Turin (the "La biblioteca dell'inclusione" of the Paideia Foundation), in which professionals work who have extensive experience in AAC-based translation and children's publishing.

From this fruitful encounter emerged a non-linear process that led us to establish precise boundaries around the story to be told, explore new textual forms, and delve into the complexities of symbolization processes. The following paragraphs will address these aspects and the challenges encountered along the way.

## 3. Picture Books: A Model for Accessible Narratives

In this section, we focus on picture books, publications characterized by a complex interplay of verbal and visual text in a communicative and semiotic balance (Terrusi, 2012). This interdependence underlies the meaning-making process on which the story is built. Picture books, long a part of children's literature (Boero & De Luca, 2009), are specifically designed for shared read-aloud sessions involving both adults and children. However, the concept of the crossover picturebook is particularly relevant, as it indicates certain picture books capable of reaching audiences of different ages simultaneously: children and adults engage with the text in different ways, allowing for a collaborative and egalitarian reading experience (Beckett, 2012).

In Italy, interest in picture books dates back to the 1970s, with Antonio Faeti's studies on illustration and the practical work of Lucia Lumbelli and Margherita Salvadori, who focused on picture books in preschools, addressing learning objectives, practices, and methodologies (Faeti, 2011; Lumbelli & Salvadori, 1977). More recently, Marcella Terrusi has provided a systematic analysis of picture books (Terrusi, 2012).

Building on this model, we adapted picture books to increase textual comprehensibility. Illustrations— a key feature of this medium—were conceived as a tool to support the process of constructing the mental model of the story (Clark & Lyons, 2010). We organized the narrative into sixteen two-page spreads. As suggested by Costantino (2012, pp. 198–200), we placed the illustration on the left page,

while the text appears on the right. Thus, the image anticipates and summarizes the textual content, providing the context which, according to Oakhill, Cain, and Elbro (2015), proves particularly effective when presented before the reading.

To achieve this outcome, the illustrations needed to be original and developed in close synergy with the text. Consequently, the action-research group expanded even further, involving the Museum of School and Children's Book (MuSLI) of Turin and another educational institution, the "Passoni" Art High School in Turin. In this enlarged team, the decision was made to invite students from the Book Design track at Passoni High School to create the illustrations, under the supervision of specialized teachers.

A pivotal moment in choosing the illustrations took place during read-aloud sessions aimed at testing the images' ability to capture the attention of students with intellectual disabilities and complex communication needs. Once validated, the illustrations were incorporated into the picture book to make reading more accessible and to facilitate the construction of a coherent mental representation of the story.

## 4. Picture Books in AAC: Dissemination and Translation Models

Over the years, a specialized area has emerged—picture books with text translated into the symbols of Augmentative and Alternative Communication (AAC), which can be considered a subset of picture books. As mentioned earlier, the introduction of AAC symbols, originally developed as a clinical practice to facilitate communicative acts, constitutes an adaptation aimed at helping people with complex communication needs—often associated with intellectual disabilities, speech disorders, or autism spectrum disorders—access and understand content. Over time, AAC has come to support not only expressive communication but also the reception of messages.

In the past two decades, numerous initiatives led by publishing houses, groups of teachers, cultural institutions (including libraries and museums), associations, and third-sector foundations have contributed to the spread of this subset of picture books. Concentrating specifically on the role of libraries, Gasparello (2015) meticulously recorded and described the initiatives undertaken up to 2011. However, a more recent and comprehensive review that would offer an updated perspective on the evolution of these projects is still lacking.

Pending a systematic analysis, we can only sketch a broad overview of this production, based on a few key parameters. On the one hand, there has been a quantitative increase in available books, accompanied by a "mainstreaming" process that has moved these experiences beyond traditional clinical settings to engage a wider and more diverse audience. On the other hand, one can observe a noteworthy methodological evolution, discernible in both the nature of the texts offered and the symbolic systems and translation methods used.

Regarding the "nature of the texts," picture books with text in symbols can be categorized based on whether the text is: (a) an integral translation of an original picture book, (b) the product of linguistic simplification, or (c) a text conceived from the start to be accompanied by symbols. Additionally, picture books can be distinguished by their translation methodology. A preliminary survey highlights two principal models: the InBook model, which translates each individual word into a symbol (making no distinction between content words and function words; see Costantino, 2012), and the "Libri per tutti" model, which uses an "agglutinative" approach, merging into a single symbol those groups of words that form a semantically unified core (Peiretti, Rubertelli, & Villa, 2022).

In any case, picture books with text in symbols systematically and consistently employ specific symbol systems throughout each volume. The most widely used in Italy are WLS (Widgit Literacy Symbols) and ARAWORD symbols. In our work, we chose to adopt the "Libri per tutti" model, assigning a single symbol to each group of words corresponding to one semantic core (Peiretti et al., 2022). At the same time, we opted for the WLS symbols, which appear within a frame where the corresponding word or words are shown in uppercase.

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Furthermore, to strengthen coherence between the illustrations and the symbol translation, we decided to link proper names to symbols derived from elements in the illustrations themselves. For example, Telemachus's symbol reproduces the character's face as depicted in the images.

Consistent with the approach previously adopted for traditional picture books, we believe that in this "symbol-based" version, images likewise play a crucial role in supporting comprehension: they provide a context that activates the meanings of words, helping to disambiguate and focus the reader's attention (Oakhill, Cain, & Elbro, 2015, pp. 97–119).

## 5. Text Simplification and Narration

To simplify the text, we first drew inspiration from the newspaper Due Parole, directed by Emanuela Piemontese and Tullio De Mauro, from the European guidelines for linguistic simplification, and from controlled writing (or Easy to Read) practices. Specifically, we examined the literature on the "Due Parole" experience (Piemontese, 1991; Piemontese, 1996) and sought to transfer its findings to the simplification of literary texts.

We thus carried out two complementary operations: on the one hand, the simplification of the narrative; on the other, the simplification of vocabulary and syntax. Indeed, for linguistic simplification to facilitate comprehension, one must first address the overall organization of the text.

### 5.1 The Narrative

The narrative simplification involved three lines of action. First, we aimed to enhance the narrative's concreteness. Next, we reduced the quantity of information provided (favoring text brevity). Finally, we addressed the need to lower the cognitive load.

As for "concreteness," simplification began even before any modification of the text itself—namely, at the stage of choosing the text type. We hypothesized that narrative texts would be simpler than expository texts because they feature more concrete elements: specific characters, actions, and events that are easy to identify (Oakhill, Cain, & Elbro, 2015, p. 172).

Nevertheless, the historical references found in the Odyssey—as in any classic—represent a potential obstacle to maintaining such concreteness. Therefore, we elected to reduce and soften these references so as not to hinder access to the content. This is not a modern adaptation but rather a text in which references to religious and social dynamics are deliberately toned down to avoid overburdening comprehension.

We then focused on text brevity, a criterion deemed fundamental by Piemontese (1991, 1996). To this end, we decided to cover only the story of Telemachus, excluding the entire Odyssey. Furthermore, we retained only the essential episodes, limiting the number of characters to seven, so as to keep the central meaning of the story in focus.

Finally, with the aim of reducing cognitive load (Sweller, 1988; Van Merrienboer & Sweller, 2005), we adopted the strategies of segmentation and sequencing. In line with segmentation, we rewrote the story into sixteen short episodes, each characterized by a specific time and place, told in a maximum of thirty symbol-words, and accompanied by a single illustration. Meanwhile, through sequencing, we narrated events in chronological order, aligning the fabula with the plot. This approach is particularly useful for promoting smoother comprehension, consistent with the notion that a familiar chronological sequence is more accessible (Stein & Glenn, 1982).

### 5.2 Vocabulary and Syntax

From a linguistic standpoint, we adhere to controlled writing (or Easy to Read) practices, adopting the principle that the text should be planned according to the characteristics of its intended audience (Rabbi, 2020). As Piemontese (1996) argues, clarity or opacity in a text does not depend on absolute properties but on the relationship between the text's features and those of its readers.

In line with these guidelines, we favored short sentences, using coordination over subordination, and we chose words largely drawn from a basic vocabulary, avoiding nominalizations. Where possible, we repeated the subject rather than using pronouns, especially in situations where pronouns might

cause ambiguity. We primarily conjugated verbs in the indicative mood (active voice), in the present, present perfect, and simple future tenses. Moreover, we placed sentences on a single line or introduced line breaks where a pause would naturally occur during reading aloud.

In making these choices, we drew mainly on the Due Parole experience, the first and most significant Italian initiative focused on facilitated writing also intended for readers with intellectual disabilities. To these insights we added those contained in the European guidelines aimed at making information accessible to all.

Since these guidelines are designed for informational texts, we also reflected on the literary features, opting to maintain and adapt some formulaic expressions typical of the original work. These formulas, closely related to the oral context in which the Odyssey was born, suit read-aloud practices and the preferences of our audience. Furthermore, to facilitate the readers' identification with the characters, we made extensive use of dialogue.

We concur with Lumbelli (2009) that literary texts require two types of integration from the reader: one connected to comprehension, which follows rules similar to expository texts, and another connected to the pleasure experienced during reading, linked to the literary form and the surface structure of the text.


## 6. Conclusion

Despite the extensive adaptation process, our intention was to preserve the essential elements in such a way that the story would still, on the whole, maintain the features of a cultural product and, more specifically, a clear link to the original version. Indeed, we wished it to serve as an opportunity for sharing within the school context, and potentially as a prompt for discussion.

The story of Telemachus speaks explicitly to young adults facing the transition into adulthood and shaping their own life paths. For this reason, we felt it was crucial to maintain its character as a bildungsroman. From this perspective, the story can be read and interpreted at various levels, engaging the imagination and experiences of all young adults, with or without disabilities.

Telemachus, in fact, is a young man who feels alone, weak, and overwhelmed by a world of disrespectful, overbearing adults who leave him no room to grow up. To make this transition, he needs an independent life experience—a "journey" in which he shows himself that he can manage on his own, discovering along the way that he is recognized by adults beyond his family circle.

Although the Odyssey does not describe Telemachus's transition to the role of father and king, it depicts his encounter with the parental figures as one of equality, collaboration, and cooperation rather than care-taking: the boy has grown up and is ready to take his place in the world.

Likewise, for us—who guided and coordinated this project—it has been a wonderful social experience that brought us into contact with other educational contexts (the IIS Passoni) and extra-school entities ("La bottega editoriale" of the Paideia Foundation and Museum of School and Children's Book). From this experience, we have come away convinced that one of literature's functions is indeed to open up networks of shared meaning around the stories it tells.

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# The Use of Artificial Intelligence in Secondary Schools: Experiences in Initial Teacher Training

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## Abstract

The integration of Artificial Intelligence (AI) in education has the potential to transform teaching and learning. AI's capacity for personalized learning aligns with the goals of inclusive education, as emphasized by UNESCO and the EU. However, effective integration requires pedagogical relevance and critical AI literacy. This study at the University of Turin explores AI's integration into teacher training (TT) through two programs in 2023/24, focusing on inclusive education. Both curricula included AI training: one program developed guidelines for a pedagogically meaningful use of AI, while the other introduced them to teachers in training. We propose a framework for integrating AI in TT, addressing its potential, challenges, and impact on schools, teachers, and students.

**Keywords:** artificial Intelligence; school inclusion; teacher training; learning technologies; special educational needs.

## 1. Artificial Intelligence in Inclusive Education: A Framework for Teacher Training in the Italian Context

In recent years, Artificial Intelligence in Education (AIED) has gained increasing attention due to its transformative potential at both academic and institutional levels. Since 2017, the academic literature on AIED has expanded significantly, particularly in the United States and China (Zawacki-Richter *et al.*, 2019), with the Covid-19 pandemic accelerating the adoption of educational technologies (EdTech).

International organizations have addressed this interest in three ways. First, UNESCO has recognized the role of AI in promoting inclusive and quality education, contributing to the achievement of Sustainable Development Goal 4 (UNESCO, 2019; 2021a; 2021b). Second, the European Parliament adopted the AI Act (European Parliament, 2023), emphasizing the need for AI regulation to prevent discrimination and ensure educational equity (Flores-Vivar & García-Peñalvo, 2023). Thirdly, there is a growing need to train teachers to use AI critically and pedagogically, as emphasized by Hrastinski *et al.* (2019).

To address these challenges, UNESCO has developed the "AI Competency Framework for Teachers" (AI CFT), which promotes an ethical, critical and progressive approach structured in three stages — Acquire, Deepen and Create - to effectively and consciously integrate AI into educational settings (UNESCO, 2024).

The UNESCO framework also emphasizes the importance of adapting the integration of AI to local specificities, as educational needs vary across communities and socio-cultural contexts. To ensure effective implementation, it is crucial to develop flexible competency frameworks and design training programs that take local specificities into account. This approach promotes the responsible use of AI and ensures that teachers are adequately supported in their continuous professional development and the critical integration of these technologies into educational practice.

AIED has the potential to revolutionize education by enabling the development of personalized learning pathways that are more inclusive and responsive to individual student needs. AI-based tools could be used by teachers to adapt educational offerings, supporting students with learning difficulties or from disadvantaged backgrounds. For example, virtual assistants and machine learning systems could facilitate activities such as reading, writing and mathematics and suggest personalized strategies to improve learning outcomes (Reiss, 2021; Panjwani-Charania *et al.*, 2023).

In addition, these tools could promote the inclusion of students from different cultural backgrounds and create educational pathways that actively engage them in the classroom community (Salas-Pilco *et al.*, 2022). AI could also be used to translate learning materials into the native language of students with limited knowledge of the language of instruction. This approach has the potential to bridge language barriers and encourage active participation in school activities.

However, the use of AI to personalize education remains an emerging field with several unresolved challenges. Key issues include the need to train teachers to use the technology critically, the lack of specific regulations to protect the most vulnerable students and the technical difficulties of integrating AI into the educational context. Despite these limitations, AIED represents a promising area of development that has the potential to promote a more inclusive and personalized educational experience.

The Italian school system is characterized by its strong inclusive orientation, which has been shaped by decades of legislative and cultural development (Pavone, 2010). The Italian inclusive model thus provides fertile ground for integrating the potential of AI into personalized education. In a system that already values individualized teaching and learning, AI could provide additional support to address the different needs of students. For example, AI applications could help teachers to create inclusive teaching materials and tailored learning pathways, making the educational experience more accessible and engaging.

However, integrating AI into the educational context requires not only technical skills, but also targeted training to ensure that the use of AI is deliberate and pedagogically grounded. The framework presented in this paper aims to address this challenge by providing preliminary guidelines to prepare teachers for the critical use of AI. Ultimately, the aim is to promote the integration of technologies in

line with the principles of the Italian inclusive model, thus supporting equitable education that values diversity.

## 2. AI and Inclusive Teachers: a Critical Decalogue Proposal from the Course "Expert in Inclusive Processes"

The University Professional Development Course "Expert in Inclusive Processes" (CUAP) represents a concrete response to the growing need for qualified support teachers to address the chronic shortage of such professionals, which represents a significant challenge for the Italian education system (Damiani *et al.*, 2021). The CUAP, designed and implemented by the Department of Philosophy and Education of the University of Turin with the support of the Piedmont Region, aims to fill this gap by also preparing trainers who will guide future support teachers in specialization courses (Di Masi *et al.*, 2023). This goal was pursued through an interdisciplinary and interprofessional approach involving academic institutions, regional entities, and stakeholders in the education system (Bianchini *et al.*, 2023).

The 2022–2023 edition of the CUAP focused in particular on New Learning Technologies (NLT), with an emphasis on exploring the potential pedagogical and didactic use of AI. The course aimed to prepare teachers and trainers to consciously integrate AI into inclusive education, focusing on pedagogical intent and pedagogical goals.

The use of AI in inclusive education raises critical questions, particularly with regard to its potential integration into classroom practice and its capacity to support students with disabilities and Special Educational Needs (SEN). Among the applications explored, AI could be used to develop personalized teaching mediators, such as language translation for students unfamiliar with the school language or simplified textbooks for students with cognitive impairments and learning difficulties. While these potential uses offer significant opportunities, they require critical reflection to ensure their effectiveness and alignment with educational goals.

One of the most significant outcomes of this training initiative was the development of a decalogue (Atzei *et al.*, 2023), a preliminary guide for a critical and pedagogically oriented use of AI in inclusive education. The decalogue is the result of the collaboration of CUAP participants and teachers, external experts and NLT instructors from the Specialisation Course for Support Activities, through workshops to promote dialog and co-construction of knowledge.

Among the ten principles outlined in the decalogue, a key element is the need for teachers to retain complete control over the educational process. This includes designing AI prompts, reviewing the outputs produced and adapting them to ensure that they are pedagogically meaningful and aligned with the principles of Universal Design for Learning (UDL). The decalogue emphasizes that AI should serve as a tool to support teaching, not as a substitute for the central role of the teacher, and encourages a critical and deliberate approach.

Another key principle emphasizes the need for teachers to use AI not to become technical experts, but to reflect on their pedagogical practices and develop critical and conscious methods to create inclusive teaching mediators, leveraging the potential of available technologies. The decalogue also emphasizes the importance of developing a critical understanding of the characteristics of different AI tools, evaluating their potential in relation to educational goals and reflecting on ethical aspects, such as the commercial and data-extracting nature of many devices.

This awareness can help foster an internal school debate aimed at defining operational guidelines and protocols for the responsible use of AI by staff and students. The decalogue is thus a starting point, not a definitive guide, to provide educators and teachers with orientation for testing practices that critically integrate AI into inclusive education. It does not offer a consolidated model, but rather aims to inspire training and educational pathways in which AI is seen as a tool at the service of pedagogical goals and the central role of the teacher. This initiative helps to stimulate collective reflection on the potential uses of AI and to promote educational strategies that support inclusion and value diversity.

## 3. Testing the Decalogue: integration in the New Learning Technologies Laboratories of the Support Teachers Specialization Course

The Specialisation Course for Support Activities (CSS) at the University of Turin operates in an educational context characterized by a strong commitment to school inclusion, but also by challenges that hinder its full implementation (Seitz *et al.*, 2024). At the international level, the United Nations Convention on the Rights of Persons with Disabilities (2006) emphasize the importance of ensuring quality education for all and promoting the inclusion of students with disabilities. However, in Italy, significant challenges persist, including a lack of specialized support teachers, difficulties in recruiting qualified tutors and insufficient funding models which constrain the full implementation of inclusive principles (EASNIE, 2016; 2018).

In this context, the CSS aims to train qualified teachers who are able to tackle the complex challenges of school inclusion by integrating theory and practice in a structured training pathway consisting of three main phases: theoretical classes, laboratory activities and supervised internship activities. Among the different labs offered as part of the course, the New Learning Technologies Laboratories (LabTIC) plays a central role. It promotes a teaching approach that uses digital devices to promote inclusion. The theoretical framework of LabTIC is based on the principles of UDL (Cast, 2018), with a focus on the design of inclusive teaching materials.

One of the central aspects of the work in LabTIC is the practical application of operational insights based on the UDL principles (Guastavigna, 2020). These insights are intended to support teachers in the design and development of inclusive teaching materials tailored to the specific needs of the school context. Activities being explored in the labs include the creation of interactive images and videos using software such as LUMI Education, Genially and Thinglink; the use of tools such as DylanTextTools, developed by the National Research Council (CNR) and based on the principles of controlled writing to simplify texts and make them more comprehensible (De Mauro, 1980; Piemontese, 1996); and the use of software for graphical representation of knowledge such as CMAPTools and XMind, which adhere to established theoretical models in the field (Guastavigna, 2015).

In the 2023/2024 academic year, the decalogue developed in CUAP was adopted as a guide for experiments on the use of AI within LabTIC, which focus specifically on the training of secondary school support teachers. The ten principles of the decalogue guided the trainers in developing activities aimed at promoting critical and informed use of AI to create inclusive teaching materials. In particular, AI was tested in activities such as controlled writing and storytelling, where teaching materials were enriched with images generated by AI applications to enhance their explanatory potential.

For example, text simplifications were carried out using the Diffit application, an AI tool designed to produce graduated simplifications based on the linguistic competencies defined in the American education system. The materials created were analyzed, revised and critically reflected upon by the CSS participants and compared to guidelines from the text simplification literature to identify strengths and weaknesses in the use of AI for controlled writing.

In the context of storytelling, AI was used to transform textbook content into narrative formats providing teaching materials that convey disciplinary content while appealing to different learning styles. In addition, AI was used to generate ideas for dramatizations, such as dialogs between historical figures discussing important disciplinary topics (e.g., two political leaders discussing the causes of World War I). The final outcomes, which were reviewed and validated by the teachers, aimed to present disciplinary content through dialogs and narratives.

The experiments confirmed the core ideas of the decalogue, including the need to maintain complete control over the educational process by reviewing and validating AI outcomes to ensure their reliability and alignment with educational objectives. Furthermore, while AI-based technologies have been shown to contribute effectively to the development of educational materials, they still have significant limitations when it comes to handling complex content. A notable example is the concept maps created with Algor Education, which were often incomplete or inconsistent with established theoretical models (Novak & Gowin, 1984; Buzan, 1993; Guastavigna, 2015). In addition, there were

concerns that students might use such tools in a compensatory way, delegating the process of creating maps entirely to the AI and thus hindering the development of essential skills.

CSS instructors and participants collectively addressed the challenges of integrating AI into classroom practice and sought to combine the potential of technology with traditional and proven methods to ensure an inclusive and pedagogically meaningful approach. The application of the decalogue within CSS thus represented a significant opportunity to test and strengthen the critical integration of AI into inclusive teaching. This approach not only helped to train more aware teachers, but also encouraged collective reflection on the potential and limitations of digital technologies and stimulated discussions on the need to create increasingly aware educational pathways aimed at developing critical thinking to value diversity and support inclusion.

## 4. Conclusions

The emergence of AI represents a significant turning point in the educational landscape. It offers new opportunities and at the same time presents us with unprecedented challenges. The ability of AI to support teachers in personalizing learning pathways that promote school inclusion underlines its transformative potential, but also requires deep reflection to ensure its conscious and ethical use.

In this context, the CUAP and CSS are important initiatives to address this challenge. Both training programs aim to promote the effective and pedagogically meaningful use of AI in inclusive education and contribute to the development of teachers who can value diversity and uphold educational equity. The results of the CUAP are particularly noteworthy. They culminate in the development of a critical decalogue for the use of AI in inclusive education. This tool provides general principles to guide educators and trainers towards a conscious and pedagogical approach to AI integration. It emphasizes the importance of maintaining control over the educational process, validating the outcomes generated by the technologies and reflecting on the ethical implications of AI use. The CSS, in turn, has tested the practical application of the decalogue in LabTIC and provides concrete examples of how AI can be used to create inclusive teaching materials, such as narrative content and simplified texts.

However, the experiments also revealed some significant limitations in the use of AI. For example, the concept maps created by the AI tools proved to be incomplete or contradicted established pedagogical paradigms. This shows that teachers need to intervene critically to a significant extent to adapt and refine the outputs generated by these technologies. This underlines the crucial role of the teacher in the educational process, a central principle of the decalogue.

A clear limitation of the decalogue lies in its abstract and general nature. To effectively put these principles into practice, universities, schools and educational institutions must work synergistically to develop specific training activities that enable teachers to acquire practical skills for the critical use of AI. This requires a concerted effort to develop training programs that enable educators to deal with the challenges and opportunities of these technologies.

The prospects for future research are manifold. It is necessary to explore the development of training programs for teachers on the use of AI to create a framework that improves school inclusion, accessibility and equity in the education system. In addition, it is important to further investigate how students use AI to complete school assignments to better understand the risks and opportunities of these practices for the development of their skills and autonomy.

These initiatives and reflections are part of a broader debate on the critical use of AI in education. They contribute to the development of strategies that balance technological innovation with established pedagogical principles to support an education system that is increasingly inclusive and accessible to all.

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# Theory into practice:
# exploring teacher perceptions about Early Intervention in the Italian school system[1]

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## Abstract

The article explores the topic of early intervention, focusing on the conditions that enable its effective implementation through the *Response to Intervention* (*RTI*) model within school contexts. As a part of a broader action-research project, the study aims to foster the professional development of curricular and support teachers in kindergarten and primary education. By using focus groups to explore and analyze participants' perceptions, the research identifies contextual and personal factors that facilitate or hinder early intervention on reading and writing skills. The findings highlight educators' training needs, and they also suggest preliminary guidelines for co-constructing an early educational intervention inspired by the *RTI* framework.

**Keywords:** early intervention; RTI; reading and writing acquisition; professional development; teachers' perceptions.

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## 1. Early intervention and the role of RTI: a proactive approach to reading and writing development

Learning to read and write begins early in children's development, long before kindergarten, laying down the foundation for long-term academic success. Over the past two decades, researchers have mapped out essential emergent abilities that gradually build up during the preschool years (Snow et al., 1998; Whitehurst & Lonigan, 1998). Given the early onset of core literacy competencies, it becomes crucial to enhance them from birth to the onset of formal education (Fanari et al., 2005; Frith, 1985; Pontecorvo & Rossi, 2017; Snow et al., 1998; Zappaterra, 2017). Such support can be effectively woven into early intervention practices – strategies designed to shore up timely learning while preempting potential vulnerabilities (Morris, 2015).

Unlike the reactive "wait-to-fail" approach, early intervention adopts a preventive stance. Through multifaceted assessments and targeted progress monitoring, it seeks to back up literacy teaching and learning while addressing each student's specific need.

Among various early intervention models, *Response to Intervention* (*RTI*) has recently come into focus as both a tool for identifying educational needs and an intervention framework with strong potential to improve teachers' professional development and children's educational outcomes (Bullegas et al., 2024; Kovaleski et al., 2013; Swanson et al., 2012).

*RTI* is often described as a multi-tiered intervention model. The core instructional program is evaluated to reinforce early literacy skills for all children (Tier 1) (Jimerson et al., 2015). Then, for children who struggle, Tier 2 offers targeted small-group intervention, paired with frequent progress monitoring. If challenges persist, Tier 3 involves a tailored individualized educational plan to address specific learning difficulties. If progress remains limited, educators may adjust strategies, redefine objectives, or provide additional support (Grosche & Volpe, 2013).

Moreover, the *RTI* model offers differentiated learning opportunities - whole-class, small-group or individualized instruction (Grosche & Volpe, 2013). Unlike "wait-to-fail" attitudes, this approach tackles the urgent need for effective teaching practices before turning to a specialist consultation. It calls for pedagogical actions that facilitate learning processes (Fuchs & Deshler, 2007).

Considering this, the *RTI* framework stands out as a powerful approach for improving teaching practices, offering clear guidelines for designing didactic support and determining when to ramp up its intensity.

## 2. Early Intervention in the Italian School System: challenges, practices, and the role of teacher training

Early intervention takes on particular significance within the regulatory guidelines of the Italian school system. Law 170 of October 2010 and its subsequent guidelines (2011, 2013) mandate that educational institutions implement early intervention programs. While diagnosis must be formulated by health facilities, Article 3 of the 2011 guidelines highlights the teacher's pivotal role in coordinating targeted reinforcement activities for pupils struggling with written language acquisition (Besio & Bianquin, 2017).

Although there is a widespread consensus among researchers and educators on the value of early intervention, the reality within the Italian school system often throws up a contrasting picture (Maniscalco et al., 2016). Despite compliance with national guidelines, early intervention programs in Italy are often carried out by external experts rather than school staff. Such practices run the risk of chipping away at the teacher's professional agency, diminishing their accountability in addressing daily educational challenges (Segal, 2022; VanDerHeyeden & Burns, 2010). At least in some cases, schools seem to have taken a step back in its pedagogical primary role, losing their central position in educational action.

This reflection aligns with recent data from the Ministry of Education (2022), which reveals an upward trend in diagnoses of specific learning disorders (SLD) over the past nine years, rising from 0.8% in 2004/2005 to 3.1% in 2018/2019 in primary schools. This trend brings to light the pressing need to explore innovative intervention strategies capable of addressing students' needs effectively (Corsi et al., 2022).

In this context, teacher training and shared educational responsibility are crucial in staving off late identification, which can adversely impact both the prognosis and development of the disorder (Giaconi et al., 2024). Understanding the methods and conditions required for implementing early intervention pathways is essential, as it allows for the identification of contextual and personal factors that can either empower or hold back teachers in carrying out such programs.

In this regard, this study explores the conditions for an early intervention by presenting the outcomes of a training program within an action research project, wich involves both curricular and support teachers from kindergarten and primary school.

## 3. Teacher training and reflective practices: methodological and operational issues

The multifaced educational needs within the classroom, alongside the imperative to design accessible learning environments, bring to light the need for a highly developed teaching professionalism adept at navigating teaching-learning processes (Mura, 2019; Mura et al., 2019; Sibilio & Aiello, 2018). Such complexity calls not only for a solid professional identity but also for teachers to take on strategies that foster the full participation of all students while considering the characteristics of each one (Cottini, 2017; d'Alonzo, 2017; Pavone, 2014).

Therefore, reflective practice gains relevance in teacher education, serving as an essential tool for digging into the beliefs and values that drive teaching actions (Mezirow, 1991; Schön, 1983). This process helps to bring about deeper understanding in teaching and learning, acting as a cornerstone of professional development (Mura, 2019).

Within a collaborative action-research design, the present study marks the first step of a broader action-research project aimed at fostering teachers' professional development through co-design practice focused on developing an early intervention program enhancing reading-writing skills (Creswell, 2012; Gravett, 2004).

Through a series of focus group sessions, nine kindergarten and primary school teachers from a Comprehensive Institute in Sardinia, were supported in highlighting barriers and facilitators to implement an early intervention program (Table 1).

| ID | Age | Gender | Professioanal role | Years on curricolar role | Years on special education support role | School Level |
|---|---|---|---|---|---|---|
| Ins1 | 44 | Female | Support teacher | 5 | 7 | Kindergarten |
| Ins2 | 60 | Female | Curricular teacher | 27 | 11 | Primary School |
| Ins3 | 60 | Female | Curricular teacher | 27 | 11 | Primary School |
| Ins4 | 43 | Female | Curricular teacher | 0 | 6 | Primary School |
| Ins5 | 53 | Female | Support teacher | 0 | 10 | Primary School |
| Ins6 | 65 | Female | Curricular teacher | 19 | 0 | Kindergarten |
| Ins7 | 48 | Female | Curricular teacher | 1 | 10 | Kindergarten |
| Ins8 | 58 | Female | Curricular teacher | 33 | 0 | Kindergarten |
| Ins9 | 52 | Female | Curricular teacher | 14 | 0 | Kindergarten |

*Table 1. Teacher's characteristics.*

The first phase of the project, carried out between February and March 2024, involved teachers in a process of discussion and reflection on learning to read and write, preventive instructional action and prerequisites. The focus group served as a conversational device where they could actively engage, shift from their initial perspectives, increase self-awareness and reflect on their experiences (Piñeda

et al., 2022). Sessions were audio-recorded and later transcribed verbatim. In total, 128 extracts were analysed. A thematic analysis of the transcripts was conducted using MAXQDA software (v. 22.2.0) (Braun & Clarke, 2012). The analysis was developed on three distinct levels: 1) open coding of the transcripts; 2) organization of the identified codes into related areas; and 3) development of analytical themes. The themes were derived (Cameron et al., 2016) inductively from the data, providing a comprehensive portrayal of the participants' perspectives (Saldana, 2013).

Coding was performed by two raters, and an inter-rater agreement index was calculated to ensure coding reliability. In cases of disagreement, discrepancies were resolved through discussion.

## 4. Narrating the professional experience: teachers' perspectives

As depicted in Figure 1, the shared reflections led to two distinct polarities: one centered on individual factors related to the teacher's professional profile, and the other on contextual elements linked to the educational network. These factors may act as either barriers or facilitators in the successful implementation of an early literacy program.
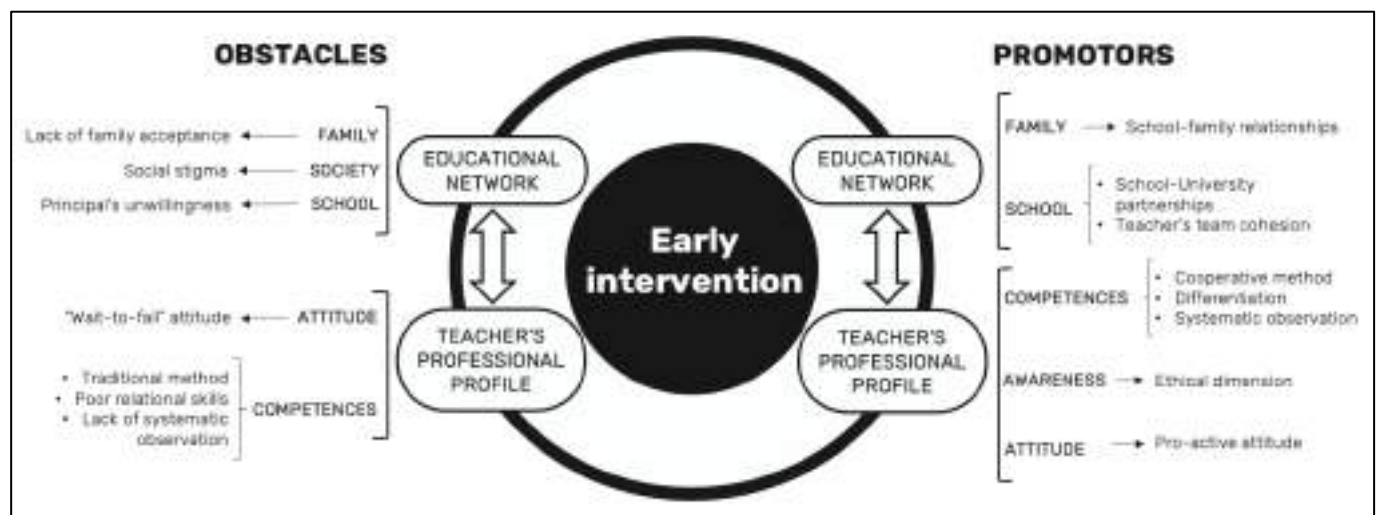


Figure 1. Representation of themes, sub-themes and codes.

### 4.1 *A fragile educational network: obstacles and facilitators for early educational intervention*

During the meetings, special attention was given to the impact social and family contexts play in teachers' educational choices. Given the shared narratives, Figure 2 shows the distribution of the main obstacles within the educational network.
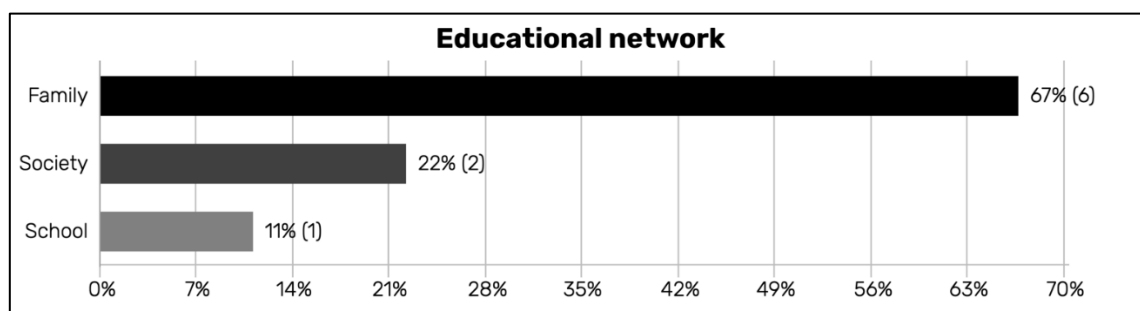


Figure 2. Obstacles associated with the educational network: the percentage reported is about the number of sentences in which the obstacles are cited.

In the accounts provided by participants, parental apprehension about the presence of an educational support seems to be a significant barrier to early intervention:

> «The fact of having a support teacher is something families may wish to keep hidden [...]» (Ins7).

This excerpt shows that social stigma can influence educational dynamics, often leading to a lack of trust and unwillingness to listen to teachers:

> «The family does not come to terms with it easily: in many cases it requires time» (Ins4).

Intra-school dynamics may also pose obstacles to the implementation of early intervention. Some teachers suggest that these challenges can be influenced by the approach of the school principal:

> «I've worked in schools where communication is completely absent. The principal doesn't allow certain issue to be discussed [...]. Later, a parent, exercising his right, criticized the lack of intervention for his daughter by the time she entered primary school» (Ins1).

Similarly, relationships with colleagues can be tough, especially due to the lack of shared values and perspectives:

> «We generally file reports when we observe difficulties. However, some teachers avoid doing so, either due to unwillingness or lack of skills» (Ins4).

Despite these challenges, as illustrated in Figure 3, teachers recognize that involvement in research projects, even when not specifically focused on early interventions, offers a valuable pathway for professional development:

> «We are currently in the fifth year of our teaching experimentation project and throughout these years, we have pursued personal growth thanks to the unwavering support of a research group who have listened to us from the beginning» (Ins3).

In addition to the benefits of research involvement, constructive collaboration with colleagues emerges as a crucial contextual factor:

> «We work as a team, coordinating on certain intervention projects – it's not about individual choice, practice must be agreed upon and shared» (Ins3).

Moreover, while the school-family relationship can be marked by episodes of uncertainty, participants underscore the importance of parental engagement in educational processes:

> «We talk to parents regularly, reaching out whenever we notice any issues. Communication with them is essential» (Ins3).
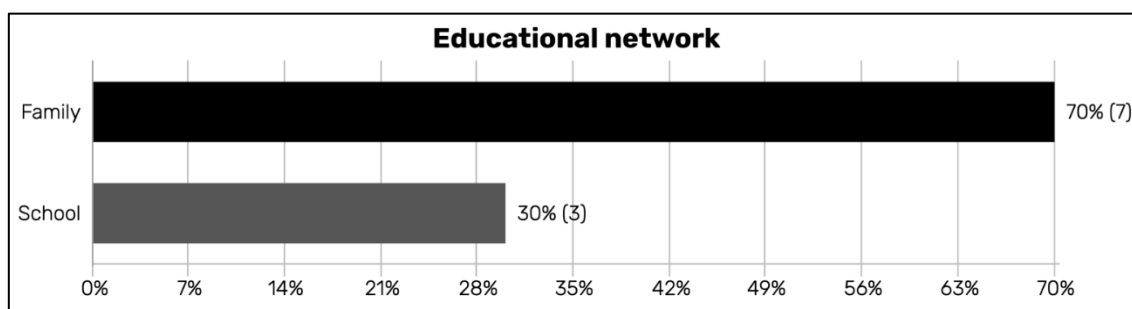


*Figure 3. Promotors associated with the educational network: the percentage reported is about the number of sentences in which the promotors are cited.*

In sum, the interplay between research participation, teamwork, and strong school–family partnerships creates a framework for improving teaching and learning. However, the fragility of these relationships poses a significant challenge to fostering an educational culture focused on early intervention.

### 4.2 *Teacher practice: aspects of uncertainty and awareness for proactive teaching*
Thematic analysis has led to the identification of key personal factors that can impact on teaching practices (Figure 4).
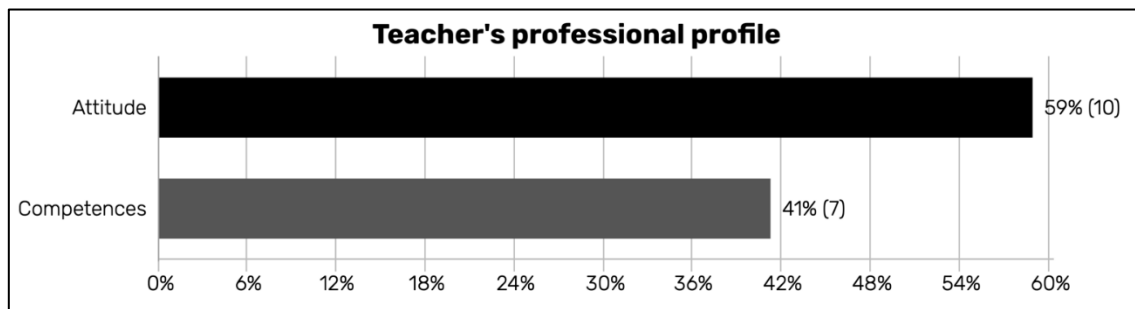


*Figure 4. Obstacles associated with teacher's professional profile.*

Among the most critical dimensions, preschool teachers highlighted a prevalent "wait-and-see" attitude, which can undermine professional responsibility:

«I don't agree with teachers who wait until the start of first grade [...]. I would immediately activate an intervention at that moment» (Ins2).

At the same time, participants view the inability to move away from transmissive learning perspectives as another obstacle:

«Some teachers would like the same approach to be applied to all children» (Ins2).

However, certain facilitators were identified as well. Participants converged on the concept of "professional identity", which they viewed as a complex set of competences, values and attitudes that define the teacher's role.
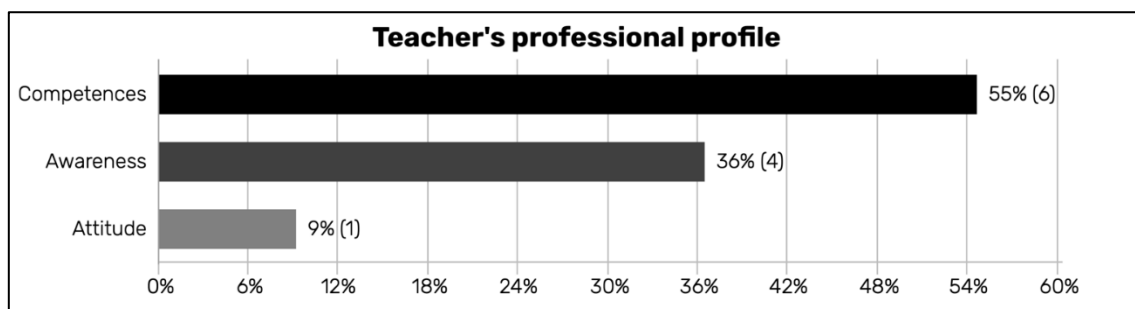


*Figure 5. Promotors associated with teacher's professional profile.*

As shown in Figure 5, the analysis revealed the importance of teacher competences. Relational skills, for instance, can foster a positive classroom environment and bolster student learning:

«Every day in the classroom various dynamics unfold. You observe, encourage, and sometimes reprimand. Without this vigilance, you would miss the daily growth of the group» (Ins2).

Teachers also emphasized methodological and operational capabilities, which enable them to recognize educational intent as the driving force behind early intervention:

«You must engage in thoughtful consideration of the class; you cannot assume that a single approach will be effective for everyone. [...] When you notice that some activities start to feel burdensome for certain students while others are managing well, it's important to diversify your approach [...] (Ins2).

Equally significant are communication skills, essential not only for supporting parents but also for fostering effective collaboration among colleagues:

«One of the key aspects is the importance of seeing things from the parent's perspective, fostering deep empathy and recognizing that we are engaging with the people who love that child most» (Ins3).

This expertise is reinforced by methodological practices, such as systematic observation:

«Observations are needed by the teacher to build the pathway in relation to that child» (Ins3).

Lastly, the deontological dimension holds significant relevance for teachers:

«[...] I adhere to an ethical code; my responsibility is to observe, report, and intervene [...]. Not intervening constitutes a violation of the rights of both the child and the parent» (Ins1).

These aspects suggest a complex system of personal and interpersonal factors that can either hinder or facilitate early intervention practices. They create an integrative context that encourages reflection and action-research, helping teachers develop and implement intentional, proactive strategies for early intervention.

## 5. Concluding remarks

The training course provided an opportunity for an in-depth reflection on essential dimensions critical to fostering early intervention processes. Within this collaborative setting, teachers identified key factors shaping their daily teaching practices and proactively sought resources and solutions to address challenges. Peer dialogue facilitated a meaningful discussion on teacher agency and the recognition of ethical values. These elements are relevant from a didactic perspective, achieving full expression in social-relational and communicative skills: the ability to interact with families, address parents' concerns, foster collaborative relationships with colleagues, engaging students, thus supporting any potential fragility.
Additionally, the opportunity to share professional experiences in a group setting allowed teachers to reflect on their specific perspectives and pinpoint their specific needs, particularly in terms of professional development and ongoing training.
The outcomes presented here mark only the beginning of a more extensive process aimed at establishing a common space for collaborative shared inquiry. In this space, teachers and researchers can work together to identify effective solutions and create optimal conditions for implementing early intervention programs.

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# The work plan (Plan de Travail) as an educational device that addresses everyone's needs.
# A survey of teachers' and pupils' perspectives

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## Abstract
The work plan is an educational tool derived from Freinet's pedagogy, and it consists of personalized, differentiated, and multidisciplinary tasks to be completed independently or collaboratively within a set time frame. Rooted in the interplay between universality and specificity in teaching, it aims to respect individual differences while fostering participation and a sense of belonging based on two key constructs: Differentiated Instruction and Open Education. The research, conducted over four months with fourth-grade classes, seeks to support teachers in didactic innovation. Findings from interviews and questionnaires indicate increased organizational skills, autonomy, awareness of learning styles, and reflective teaching practices, with a focus on inclusivity.

**Keywords:** universality/specifity; plan de travail; inclusion; differentiated instruction; open education.

## 1.  Introduction

The paper delineates the findings of a study on the perceptions of teachers and fourth-grade primary school students participating in a research project titled "Promoting Personalized and Inclusive Learning in Primary Education: An Action-Research Project with the Plan de Travail". The project was initiated in 2022 and is ongoing at the IperDEA Research Laboratory of the University of Bergamo. The project aims to support teachers in an institutional innovation process focused on experimenting with inclusive and personalised teaching tools. Specifically, the project seeks to foster a learning environment that addresses the individual needs of students with and without disabilities, promoting a pedagogical approach that respects and values diversity.

## 2.  Definition of the Theoretical Framework

Today's classrooms, although composed of students within the same age group to ensure a certain degree of homogeneity, are characterized by students who differ in numerous aspects. This plurality of characteristics necessitates a targeted and diversified response to students' individual needs (d'Alonzo, 2016). Such a context highlights the need for a pedagogical approach that recognises and values diversity, ensuring that each student receives the necessary support for their full development. According to Connac (2012), an educational institution should not confine itself to applying a principle of formal equality. Still, it should instead concentrate on students' learning processes, supporting the most capable in maximising their potential while assisting those facing challenges in achieving essential objectives. This necessitates the establishment of an inclusive curriculum (Leoni, 2021), characterised by a unified yet highly flexible framework centred on each student's learning process. In this approach, knowledge and skills are viewed to a vehicle in the teaching-learning context.
One potential approach to emphasise the learning process rather than its outcomes is competency-based education. This approach transcends disciplinary boundaries by linking knowledge and skills to tangible, real-world problems, capturing students' interest and mobilising resources (Da Re, 2013). Competencies are the ability to address a task by effectively orchestrating one's internal resources while leveraging available external resources coherently and productively (Pellerey, 2004). Competencies are categorised into three types (D'Amario et al., 2015).

- Key competencies, are transferable across various tasks and contexts, reflecting an individual's personal and professional preparation;
- Technical competencies, are specific to a given professional role;
- Transversal competencies are adapting and applying fundamental skills to different contexts.

Transversal competencies differ from basic ones in that they are not solely cognitive (Chiosso et al., 2021) and are characterized by contextual flexibility (transferability), multidimensionality, dynamism, and subjectivity. Transversal competencies are divided into four macro-categories (D'Amario et al., 2015).

- Personal competencies: linked to self-awareness, a sense of self-efficacy, and goal orientation;
- Relational competencies: reflected in communication and collaboration skills, emotional intelligence, and the ability to build effective relationships;
- Cognitive competencies: associated with the ability to analyze and synthesize information, including problem-solving, decision-making, and creativity;
- Organizational competencies: including planning, time management, and monitoring or correcting errors.

These competencies enable students to adopt appropriate and effective behaviors in various situations and play a fundamental role in the process of self-construction (MIUR, 2018).

The centrality of an individual's experiences, abilities, and skills in developing and demonstrating competencies has led to a more inclusive curriculum vision (Leoni, 2021). This inclusivity recognizes the diverse ways a single competency can be achieved and the varying levels of competency expression. Competencies differ from person to person and can be fostered through specific objectives, differentiated content, and varied methods (Castoldi, 2015). Competencies develop and take shape from personal experiences, which, by nature, vary significantly among individuals.

Shifting the focus from knowledge and skills to competencies within an inclusive perspective thus involves acknowledging diverse ways of achieving competencies. These pathways depend on individual characteristics and how individuals integrate their knowledge, skills, and prior experiences with external resources (Leoni, 2021).

## *2.1. Differentiated Instruction*

In a context as complex and diverse as today's classrooms, differentiated instruction emerges as a practical, operational, and feasible response to reach all and each one (Folci, 2018). It is an approach that entails adapting teaching and learning pathways to the needs of individual students, intervening on objectives, methodologies, materials, and assessments (Cottini, 2017). Differentiation represents a teacher's strategy aimed at all students within the same classroom, designed to fully realize the teaching-learning process using tools and resources (Vermee, 2010).

Differentiated instruction should not be understood as a mere set of strategies, methods, or techniques to be employed in the classroom but as a comprehensive way of conceptualizing the teaching-learning process and, more broadly, the entire educational experience, considering the needs of the students present (Tomlinson, 2006). It involves diverse strategies and methodologies, differentiated pathways and itineraries, varied materials and topics, and tailored progression rates, with the clear objective of valuing everyone's unique talents.

Bottero (2021) distinguishes between successive and simultaneous differentiation. Successive differentiation involves alternating different working modalities, providing instructions in varied forms, and managing time to account for each student's pace. Concurrently, simultaneous differentiation entails offering students various activities, engaging them in selecting their pathway and evaluating their learning outcomes. This approach assigns distinct tasks to each student, defining them based on their respective learning levels.

## *2.2. Open Education*

Similarly, to differentiated instruction, open education (Jürgens, 2009) represents a practical approach to address the diverse needs that characterize contemporary educational contexts. It has its roots in child-centered pedagogies developed in the early 20th century, drawing inspiration from the educational philosophies of Montessori, Freinet, and Dewey.

Open education is a methodological approach based on an open system, allowing students to actively participate in constructing their learning pathways, with the teacher assuming the role of a facilitator. It is an innovative approach that, by giving voice to the students themselves, ensures differentiated learning paths that answer to the individual differences of each learner (Demo, 2016).

Open education employs various methodologies and creates an open, organized environment where students can choose the time, space, and materials needed to complete the proposed tasks (Jürgens, 2009, in Demo, 2016). Depending on the degree of openness determined by the teacher regarding instructional planning, students can select the activities to engage in, choose the order in which to address them, organize their available time, and decide how to approach the task, working individually, in pairs, or groups (Demo, 2016).

## 3. The Plan de Travail: Between Openness and Differentiation

A specific tool supporting simultaneous differentiation is the *Plan de travail*, or 'work plan', first introduced in the Dalton Plan by Helen Parkhurst in the early 20th century and later expanded by

Freinet. This tool was created to recognize and value the heterogeneity of the classroom group, thereby promoting personalized learning (Vermee, 2010).

In activities involving the work plan, the student takes on a central role, establishing a relationship of shared responsibility with the teacher to ensure the success of the learning process. Connac (2009) defines the tool as a support for conducting personalized classroom activities tailored to each student, enabling students and teachers to design a learning pathway collaboratively. It consists of a list of tasks assigned to the student with a specified completion period. The tasks vary in nature, fully aligning with the principles of open education. They can be:

- completed individually, in pairs, or in small groups;
- mandatory, optional, chosen freely by students from multiple alternatives, or invented by the students themselves;
- common to all, customized for small groups, or specifically designed for individual students.

These tasks must be neither too simple nor excessively challenging but are designed to provide a slight stretch beyond the current competencies of each student, thereby stimulating growth and situating them within the student's Zone of Proximal Development (Vermee, 2010). Autonomy is a fundamental characteristic developed through this educational tool and is part of the organizational transversal competencies (D'Amario et al., 2015). Autonomy encompasses not only managing time and activities but also the correction phase. Control materials can be provided, enabling children, upon completing a task, to review and self-correct their work. To foster autonomy, all necessary materials, and tools for completing activities be found in an accessible location within the classroom. This approach transforms the learning environment into a structured and organized space conducive to the autonomous growth of students.

In addition to autonomy and self-correction, responsibility for one's learning processes plays a significant role (Paturet, 1995 in Connac, 2012). The work plan functions as a tool to enhance students' accountability by allowing them to recognize their responsibilities within the classroom, facilitating self-assessment of their academic commitment, and providing a clear representation of the seriousness and awareness with which they approach their work (Connac, 2012). Furthermore, the tool incorporates a dual evaluative perspective: on one hand, the teacher observes and assesses the student's progress through ongoing observations and analysis of submitted work, offering targeted and constructive feedback; on the other hand, the student actively engages in self-assessment, reflecting on their learning processes and the metacognitive skills developed.

## 4. Study Design

The action-research project (Losito & Pozzo, 2005) *"Promoting Personalized and Inclusive Learning in Primary Education: An Action-Research Project with the Plan de Travail"* was launched in 2022 at a Comprehensive Institute and is currently ongoing in several primary schools in central and northern Italy. It aims to guide teachers through a process of institutional innovation. This contribution focuses on a subset of the findings from the investigation conducted after the first year of tool experimentation. It involved 67 children aged 9 to 10 from three fourth-grade classes in a primary school and their four Italian and mathematics teachers.

The first year (2022–2023) of the project was structured into the following phases.

- Analysis of the existing literature on differentiated instruction and open education constructs and about the *Plan de Travail* tool (December 2022 – June 2023);
- Experiential observation (Trinchero, 2017) of the context before the experimentation (October 2022 – December 2022);
- Design of the tool, both graphically and in terms of content, including co-construction of tasks and activities with teachers (December 2022 – January 2023);

- Classroom experimentation of the tool, monitored through systematic observations supported by semi-structured observational grids (Trinchero, 2017) (January 2023 – April 2023);
- Collection of outcomes regarding satisfaction, effectiveness in promoting learning, and developing transversal competencies in children (May 2023 – June 2023);
- An in-depth analysis of the outcomes aims to share results with the group of teachers (June 2023 – December 2023).

This paper focuses on phases 3, 4, and 5, presenting the experimentation results about the perceptions of teachers and students, the promotion of transversal competencies facilitated by the tool's implementation, and the insights gained by both teachers and students during the first year of experimentation. Consequently, this contribution seeks to address the following research questions.

1. What are the perceptions of primary school teachers and students who experimented with the *Plan de Travail* regarding its implementation and effects on learning?
2. How can the adoption of the *Plan de Travail* contribute to the development of students' transversal competencies?
3. What reflections and insights does the *Plan de Travail* foster among students and teachers regarding the educational process?

An individual observational grid was designed and employed to examine the promotion of competencies in students (Trinchero, 2017). This tool allowed for the analysis of the evolution of specific distinctive characteristics of the learning process with the *Plan de Travail* through specific indicators organized into categories such as material organization, time management, motivation, autonomy, and peer collaboration. Additionally, questionnaires were developed and administered to the children to investigate the perceptions and insights of the students and teachers involved. At the same time, semi-structured interviews were conducted with all teachers and a selected group of children. The latter's selection criteria included disability diagnoses, certification of specific learning disorders, learning styles, and current academic achievements. Despite employing different methodologies to account for their specificities, both tools enabled the exploration of various aspects, including perceptions, satisfaction, perceived effectiveness, expectations, strengths and weaknesses, and projections for the future implementation of the *Plan de Travail* in teaching practices.

## 5. Findings and discussion

The following section outlines the findings of the investigation in response to the research questions.

### 5.1. Students' perceptions

The data collected from students' perceptions highlight a high level of appreciation for the Plan de Travail. Precisely, the positive response of 61% of students who reported enjoying the experience "very much" or "extremely," alongside 34% who found it "fairly" enjoyable, reflects the students' overall satisfaction. This result, corroborated by the interviews, aligns with pedagogical theories emphasizing the importance of teaching strategies that foster active engagement and intrinsic motivation (Deci & Ryan, 1985). The opportunity to choose which activities to undertake (67%) and to organize their work according to personal preferences (78%) appears to mirror the value placed on self-determination and personalized learning pathways (Connac, 2012). This is further supported by interviews in which students expressed appreciation for being able to choose additional subjects beyond the core disciplines (mathematics and Italian) to include in their work plan. Another aspect that was particularly appreciated was the opportunity to find out about the day's activities in advance, which was confirmed in the interviews.

C$_4$: «All you have to do is read the schedule and you already know all the things you have to do, whereas in normal classes you do not».

At the same time, the appreciation of the personalization dimension emerges significantly.

C$_1$: « [...] However, the Plan de travail is not something too long or too short, because in any case the teachers know you and how you work, and the Plan is customized for everyone».

Equally significant is the data regarding the perceived support provided by the tool about learning, as over 90% of students recognized the value of the Plan de Travail in this regard. This suggests that the approach effectively addressed students' learning needs by supporting, on the one hand, the development of transversal competencies such as autonomy, reflection, and individual responsibility and, on the other, the acquisition of the knowledge and skills outlined in the curricular planning (86%).

### 5.2.    Teachers' perceptions

Teachers' perceptions confirm the Plan de Travail's potential while highlighting some operational challenges. The unanimous willingness to repeat the experience provided the entire teaching team shares it, suggests that implementing innovative teaching tools requires a systemic approach and a collaborative vision. This aspect aligns with the concept of a "community of practice" (Wenger, 1998), where peer collaboration becomes essential for the success of educational innovations.

T$_4$: «The perplexity remains about the organisational and structural complexity of this thing [...] the problem was perhaps more on the part of the adult in calibrating the first plan de travail, in the sense that the first plan was perhaps a little too ambitious for some children, perhaps we should have calibrated it better».

The reported difficulties, such as balancing activities and estimating the time required for their completion, underscore the importance of adequate teacher training and continuous support in using complex tools.

T$_3$: «Your presence [of the researcher] was crucial in the sense that I think if you [the researcher] had not been there to manage the ranks, even concretely, on a practical level, in terms of managing the material, I think we might have been stranded. [...] It would have been a bit complicated».

While these challenges do not compromise the overall effectiveness of the tool, they highlight the need for moments of reflection and practice refinement to ensure a design increasingly tailored to students' needs and learning paces.

### 5.3.    Promotion of transversal competencies

The findings highlight how the Plan de Travail has contributed to developing significant transversal competencies. The organization of activities over time (70%) and the acquisition of new skills (60%) demonstrate an improvement in planning and problem-solving abilities, which are essential for both academic and personal success (OECD, 2018).

C$_1$: «The plan de travail also made me learn more at school, I learnt to organise myself, to organise myself to get the work done in a certain number of days ».

Additionally, the ability to independently correct one's work (55%) and collaborate with peers (51%) underscores the tool's role in fostering self-regulation and cooperative dynamics, which are foundational to 21st-century competencies.

From an observational perspective and based on teachers' interview reflections, the noted improvements in self-regulation, time management, and autonomy represent significant outcomes.

T$_1$: «Working with the work plan has an impact on the whole education, the children are more organised, I feel I am on the right track!».

These findings confirm the effectiveness of educational approaches that place the student at the center of the learning process, promoting their independence from reliance on adult figures (Dewey, 1938).

### *5.4. Awareness fostered in students and teachers*

Another significant element that emerged from the experimentation was the development of awareness among students and teachers. Students reported gaining a deeper understanding of their learning styles, which aligned with the principles of metacognition and promoted the ability to reflect on one's cognitive processes to enhance learning effectiveness (Borkowski & Muthukrishna, 2011). Crucial in this regard was the dual evaluation process—comprising precise feedback provided by teachers and self-assessment by students—and the moments dedicated to reflecting on and sharing the progress of the tool's implementation with the class. These activities aimed to identify effective work strategies and best practices already in place. Teachers emphasized that the Plan de Travail provided an opportunity to understand their students better and critically reflect on their teaching practices.

> $T_2$: « The most important positive effect, in my opinion, is that the students got to know themselves and their own approach better, because they were also made to reflect with your [the student's] presence and they got feedback on it [...] and this is the most important thing: the knowledge that the students got to explore about themselves and their own cognitive style, and in return we were able to observe some of them in particular and their cognitive style, this is in my opinion the most important thing [...]».

This reflective process increased awareness of the importance of personalizing and differentiating educational proposals, highlighting that differentiation is not merely a means to address specific needs but an inclusive pedagogical strategy that values each student (Tomlinson, 2006).

> $T_3$: «We all talk about differentiation, it's a beautiful thing, but sometimes, it's not always easy, because it's bad to say, but you have so many things to do, that sometimes you miss this aspect, which in reality, if you really want to include and give everyone the chance to make the learning process their own, you should do it, but I admit, I struggle sometimes [...] After the Plan, however, it came a little easier in the sense that I thought a little more about the fact that, oh my, this thing, this differentiation, you have to do it. After the [Work] Plan, however, this thing came a little bit easier to me in the sense that I thought a little bit more about the fact that, jeez, this thing, this differentiation, you have to do it [...] and so I said to myself: 'try to do more practical activities that you had somehow forgotten and left in the drawer' [...] in terms of differentiation, yes, the Plan gave me an extra push [...]».

## 6. Conclusions

The experimentation results with the Plan de Travail demonstrate its potential to foster autonomy, self-regulation, and personalized learning pathways. Students expressed high satisfaction, attributing this to the ability to independently choose and organize their work, aligning with pedagogical theories emphasizing freedom of choice and active engagement, as reflected in the anti-authoritarian school movements of the late 1960s (Augshöll Blasbichler, 2009 in Demo, 2016). The students' perceived freedom in determining their learning path can be seen as a cornerstone for fostering conscious and motivated participation within a fully democratic framework (Demo, 2016). Additionally, the tool promotes transversal competencies such as time management, collaboration, and self-correction, which are essential for personal and social growth (D'Amario et al., 2015). Teachers reported increased awareness of the importance of personalized and differentiated instruction, consistent with the "pedagogy of intentionality" (Schön, 1983; Mortari, 2004), which advocates reflective practices tailored to students' needs. Despite its organizational complexity, the tool encourages teachers to adopt more flexible, collaborative approaches.

Furthermore, the Plan de Travail fosters reflexivity, enabling students to understand their learning styles and teachers better to improve their educational strategies, resonating with Mezirow's (2016) concept of transformative learning through critical reflection. Ultimately, the Plan de Travail emerges as a tool for instructional organisation and promoting personal and professional growth, advocating for further experimentation supported by teacher-researcher collaboration and inclusive teaching practices to meet diverse student needs. These findings encourage further experimentation, backed by broader cooperation between teachers and researchers and a commitment to increasingly inclusive teaching practices that address the needs of every student.

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# Well-Being and Social Participation of Autism Spectrum Disorder Students at University: the impact of Atypia Friendly Inclusion Program

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## Abstract

Transition from secondary to higher education remains particularly difficult for students with Autism Spectrum Disorder (ASD). We wished to understand the difficulties encountered by autistic students, exploring well-being and social participation. A total of 25 autistic students took part in this study, divided into 2 groups: supported or not by Atypie Friendly program. No significant difference was observed between the 2 groups. Then we matched autistic students supported by the program with a third group of students with attention deficit hyperactivity disorder (ADHD). The results indicate significant differences in terms of wellbeing and social participation. These results therefore indicate specific characteristics among autistic students, which need to be taken into account to succeed at university.

**Keywords:** Autism Spectrum Disorder; well being; social participation; university inclusion program.

# 1. Introduction

In France, the law of February 2005 on equal rights and opportunities, involvement and citizenship of disabled people and the law of 22 July 2013 on higher education and research have improved the inclusion of disabled children, from school to university. In addition, since 2005, three successive autism plans have targeted access to mainstream educational environment for autistic children and young autistic people[1] by recognizing their specific characteristics and providing suitable support. The French national autism strategy for 2018-2022 (Ministère du Travail, de la Solidarité et des Familles, 2018) confirmed this concern as being a national priority. In this context, the "Building an Aspie-Friendly University" project was developed, supported by the French National Research Agency, as part of the new university curricula. At the request of the French government, which funds the program and developed a new political strategy for 2023-2027 named "for the neurodevelopmental disorders", the program was renamed Atypie Friendly in 2023 to reflect the atypical nature of autism spectrum disorders, as well as other neurodevelopmental disorders which it is planned to support more and more in the future, such as ADHD and developmental coordination disorders.

The transition from secondary school to higher education can be particularly difficult for any young adult starting university. This transition requires a significant adjustment process, both on an academic and personal level (Pryjmachuk et al., 2019). This explains the need for a program such as Atypie Friendly, for which we are reporting an increase in the number of students requesting support during the 2022-2023 academic year. Previous studies have highlighted the academic and social challenges faced by autistic students in higher education. Success in higher education requires more than just academic skills; being a student also requires communication and interaction skills (Adolfsson and Simmeborn Fleischer, 2015). This is all the more difficult for autistic students, who lack these skills (Schall, et al., 2012). For instance, Gurbuz et al. (2019), compared the results of 26 autistic students with 158 non-autistic students with a 57-item questionnaire created and validated specifically for the study. Autistic students showed lower scores on both the social and academic components of the questionnaire. However, the limitations highlighted a significant difference in the number of autistic and non-autistic participants, as well as a difference in the sex-ratio, and the use of self-reported measures rather than direct, objective measures. These studies were conducted in Sweden and the UK respectively. More broadly, research in other European countries has highlighted similar challenges faced by autistic students in accessing higher education, though the inclusion policies and available support programs differ widely (Hees, Moyson, & Roeyers, 2015 in Belgium). Similarly, research from USA focusing specifically on students with ADHD has highlighted challenges related to time management, emotional regulation, academic organization, self-esteem and social skills (Shaw-Zirt, Popali-Lehane, Chapin & Bergman, 2005; Meaux, Green & Broussard., 2009)

These difficulties are barriers that must be overcome. However, the specific characteristics of ASD can also represent strengths, which may support academic success when adequately valued and supported. Autistic students can demonstrate a resolute attitude when solving important problems and exhibit significant attentive abilities, as long as the subject is part of their narrow circle of interests.

This study is based on a conceptual framework that combines the social model of disability (Oliver, 1996; Oliver & Barnes, 2010; Oliver, 2013) and the Capability Approach (Sen, 1999; 2005). The social model of disability emphasizes that the obstacles experienced by autistic students are not solely related to their individual characteristics but are also the result of environmental, social, and institutional barriers. In this perspective, improving university inclusion requires adapting the environment and support systems to the specific needs of neurodivergent students. These theoretical models support our choice of indicators—quality of life, autonomy, well-being, social participation, and executive functioning—as key components of the university experience for autistic students.

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[1] We have opted to use the term "autistic person" to refer to people with ASD in the text, thus reflecting the preferences of the autistic community (Kenny et al., 2016).

Figure 1 shows the typical pathway of a student with a disability in French universities. Actions implemented as part of the Atypie Friendly program are shown in orange, highlighting how they complement the existing services in universities. Starting with secondary education, in France there are some guidance counseling pre-entry orientations professionals who are familiar with the Atypie Friendly program and can introduce it to future students. The university student will then have to go through the Disability Service or Health Service, both of which are trained in autism by the program. At this point, the student must undergo a tailored « Needs Assessment Interview » for autistic students and a medical consultation. The Disability Service will propose accommodation that are more tailored for autistic students compared to what is provided for all students with specific needs. Lastly, the Atypie Friendly team assists in transmitting the elements to the pedagogical team, implements individual follow-up, offers training to raise awareness of the educational and administrative university environment, as well as possibly providing individualized support for the pedagogical team.
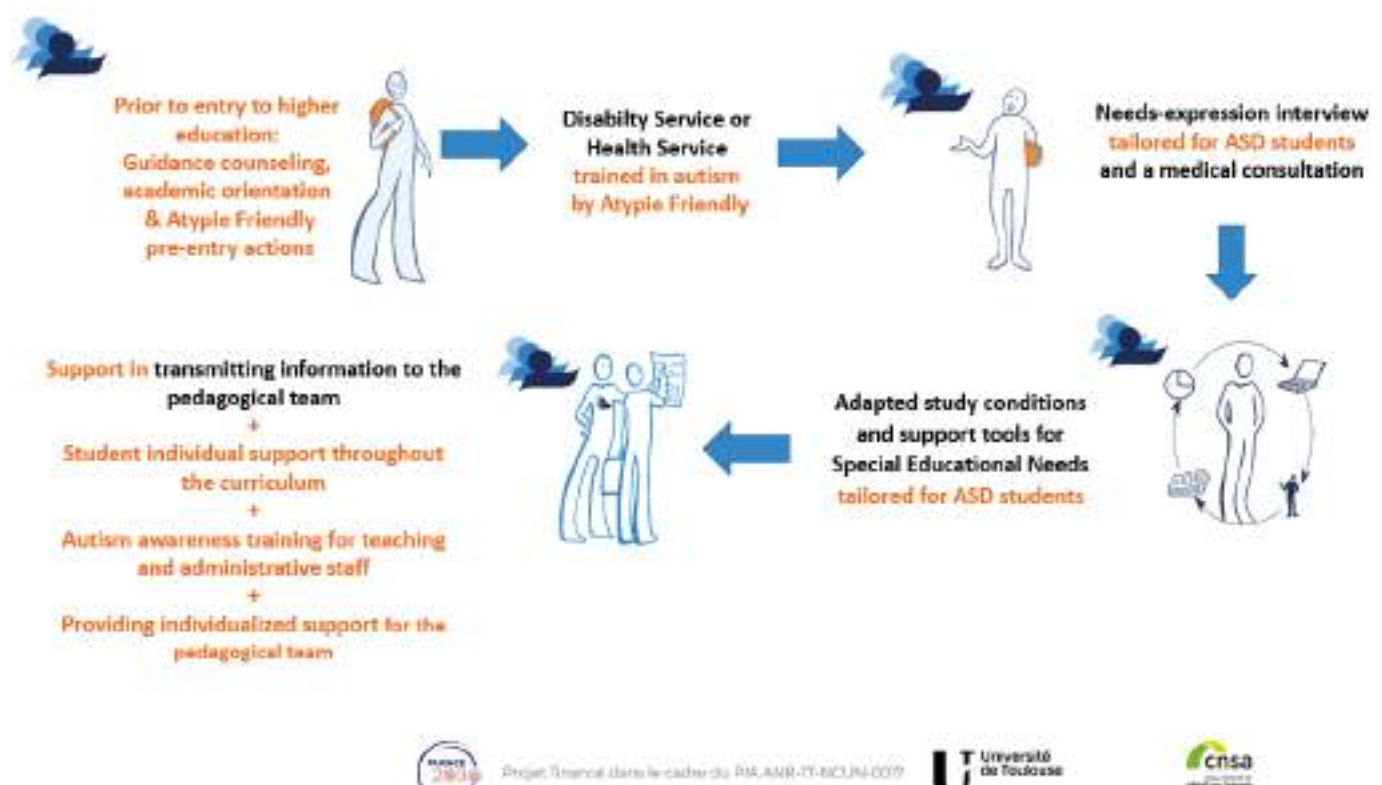


*Figure 1: Schematic pathway of the students with a disability at French University.*

*N.B. Some actions implemented through the Atypie Friendly program are highlighted in orange*

### 1.1 Design and aim and of the study

Most studies in this area are qualitative (i.e., interviews, open-ended questions, case studies and focus groups - Adolfsson et al., 2015 ; Anderson, 2014; Peña & Kocur, 2013 ; Van Hees, Roeyers, & De Pauw, 2015). Moreover, most studies were conducted in an English-speaking context, where the inclusion policy differs from France. While these qualitative studies have provided valuable insights into the lived experiences of neurodivergent students, there is a need for quantitative data to further explore the factors influencing their well-being and academic integration. Our study seeks to address this gap by adopting a quantitative methodology. We opted to replicate the quantitative methodology employed in the study by Gurbuz et al. (2019), incorporating more objective measures to evaluate variables identified in the literature as potentially influencing well-being and social participation— defined here as the activities undertaken by autistic students and students with another neurodevelopmental disorder, such as attention deficit hyperactivity disorder (ADHD), within the university setting. The aim of our study was to assess the impact of the Atypie Friendly program on

autistic students that are supported or not by the program, compared to students with another neurodevelopmental disorder: ADHD students. This will provide additional data to the literature to understand whether there are similarities and differences between different neurodevelopmental profiles in a university context in order to lay the foundations for inclusive and differentiated policy recommendations according to students' needs.

The present study explores the following research questions: 1) Does the Atypie Friendly program improve quality of life (QoL), well-being, autonomy, social participation, and executive functioning in autistic students? 2) Are there significant differences between autistic students (with or without support) and students with ADHD in these variables? These dimensions were selected because previous studies have shown their significant influence on the academic experience and success of neurodivergent students (Adolfsson & Simmeborn Fleischer, 2015; Gurbuz et al., 2019).

The study hypothesized that autistic students supported by the Atypie Friendly program would show higher well-being, autonomy, and social participation scores and lower executive functioning difficulties compared to those without support and to ADHD students. In this study, the ADHD group includes students with a diagnosis of Attention Deficit Hyperactivity Disorder, whether or not the hyperactivity component is predominant, in line with the current DSM-5 classification. No separate group of students with Attention Deficit Disorder (ADD) was included.

## 2. Method

### 2.1 Participants

A total of 125 students were contacted to participate in the study, of whom 34 responded, resulting in a response rate of 27%. A total of 34 participants aged 18 to 47 (M = 26; SD = 7.27), including 22 autistic students (with 8 males, 12 females, and 2 others), and 12 ADHD students (with 6 males, 5 females, and 1 other) were included in the research. Fifteen autistic students were supported by Atypie Friendly program and 7 autistic students were not. Participants were enrolled in a variety of university programs, including humanities, sciences, and social sciences. Psychiatric disorders, sensory disorders, motor disorders and students in their first year of study were non-inclusion criteria. Students with co-occurring ASD and ADHD were excluded to maintain distinct comparison groups.

### 2.2. Material

The participants completed a series of questionnaires: a socio-demographic questionnaire, quality of life (WEMWBS, Tennant et al., 2007), university autonomy questionnaire (CSEQ (College Student Experiences Questionnaire, Gonyea, Kish, Kuh, Muthiah & Thomas, 2003), as well as initiation and flexibility subscales of an inventory to assess executive behavior (BRIEF : Behavior Rating Inventory of Executive Functions, Roth, Isquith, & Gioia, 2005). Moreover, the university well-being questionnaire was adapted specifically as part of the study of the impact of the Atypie Friendly program. It is based on several tools, including the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, and Farley, 1988) and Coopersmith's self-esteem inventory (Coopersmith,1981). Finally, they complete a social participation questionnaire created by researchers and based on a literature review and on the results of interviews with non-disabled, disabled and autistic students about their experience and social life at university (Kruck, Dell'armi & Cilia, 2024). The questionnaires were administered online via a secure university platform. Data were anonymized and stored securely in compliance with the General Data Protection Regulation (GDPR). The study protocol was approved by the Ethics Committee for Non-Interventional Research (CERNI). All participants were informed about the objectives of the study and gave their informed consent before participating. Data were anonymized and stored securely in compliance with the General Data Protection Regulation (CERNI in French). The data were analyzed using descriptive statistics, t-tests and Mann-Whitney U tests to compare groups, and significance levels were set at p < 0.05.

## 3. Results: Comparing Means of autistic students with or without Atypie Friendly program support and ADHD students

Regarding quality of life, autistic students supported by Atypie Friendly program had a mean score of 80.4 (SD = 17.2), while autistic students without Atypie Friendly support had a slightly lower mean score (M = 75.4; SD = 17.3) as well as for ADHD (M = 73.7 ; SD = 17.9). However, the difference was not significant between autistic students' groups (t (20) =-0.631, $p$=0.268) and by comparing Atypie Friendly to ADHD students (t (25) =0.994, $p$=0.165). Concerning well-being, despite a higher mean score of 66.3 (SD = 11.9), for autistic students with Atypie Friendly support compared to 58.0 (SD = 18.1) for those not on the program, there was no significant difference between autistic student groups (t(20)=-1.28, $p$=0.107). But Atypie Friendly autistic students have significantly higher scores on well-being (t (25) =2.14, $p$=0.021) than ADHD students (M= 55.8; SD = 13.3). Furthermore, with regard to autonomy, autistic students supported by Atypie Friendly program had a mean score of 37.9 (SD = 9.59), whereas autistic students not benefiting from the program had a slightly higher mean score (M = 40.3; SD = 7.97) as well as ADHD (M = 35.9; SD = 8.81). Here again, the results were not significantly different between autistic student's groups (U=42.5, $p$=0.771) and by comparing Atypie Friendly to ADHD students (U=76, $p$=0.255). As for the assessment of executive behaviors, autistic students supported by Atypie Friendly had a mean score of 27.9 (SD = 3.29), which was slightly lower than other autistic students (M = 28.7; SD = 5.09). The results were not significantly different between these 2 groups (t (20) =0.473, $p$=0.679). But Atypie Friendly autistic students have significantly lower scores on executive behaviors (t (25) =-3.32, $p$=0.001) than ADHD students (M = 32.6; SD = 4.1). The higher the score, the more difficulties the person has, so ADHD have more deficits in flexibility and initiation than autistic students. Finally, concerning social participation, the autistic students who did not benefit from Atypie Friendly (M = 24.7; SD = 9.91) and ADHD (students (M = 24.8; SD = 13.8) had a higher mean score than the autistic students supported by Atypie Friendly (M = 17.9 ; SD = 8.8). Despite a trend, this difference does not reach significance between autistic students groups (t (20) =1.61, $p$=0.061) and by comparing Atypie Friendly to ADHD students (t (25) =-1.58, $p$=0.006). Finally, concerning all the variables, there is no difference between autistic students not supported by the program and ADHD students. The graphic representation of these results is given in Figure 2.
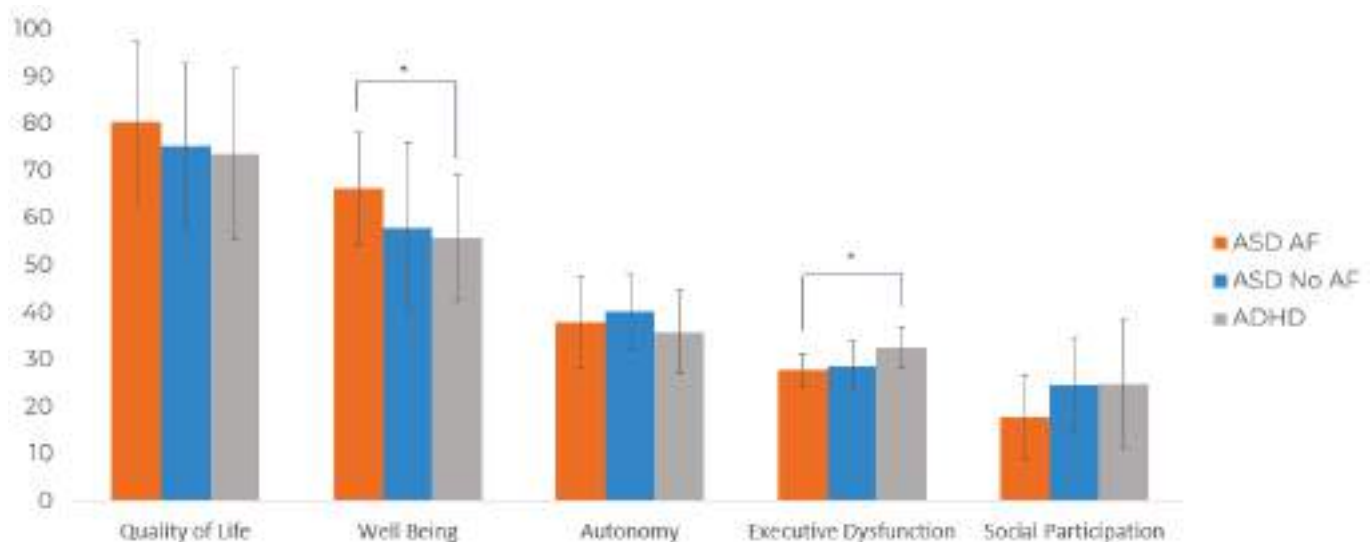


*Figure 2: Mean comparisons of autistic students with or without Atypia Friendly program support and of ADHD Students.*

*N.B. ASD AF : autistic students supported by Atypie Friendly program ;  ASD No AF: autistic students without Atypie Friendly program, ADHD; students with attention deficit/hyeractivity disorder*
*\* indicates a significant difference (p< 0.05) between ASD AF and ADHD*

## 4. Discussion

The objective of our study was to assess the impact of the Atypie Friendly program on autistic students in higher education, compared to autistic students not supported by the program, and to examine whether their profiles differ from those of students with Attention Deficit Hyperactivity Disorder (ADHD). The French government has recently asked the program to extend its support to other neurodevelopmental disorders, but it is important to ask whether the challenges faced by autistic students are specific or shared with other neurodivergent populations. It was therefore necessary to assess whether the variables studied are influenced by common traits between these groups or by specific factors. In doing so, we remain aware that the comparison is not complete at this stage of the research and that variables are potentially confounded in this contrast between the students supported by Atypie Friendly, those who did not wish to be supported and those with ADHD, not yet supported but who will soon have the opportunity to do so through general or disorder-specific actions. In moving from a specific program for the inclusion of autistic students to all students with a neurodevelopmental disorder, we have to ask if similar interventions are adapted to this population or if their needs differ significantly. The dependent variables we choose to explore were quality of life, well-being, autonomy, executive behaviors and social participation. Contrary to our expectations, no significant differences were found on these measures between the two limited-size samples  compared (15 autistic students supported or not by Atypie Friendly). A priori, there's no reason to believe that these groups have different characteristics, but this remains a point to be verified and the Atypie Friendly program may not play a big enough role in modifying these aspects. It should be emphasized that some measures are based on a perceived sense of support. Jennes-Coussens et al., (2006), did not find significant differences between a group of young autistic adults and a control group of typical students for perceived social support. As such, this result may indicate that when autistic students are asked directly, they do not mention a lower perception of social support, although they have more difficulty in socializing with others. However, in a study using parental questionnaires, the authors found lower social support among autistic students than among ADHD students (Elias & White, 2019). In our study, the comparison between autistic students benefiting from Atypie Friendly support and students with ADHD revealed a significant difference on two variables. First, autistic students supported by Atypie Friendly program had a significantly higher well-being score than ADHD students. Why is this? ADHD students may also benefit from adaptations, but their needs may sometimes be less well understood or taken into account, especially if their symptoms are perceived as behavioral problems rather than specific educational needs. ADHD students may also have more difficulty managing their emotions and impulses, which can lead to interpersonal conflicts and lower overall university well-being. But there is no difference between autistic students not supported by the program and ADHD students. We can therefore assume that Atypie Friendly offers social and academic support that improves the well-being autistic students who follow this program, as well as for all autistic students thanks to long-term work on autism at university. Future work on other neurodevelopmental disorders remains to be done to achieve the same effects.

A second notable difference relates to the higher executive difficulties reported by ADHD students than by than autistic students. Executive dysfunctions are well known in ADHD. They are also frequently observed in autistic adults although with a certain heterogeneity (Demetriou et al., 2018) but are not part of the diagnosis. Results vary depending on whether they are assessed with neuropsychological direct testing, or with ecological scales of everyday behaviors such as BRIEF-A (Wallace et al., 2016). In the academic context, an assessment of executive functions is particularly relevant in order to identify the strengths and weaknesses of autistic students, to offer arrangements and support adapted to their profiles, and thus increase their chances of success in higher education. In our study, a self-reported scale was used and it may be the case that ADHD students have a better understanding and perception of this type of difficulties,  than autistic students, who may not  be able

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to perceive them as clearly as their degree of social participation in activities with other people. In fact, self-report of social participation was not found to differ significantly between groups. It may be that Atypie Friendly program students do not enable autistic students to improve their social participation or that students on the program have no more difficulties than those who are not on it or those with ADHD. Executive and social variables are often linked, but the profiles of the most altered executive subcomponents are somewhat different in ADHD and ASD. Concerning our results, the type of support offered by the Atypie Friendly program may play a role (Cilia et al., 2024). For example, it may focus on specific aspects of learning or socialization, while neglecting executive functions. In this respect, although the difference is not significant, but a trend, it is notable in terms of the social participation reported by the 3 groups. Autistic students without Atypie Friendly and ADHD students rated their social participation more positively compared to autistic students with Atypie Friendly. ADHD students may have characteristics such as hyperactivity, impulsivity or inhibition deficits which facilitate social interactions in a more spontaneous way, leading them to initiate contacts and participate in activities, thus promoting their social participation. In this view, the stigmatization is certainly higher for autistic people and ADHD, and their participation suffers as a result. What's more, if we ask them, some of autistic students tell us that they don't want to form social links at university (Kruck, Dell'Armi, & Cilia., 2024).

### 4.1 Limitations

There are several limitations to be considered in this study. Firstly, the study was conducted on a limited sample of autistic and ADHD students. However, previous studies using a methodology similar to ours also had small samples of students with autism (n=26; Gurbuz et al., 2019), and on average the number of autistic students participating in similar studies is 16 (Anderson et al., 2017). Moreover, we were unable to verify the diagnosis of the participants, so it was self-reported. However, an autistic trait measurement (RAADS-14) was performed to ensure that the group of autistic students whose diagnosis was self-reported presented these characteristics, unlike the ADHD students. Some autistic students wanted to be part of the program, but the length of time they were included and took part in the program's activities varied from student to student. Other autistic students did not want any particular support, but we do not know the specific reasons for this. Finally, ADHD students are not yet part of the program, but will eventually be able to join. So there are confounded variables in our groups. We created a questionnaire for assessing social participation experience whose results were not significant here, but further studies should use a validated instrument for a better evaluation.

## 5. Conclusion

To conclude, this nationwide program has a number of objectives designed to improve access to higher education and success at university. We wanted to assess the aspects linked to the autonomy, well-being and social participation of students in French universities. At this stage of the research and on a still limited number of participants, our results are not in line with other studies on the impact of university inclusion programs. Locke et al (2023) highlighted progress in certain skills of students with autism, such as socialization, executive functioning and academic work, thanks to a mentoring program. Further work on larger samples is required to refine possible intra-group individual heterogeneity and to go beyond the methodological difficulties encountered. The academic experience of autistic students can be affected by the presence of the specific characteristics of ASD, and taking them into account is essential for improving their inclusion and academic success. The same consideration should be given to making the program equally accessible to all students with a neurodevelopmental disorder. It can therefore be observed that there is no point in forcing students into group social participation if they already find personal satisfaction in their university life. It's necessary to find the right balance between what is necessary for them in terms of social autonomy to be acquired for a future professional integration and personal well-being as a person, beyond their characteristics.

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# The Student Voice in Teacher Training, an investigation into the inclusiveness of European practices

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## Abstract

This study investigates the integration of student voice in teacher training programs, with a focus on practices involving students with disabilities across European contexts. Employing a systematic review guided by the PRISMA framework, 47 studies were analyzed to identify trends, barriers, and innovations in promoting inclusivity. Findings highlight significant methodological gaps, such as limited use of non-verbal communication tools, and systemic barriers that hinder authentic student engagement. Despite challenges, promising practices demonstrate the transformative potential of student voice in fostering agency and improving teacher preparedness. These insights advocate for refined methodologies and culturally adaptable strategies to enhance inclusive education.

**Keywords:** student voice; teacher training; intellectual disabilities; complex communicative needs; higher education.

## 1. Introduction

Inclusive education is a cornerstone of equitable societies, yet its implementation remains fraught with challenges. Italian schools have historically been pioneers in integrating students with disabilities, setting a precedent for inclusive practices across Europe. However, despite legislative advancements and policy frameworks aligned with the United Nations Convention on the Rights of Persons with Disabilities (CRPD, 2006), the gap between policy aspirations and practical outcomes persists.

Central to achieving authentic inclusion is the concept of student voice—the active involvement of students in shaping their educational experiences. As Lundy (2007) emphasizes, inclusion is not merely about physical presence but about creating spaces where students, particularly those with disabilities, can meaningfully participate and influence decision-making processes. This shift challenges traditional hierarchies in education, which often position students as passive recipients rather than active agents.

The dynamics of inclusion also reveal deeper power structures. Those who belong to the majority often hold the privilege of deciding whom to include and under what conditions, a concession that can be revoked at any time. This dynamic risks reducing inclusion to an act of tokenism, attaching subjects as appendices to discourses designed and verbalized by the majority. In this context, researchers have an ethical obligation to place their expertise at the service of people with disabilities, positioning them as participants and collaborators in the research process (Kubiak, 2021).

The term "voice", while signifying a repositioning of students in educational research and reform, must also contend with its limitations. As Lorde (1984) cautions, privileging voice risks denying the potential power of silence and resistance. Furthermore, the societal construct of disability, as Mitchell and Snyder (2000) argue, has historically served as a trope for human disqualification. Disability, in a sense, is the foundation upon which the concept of the "normal" body has been built (Davis, 1995).

This study investigates the integration of student voice in teacher training, focusing on practices that involve students with disabilities as co-designers of inclusive education. By conducting a systematic review, we aim to identify trends, barriers, and innovative strategies for embedding student voice into teacher training programs across Europe. This review contributes to a growing body of research advocating for systemic changes to address structural ableism and empower diverse student populations:

> «Inclusion as a power dynamic. Who belongs to the majority can afford the luxury of deciding from time to time if and who to include, to whom to allow access to their group, while on the other hand the person who is included will suffer such concession that can be revoked at any time» (Acanfora, 2020, p. 63).

## 2. Methodology

This study adopts a systematic review methodology to explore the integration of student voice into practices involving students with disabilities, with a particular focus on deriving actionable insights for teacher training. The systematic review was conducted following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework, ensuring transparency, rigor, and reproducibility throughout the process. By adhering to these stringent guidelines, the study aimed to minimize bias and enhance the validity of its findings, creating a robust foundation for addressing gaps in current educational practices.

The review aimed to address the following key questions: (1) To what extent are students with disabilities actively involved in student voice practices within formal education contexts? (2) What methodological innovations have been developed to amplify the voices of students with complex communicative needs? (3) How do student voice practices differ between secondary school and university settings? These questions were informed by the conceptualization of student voice as both a process and an outcome, emphasizing the role of students as co-creators of educational change rather than mere participants (Cook-Sather, 2006). This dual conceptualization underscores

the transformative potential of empowering students to influence decisions that shape their learning environments.

### *2.1 Search Strategy and Inclusion Criteria*

The study encompassed empirical research published between 2006 (UN Convention on the Rights of Persons with Disabilities) and 2024, aligning the start date with the adoption of the Convention on the Rights of Persons with Disabilities (CRPD), which established a global framework for inclusion and equity. A comprehensive search strategy was employed, utilizing databases such as PsycINFO and EBSCO, and deploying Boolean operators to combine a wide range of terms related to "student voice," "disability," and "complex communication needs." These search terms were meticulously designed to capture studies that explicitly addressed the participatory inclusion of students with disabilities in educational settings. Additionally, efforts were made to include literature in multiple languages, provided an abstract was available in English, ensuring a broad and inclusive scope.

The selection of studies was guided by a refined adaptation of the PICOs framework. The population criterion focused on students with disabilities engaged in formal education settings, including both secondary and higher education contexts. The interventions of interest encompassed participatory practices that emphasized active involvement and decision-making by students. While a formal comparison was not a requirement, studies that contrasted traditional approaches with participatory methodologies provided valuable insights. Outcomes were assessed in terms of their impact on fostering inclusivity and enhancing teacher training practices. Finally, only empirical studies employing robust methodologies—qualitative, quantitative, or mixed-method designs—were considered, ensuring that the evidence base was both diverse and methodologically sound. Studies were excluded if they failed to emphasize participatory practices or if the role of student voice was tangential rather than central.

Eliminating duplicates, a pool of 286 studies for screening was created. Titles and abstracts were meticulously reviewed against the inclusion criteria, resulting in 97 full-text articles subjected to a more detailed evaluation. Ultimately, 30 studies met the stringent eligibility requirements, forming the basis for a comprehensive analysis. The PRISMA flowchart (Figure 1) provides a visual representation of the systematic selection process, highlighting the rigor and transparency of the methodology.

*Figure 1: PRISMA workflow.*

## 2.2 Data Extraction and Analysis

The data extraction process was conducted with a high degree of precision, focusing on key variables such as participant demographics, study design, and reported outcomes. Two independent reviewers systematically extracted data, ensuring inter-rater reliability by resolving any discrepancies through consensus. Thematic synthesis served as the primary analytical approach, enabling the identification of recurring patterns, methodological innovations, and existing gaps within the literature. This method allowed for the integration of findings across studies, providing a nuanced understanding of how student voice practices intersect with inclusive education.

Particular interest was placed on exploring strategies that facilitated the inclusion of students with complex communicative needs. Non-verbal and alternative communication methods, often underrepresented in traditional educational research, emerged as critical tools for enabling meaningful participation. The analysis also incorporated a detailed examination of the levels of student involvement, categorized according to Fielding's (2004) framework, which ranges from students as data sources to full collaborators in research and decision-making processes.

The methodological diversity of the included studies was a notable strength, encompassing a wide array of qualitative and quantitative designs. However, a consistent limitation across the corpus was the underutilization of innovative communication tools, such as augmentative and alternative communication (AAC) systems. Resch (2023) emphasizes the pressing need for greater representation of student voices in diversity policies, highlighting how institutional frameworks often fail to fully engage marginalized groups. Similarly, Gonzalez et al. (2017) delve into methodologies designed to include historically excluded voices, stressing the importance of innovative and inclusive approaches that actively amplify the participation of students with disabilities. Together, these studies illuminate critical gaps in current practices and underscore the transformative potential of

reimagining methodologies to foster genuine inclusivity and collaboration. This finding underscores the need for educational stakeholders to prioritize the adoption of such methodologies, ensuring that all students, regardless of their communicative abilities, can actively contribute to shaping their educational experiences.

By synthesizing findings from diverse geographical and cultural contexts, the review illuminated the disparities in how student voice practices are conceptualized and implemented. While the majority of studies originated from English-speaking countries, such as the United Kingdom, the United States, and Australia, there was a conspicuous lack of representation from non-Anglophone regions. This imbalance highlights the importance of conducting culturally contextualized research to develop inclusive practices that are adaptable to varying educational systems worldwide. The thematic synthesis not only identified gaps but also highlighted promising practices, offering actionable insights for reimagining teacher training programs to align with the principles of inclusivity and equity.

## 3. Results

The results of the systematic review reveal a complex landscape characterized by both significant challenges and promising practices. A predominant finding is the limited integration of students with disabilities in participatory processes, with many studies positioning these students primarily as data sources rather than as active participants or co-researchers. Fielding's (2004) framework of student involvement highlights this gap, showing that only a small fraction of studies positioned students with disabilities in leadership or co-researcher roles, thereby failing to fully harness their potential as change agents within educational systems.

One of the most striking gaps identified is the reliance on traditional, verbal-centric methodologies, which exclude students with complex communicative needs. Preliminary analyses reveal that only 4% of the studies reviewed employed non-verbal methods such as Talking Mats or other assistive tools, despite their recognized potential in fostering inclusive participation. This underscores a significant methodological gap in addressing the needs of students with complex communicative requirements. Furthermore, art-based and narrative approaches, while occasionally utilized, often remain supplementary rather than central to the research design, limiting their transformative potential.

Geographically, the review highlighted the anglocentric nature of student voice as a methodological framework, with a significant concentration of studies originating from English-speaking countries, particularly the UK, North America, and Australia. This reflects the cultural and historical roots of the approach, which is deeply embedded in traditions of participatory and democratic education prevalent in these regions. However, this emphasis also reveals a gap in exploring how student voice practices are conceptualized and implemented in non-anglophone contexts, particularly in regions where educational systems may differ significantly in structure and philosophy. This uneven distribution underscores the need for more contextually nuanced research that accounts for cultural and systemic variations while adapting student voice methodologies to diverse educational landscapes.

Despite these challenges, the review identified several innovative practices that hold promise for advancing inclusivity. Participatory methods that positioned students as co-researchers demonstrated significant potential for fostering meaningful engagement and collaboration. For instance, projects that utilized visual and tactile communication strategies effectively enabled students with disabilities to play a central role in shaping educational decisions. Such approaches align with the principles of inclusive inquiry, emphasizing the importance of co-creation and shared authority in educational research (Messiou & Ainscow, 2021).

Looking ahead, the review highlights the importance of integrating intersubjectivity, reflexivity, and power dynamics as critical components for fostering inclusivity. These elements represent significant challenges and opportunities for future research and practice, emphasizing the need to develop participatory methodologies that address systemic inequities while empowering students with disabilities to contribute meaningfully to educational reform. These dimensions, as articulated

by the Student Voice Research Framework (Brasof & Levitan, 2022), provide a robust foundation for designing participatory practices that genuinely empower students with disabilities. By addressing systemic inequities and prioritizing culturally responsive methodologies, these frameworks have the potential to bridge the gap between inclusive theory and practice, paving the way for more equitable and impactful educational research.

## 4.Conclusion

The findings of this review emphasize the growing recognition of the importance of student voice in fostering inclusive education across Europe. As highlighted by international frameworks such as the Bologna Declaration of 1999, there has been an increasing focus on aligning teacher education with the demands of inclusivity and diversity. This trend is further driven by the internationalization of education, which has placed significant pressure on institutions to identify and embed vital competencies for future educators (Persson, 2004).

The analysis also underscores the transformative potential of student voice in bridging the gap between theoretical inclusion frameworks and real-world practices. Evidence from this review indicates that teacher training programs benefit from integrating participatory approaches, which foster agency and self-efficacy among students with disabilities. However, systemic barriers remain pervasive, including entrenched ableism, resource constraints, and limited methodological diversity, particularly for students with complex communicative needs.

Additionally, the inclusion of non-verbal methodologies has shown promise but remains underutilized. Expanding such approaches is essential for ensuring the active participation of all students. Furthermore, fostering collaboration between educational stakeholders—teachers, families, and students—is critical for developing inclusive frameworks that prioritize diverse voices. The adoption of frameworks such as the Student Voice Research Framework (Brasof & Levitan, 2022) could provide guidance for addressing key elements like intersubjectivity, reflexivity, power dynamics, and context, which are essential for meaningful engagement.

In conclusion, while significant progress has been made in recognizing the value of student voice, achieving its full impact requires ongoing efforts to address systemic inequities and methodological gaps. Future research should explore innovative participatory practices, focusing on cultural and contextual adaptability, to better align teacher training with the needs of diverse learners.

These findings suggest that teacher education programs should incorporate specific training on the implementation of Student Voice as a structured methodology to foster the meaningful inclusion and active participation of students with disabilities. By embedding these practices into educational systems, we can move closer to a transformative vision of inclusion that empowers every voice to shape the future of education.

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* (studies that were included in the systematic review  primary corpus)

# Differentiation in Preschool.
# Pedagogical Issues and Best Practices

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## Abstract

The study aims to intersect the most current ideas of work on 0-6 with the methodological perspective of Differentiation. Beginning with the input offered by Differentiated Instruction, teachers design activities to identify and foster an increasingly in-depth knowledge of children's interests, learning profiles and degrees of readiness, thus fostering everyone's participation and active involvement in processes of acquiring learning modalities that are then useful for the transition to primary school. The practices activated allow teachers to become researchers not only of practices, but above all of thoughts and working hypotheses, able to focus increasingly on the needs of individuals, and to pay attention to the instances and dynamics of the class group, favoring truly inclusive educational and didactic paths. This paper aims to offer a reflection on the opportunities offered by differentiation as early as kindergarten, preparing avenues of thought and action capable of linking legislative instances, pedagogical perspectives and teaching practice.

**Keywords:** 0-6 services; inclusion; differentiated Instruction; good practices.

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[1] Paragraphs n. 1-2
[2] Paragraph n. 3.

## 1. The interest in early childhood

The last 20-30 years have seen a revitalized interest in early childhood issues in various scientific fields. From psychology to sociology, from medicine to neuroscience, from legislation to pedagogy, many fields of knowledge have carried out studies on the 0-6 world. The reasons behind this trend can be traced back to a few aspects, which we will try to summarize below.

The first concerns the recovery of studies and approaches from the past, which have been brought up to date and have found fertile ground for reflection and educational practice in today's early childhood services. This actualization has allowed us to refocus the pedagogical pillars of these models and to rediscover their potential that is still relevant and tuned with today's times. For instance, we can cite the development, both nationally and internationally, of numerous services that are inspired by the Montessori model and take up its 'Method' or Steiner's Waldorf pedagogy, or the numerous experiments with "open-air kindergartens" in northern Europe, which, started in the 1950s, have today become consolidated realities in many countries around the world.

What unites these models, although distant from each other in their theoretical thinking and in the way the underlying ideas are put into practice, is the centrality of the context, which becomes an active element in the learning process. It contributes, together with the educational proposal, to fostering children's development, independence and autonomy, offering stimuli capable of promoting their activism and protagonism. Today's childcare services are particularly attentive to this element, with designs for increasingly 'child-friendly' environments that can nurture and support an exploratory spirit in learning about the world and develop skills useful for tackling subsequent levels of education and, more generally, life with greater confidence and mastery. In the wake of the outdoor school models of northern Europe, outdoor space has also acquired a strong educational value in the design of 0-6 services, since it can multiply educational and didactic opportunities, totally (Scuole nel bosco or Agrinidi, for example) or partially replacing indoor environments.

The most current research directions on the choice of materials used to foster learning move in the same direction (: alongside objects specifically designed for teaching purposes, defined as 'structured materials' (interlocking games, wooden blocks, etc.) (Guerra, 2017), everyday objects, not conventionally designed for schooling, are also used in preschools today. These elements are unstructured and multifaceted in form and use, which can help children in the processes of discovery and research, encouraging problem solving, problem finding, divergent thinking and creativity (Guerra, 2019). In this case, the anchorage to the past is more current and goes back to the studies of the English architect Simon Nicholson who, at the beginning of the 1970s, began to use different materials, easily found in nature and in everyday use, for the design of kindergartens. This practice then took on the guise of a true theory, called the 'Loose Parts Theory', which is widely used today in early childhood projects (Folci, 2024).

The second element motivating the renewed focus on the 0-6 world can be attributed to the numerous discoveries about the functioning and evolution of children's brains and the valuable role that early life experiences play for the subsequent developmental stages (Shonkoff J.P., 2009). Neuroscience has provided a strong impetus to view early childhood as a fundamental time of growth, maturation and preparation for the future. Discoveries such as cell budding, pruning, the so-called 'critical periods', the close correlation between the genetic code and early experiences that then determine brain functioning, are just some of the contributions that support pedagogical reflection and the related teaching practice in the 0-6 services (Maggiolini, in D'Alonzo, Loner Zecchel, 2015). These elements constantly urge educators and teachers to consider the fundamental importance of early childhood education, recognizing the need for early educational intervention, in the prevention of dysfunctional behaviors and the promotion of adaptive and functional ones.

The third aspect that has impacted profoundly on the revision of 0-6 services is political and cultural: national and international policies aimed at the prevention of so-called 'educational poverty' have insisted, and continue to do so, on the need to ensure that all children have access to different levels of education, starting from childhood. The 2015 "*Sustainable Development Goals of 2030 Agenda of the United Nations Organization*" expresses it as follows: "*By 2030, ensure that all girls and boys have access to quality early childhood development, necessary care and pre-schooling so that they are*

*ready for primary education*".  The fundamental role of 0-6 education in preventing and combating educational poverty is clear. The 0-6 centres do not only provide a service of a caring nature, but become true educational complexes, capable of forming future citizens and avoiding or, at least, limiting the damage caused by socio-economic deprivation.

## 2. Current legislation in support of 0-6

On a national level, the above-mentioned aspects, together with the contamination coming from the European educational guidelines, have also nourished a new normative reflection on pre-school services. Reference to a selection of ministerial documents will help us to capture fundamental elements in the definition of the new pedagogical Italian culture for childhood, which in recent years has been directing the projects dedicated to it.

The first text is the "*Indicazioni Nazionali per il curricolo per la scuola dell'infanzia e del primo ciclo di istruzione*" of 2012, expanded in 2018 (MIUR, 2012; MIUR, 2018).  The title already suggests a new idea of educational proposal, which is intended to embrace 10 years of each student's school life, from the beginning of kindergarten to the end of secondary school, in the first cycle of education. On an operational level, this has entailed a renewed approach to teaching and educational planning for schools, with a substantial revision of subject planning and, above all, of the learning objectives related to it, which are declined into competences to be matured at the end of each grade. For the pre-school, knowledge is subdivided into 'experience fields', real domains that aim at the holistic education of the child, promoting the development of all skills and competences, in a heuristic learning process, based on doing and the reflection that can result from it.

The second document we would like to recall here is "*Linee pedagogiche per il Sistema integrato 0-6*" of 2017, which proposes a unified vision of an educational pathway that historically and traditionally was divided into two segments, the 0-3, which included the early childhood education services, and the 3-6, which corresponded to the pre-school.

This document, which has no statutory value, is part of the current legislation, which is characterized by the coexistence of state, regional and local responsibilities, and promotes stimuli for the promotion of an idea of integrated services, which can follow the life of the child from birth until entry into primary school, from 0 to 6 years of age. The continuity of the experience proposed in the 0-6 pathway requires an integrated planning of the various services and a unitary territorial pedagogical coordination, which can promote guidelines aimed at the harmony and convergence of the two educational sectors, 0-3 and 3-6. This action is carried out by the "*poli per l'infanzia*", real educational centres within which educational services and infant-toddler schools coexist, thus contributing to fortifying a unitary identity of the 0-6. In these centres, a flexible planning of the educational offer can be realized, responding to the needs of the users and a better use of material, human and financial resources.

The latest document is "*Orientamenti nazionali per i servizi educativi per l'infanzia*" of 2022, a text that originated in the work of the ministerial commission that drafted the Pedagogical Guidelines of the integrated 0-6 system. In it, the specific characteristics of the 0-3 educational pathway are recalled and outlined, emphasizing certain elements that make it unique.  During the first thousand days of life, children 'acquire a sense of their own identity, they learn to communicate with others by sharing meanings; it is in these thousand days that they learn to learn' (Commissione Nazionale per il sistema integrato di educazione e di istruzione, 2022, p. 5). In this florid period, educational intervention is characterized by a particular commitment to amalgamating the function of care with support for children's developmental potential, in responding to their needs while promoting their sociability and interest in learning. It is therefore necessary for the educational personnel working in early childhood services to be ready to grasp these peculiarities and to respond appropriately and competently, aware of their role: "*Self-control, patience, listening, sincere interest in each child, authenticity of relationships that translate into looks, gestures, verbal and non-verbal communication, differentiated and personalized interventions to include everyone are based on awareness of one's values, attitudes and emotions supported by specific professional tools*" (p. 28).

In the three documents certain elements appear recurrently that underline the general model that 0-6 services are acquiring in Italy. For the purposes of our discussion, it is fundamental to recall the theme of inclusion: all the texts mentioned, in fact, give great importance to this aspect, to the possibility of guaranteeing not only educational pathways for all from birth on, but that these are characterized by high quality. In 0-6 education, each child must feel that his or her uniqueness and originality is valued, with great attention paid to respecting personal times and individual functioning, with responses that must be calibrated to the real capacities and potential of the single child (Maggiolini, Amatori, 2021). Inclusion, therefore, is not something taken for granted, but the result of intentional daily work of construction and revision. This takes concrete form with the preparation of educational and didactic plans that are attentive to the characteristics of everyone, within which the individualization of paths represents an opportunity to enhance each child.

## 3. Differentiated Instruction: theory and practice

### 3.1 The theory

One approach to teaching and learning that aligns with this perspective is Differentiated Instruction, which originated in Virginia, USA, through the significant research and numerous school-based experiments conducted by Carol Ann Tomlinson (Tomlinson, 1999).

The fundamental observation is that children enter our classrooms with unique differences, both as individuals and as learners. Differentiated Instruction is a teaching approach that adapts instruction to meet students' diverse learning needs. This approach goes beyond merely «tailoring the same suit of clothes» (Tomlinson, 2017, p.4). Pupils are individuals with unique characteristics, requiring teachers to recognize and value them through an educational approach that avoids standardization and purely transmissive methods. Instead, it embraces the art of tailoring instruction, like sewing made-to-measure clothes.

The aim is not to propose a single approach to performing a task or activity, as this would ignore the unique characteristics of individual pupils. Teachers must maintain a clear educational and pedagogical perspective that all pupils are capable of learning.

Recognizing that learners have diverse needs, teachers plan lessons that offer multiple ways to "get at" and express learning. For this reason, it is essential to emphasize the interaction between the individual, the teacher, and peers within a "learner-centered" vision (Sousa, Tomlinson, 2018, p.36) focused on the pupil and their unique traits, starting from the very setup of the learning environment. It is a framework for thinking about and planning for student differences– a way of "being" in the classroom.

According to Tomlinson (Tomlinson,1999), there are three domains where teachers can diversify:

Content: that is the input, that which a pupil needs to learn

Process: in other words, activities that support learners in making sense of their learning.

Product: meaning ways for students to "show what they know"

More specifically, differentiating by content means changing the subject matter, i.e. the input provided to the class, based on student's readiness, interests and/or learning profiles. Differentiating by process, on the other hand, implies offering learners the opportunity to learn through pathways characterized by the presence of diversified inputs, actions and learning experiences.

Differentiation of the product, finally, is realized when the pupils have the opportunity of choosing how to demonstrate the knowledge, skills, and competences they have acquired through the learning process. In other words, the product represents the outcome of the process.

It should be made clear that the three differentiation criteria just mentioned do not represent exclusive options. Within a single teaching proposal, it is possible to differentiate simultaneously the process and the product, depending on the teacher's planning.

Teachers plan and implements different approaches to content, process and product in anticipation of and response to learner differences in readiness (a student's current proximity to specified knowledge, understanding, and skills), interest - what engages a pupil's attention and involvement - and learning profile, a preference for taking in, exploring, or expressing content, such as learning

styles and intelligence preferences. This is because everyone thinks, learns, and creates in different ways (D'Alonzo, Sala, 2023).

This can be done through a variety of strategies and by creating flexible groups that change regularly, depending on the teacher's plan.

The strategies for achieving this goal are potentially limitless. Since differentiation can be compared to a mental habitus, it is important for the teacher have a clear understanding of the characteristics of the pupils that needs to know in order to differentiate the educational proposal. The strategies used will depend more on the teacher's creativity and resourcefulness than on a predefined set of methods (Monauni, In D'Alonzo, Giaconi, 2024).

An important part of differentiated instruction is the pre-assessment: the goal of pre-assessment is to identify a student's knowledge, understanding and skills prior to the unit of study (their readiness) or to identify their learning profile or interests (Tomlinson, Imbeau, 2014).

Once this information is gathered, the teacher applies a strategy to differentiate the content, process and/or product.

In this regard, it is essential to emphasize that the learner's commitment to learning does not arise spontaneously. Instead, it must be continuously stimulated by the teacher, for example, by creating personal links with the content learned, finding engaging ways of presenting it and, above all, encouraging the learner to understand the meaning of what they are studying (Dack, Tomlinson, 2014).

There is a strong interdependence between the learning profile, pupils' interests, readiness, and pre-assessment, as they represent interrelated sources of knowledge that influence each other through a dynamic, spiraling process. The information gathered in the pre-assessment phase is crucial because it allows the teacher to design the teaching activity that align with the pupils' readiness, interests, while also enriching their learning profiles with new information. This helps to better define the path to be proposed in a recursive perspective (D'Alonzo, Sala, 2023).

### 3.2 The practice

In this context, the CeDisMa research group has developed vademecums on differentiated instruction, subdivided by school level, which are usually proposed in training courses. These guides include observation and planning tools designed to assist and support teachers who wish to implement this pedagogical approach in their daily practice.

Following this approach, CeDisMa has started a path to implement the differentiation in schools of all levels to find, train and motivate those teachers who are flexible and open to change and willing to experiment with differentiated teaching.

The CeDisMa group organized courses in many Italian schools where; after sharing the principles of differentiation with teachers, it guided them towards the horizon of differentiation.

CeDisMa specifically asked the schools involved in various research projects to experiment with tools designed to support differentiation, including:

- an observation sheet;
- a planning sheet;
- an assessment sheet.

More specifically, the observation tool consists of several interconnected sections. The first section helps teachers identify not only areas of weakness but, more importantly, strengths, opportunities, and challenges within the classroom context. This process enhances teachers' ability to plan effectively by increasing their awareness of potential barriers and facilitators that may impact differentiated activities.

The second sheet focuses on structuring the educational pathway according to the principles of Differentiated Instruction. It serves as an "Operational Plan" that outlines the methodological and strategic framework, defining key steps, describing the proposed activities, identifying differentiation criteria, specifying what aspects will be adapted, selecting the teaching strategies to be implemented, and establishing the timeline for each methodological phase.

The final sheet is dedicated to evaluating the activity, with the primary goal of encouraging students to engage in self-assessment.

An example from one of these training courses on differentiation might be the following: during the pre-assessment phase, teachers use colored balloons, each containing a picture representing an activity. Children then select the balloon corresponding to their preferences: the activity they like the most (No. 1), the one they like a little less (No. 2), the one they like even less (No. 3), and the one they don't like at all (No. 4). The teacher records these preferences in a table, making it possible to form groups based on learning preferences (using choices No. 1 and No. 2).

Following this, the children are grouped according to their choices. The strategy employed is known as Interest Centers (D'Alonzo, 2016): as the name indicates, this method involves organizing different areas in the classroom, each aimed at promoting meaningful learning by catering to students' specific interests while also helping them explore and develop new ones.

In the various centers, the teacher ensures that the learning activities are accessible to all students in different ways. This strategy allows children to be grouped based on their choices. Each center is identified by the color of the corresponding balloon, helping even the youngest children navigate the space and move independently.

In this example, the theme of the activity was the Earth. Consequently, the teacher's planning involved setting up different Interest Centers where various aspects of the Earth were explored in different ways: one, handling soil to experience its texture and characteristics; two, choosing a piece of wood and drawing something inspired by their creativity; three, listening to a story about the Earth, pre-recorded by the teacher and four dramatizing the story as it was read aloud by the teacher at the time.

At the end, the teacher asked each group to reflect on the activity and jump into the circle corresponding to a traffic light: green if they liked it, red if they encountered difficulties, and yellow if they needed more time to think about it. In a separate, dedicated moment, each child explained their choice, fostering self-reflection, self-awareness, and metacognition in all participants.

Of course, this is based on what the teacher observed during the activity. Similar to the workings of a gear, the recursive connection between pre-assessment, strategy proposal, and self-reflection on one's own learning process is evident, as these are three fundamental moments in the didactic-educational process.

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*Planning the transition to adulthood for students with disabilities:*
*knowledge, perceptions, challenges from*
*STrADE teacher training program*

# Planning the transition to adulthood for students with disabilities:
# knowledge, perceptions, challenges from STrADE teacher training program

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## Abstract

The transition to adulthood for students with disabilities is influenced by personal, environmental, and systemic factors, often made more challenging by insufficient support and weak collaboration. This study presents the results of an online qualitative questionnaire administered to support teachers who will attend a training program carried out in the intervention phase of the action research STrADE launched in an upper secondary school in the Bergamo area. Specifically, the paper collects knowledge, perceptions, challenges, and results around adulthood, transition, guidance and guidance-oriented teaching and data were analysed using an idiographic method. The results contribute to the design of a training program aimed at enhancing teacher practices, fostering autonomy, and strengthening collaboration with families and external services to ensure more effective and inclusive transition planning.

**Keywords:** disability; transition to adulthood; teacher training; transition plan; idiographic approach.

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## 1. Background

"Transition" represents the step into specific adult roles and responsibilities (Morgan & Reisen, 2016) related to work opportunities, independent living choices and activities, social participation and inclusion, continuing education and access to higher education programs (Lindsay et al., 2018). These adult outcomes commonly are challenging for young adults with disabilities (Stewart et al., 2006) and the main difficulties are often determined by the type of the disability and related support degree (Canton & Kagan, 2007) as well as by personal and environmental factors characterizing the life contexts (Giraldo et al., 2021). Due to its characteristics, this lifetime has often been reported by students with disabilities, their families and caregivers as a period of upheaval, confusion, stress and missed decisions (Canton & Kagan, 2007).

According to scholars (Canton & Kagan, 2007), all these challenges call for a more specific and multi-faceted transition planning in which upper secondary schools and the adult services play a crucial role. For this reason, exploring and facilitating the complex transition process for young students with disabilities has now become an important topic internationally for school providers and researchers working within this area and guidance is decisive to accompany them along the transition to adulthood designed for, with and together the students themselves (Foley et al., 2012).

Given the multifactorial nature of the processes and conditions involved in becoming adult, the decline of traditional regulatory mechanisms and the intrinsic complexity of building and designing one's future, guidance represents a

> «process aimed at facilitating self-knowledge, of the educational, occupational, social, cultural and economic context of reference, of the strategies implemented to relate and interact in these realities, in order to promote the maturation and development of the skills necessary to be able to independently define or redefine personal and professional objectives that adhere to the context, develop or re-elaborate a life project and support the related choices» (EU, 2008, p. 4).

Therefore, it implies designing self-determined educational plans that guarantee and support all students, including those with disabilities, throughout their lives and across different contexts, in identifying their own abilities, skills and interests, in making decisions regarding education, training and employment, in order to promote the realization of the personal life project in the different contexts and life trajectories (Mura, 2018; Soresi & Nota, 2020).

In such a perspective, the school institutions cannot fail to guide students with the aim of providing those cognitive, social and in-depth self-knowledge tools necessary to develop the structural and fundamental educational outcomes towards adulthood. As the Italian scholar Canevaro (2022) reminds, this purpose is achievable through the promotion of self-determination, autonomy, empowerment and the development of all the skills that are functional to future job placement and independent living. At this regard, research attests that young adults with disabilities who participate in specific support interventions in the transition from school to work achieve better medium-long term employment results than those who do not participate (Fleming et al., 2013). In fact, scientific literature recognizes the importance of such programs and highlights the need for their implementation and promotion of specific transition plans aimed at supporting students with disabilities into adulthood in respect of their life project and functioning profile. In order to make these plans successful and high qualified, school and different stakeholders involved should be able to assume more coordinated and integrated approaches with extra-scholastic territorial contexts (Grigal et al., 2011; Foley et al., 2012) in relation to the different tasks involved in guidance, such as the collection, processing and use of training and professional information; planning and implementation of decisions also in compliance with the preferences, expectations, desires and life plans of each individual (Soresi & Nota, 2020). Notoriously, these actions could be extremely challenging for some disabilities - such as intellectual disabilities and autism spectrum disorders - and require specific didactic-methodological attention (Wehmeyer & Palmer, 2003).

According to these assumptions and the specific purposes of the school institutions called to support the development of personal, soft and professional skills while contributing to the construction of

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individual identity, guidance has become, since nursery school, a central topic in European agenda (Eurydice, 2022) to support the inclusion of young adults with disabilities. As a State Member, Italy has adopted this institutional mandate into different legislative frameworks by integrating them into its full inclusion provision system. Some indications, albeit liminal, are included in the 2009 *Guidelines for the School Integration of Pupils with Disabilities* (2009), which sanctioned the mandatory requirement for school and its teaching staff (curricular and support teachers, educators, etc.[1]) to

> «activate specific guidance actions to ensure continuity in the subject's education by the next school or post-school pathway chosen" and to "prepare educational plans that foreshadow, including through guidance, the possible choices that the students will undertake after completing schooling» (MIUR, 2009, p. 16).

A more specific attention is contained in the 2014 *National Guidelines for Lifelong Guidance* (MIUR, 2014), now revised in the recent 2022 document. This latter also emphasises guidance-oriented teaching as a fundamental didactic tool «organized from students' experiences, with the overcoming only the transmissive dimension of knowledge and with the enhancement of didactic laboratory, of flexible time and space, and of the opportunities offered by the exercise of autonomy» (MIM, 2022, p. 3). Not coincidentally, the recent *Guidelines for the Compilation of the New Individualized Educational Plan* (IEP) Model (MIM, 2023)[2] also containing an explicit reference to guidance and specific recommendations particularly related to *Plans for Transversal Skills and Orientation* (PCTO)[3].

Nevertheless, despite the growing emphasis from the scientific community and regulatory frameworks, guidance and guidance-oriented teaching still struggle to be effectively translated into teachers' practices (Dettori & Botes, 2023). In particular, recent studies on some Italian schools highlight still current *worst practices* (Caldin & Scollo, 2017; Mura, 2018, Soresi & Nota, 2020; Montanari & Travaglini, 2024): a) gathering the guidance activities delivery at the end of the different

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[1] The role of the support teacher was introduced in Italy with Law 517 of 1977, which established the full inclusion model in the Italian educational system. The support teacher is assigned to the class that includes a student with disabilities and collaborates with the class teachers, sharing joint responsibility in developing individualized education plans. After several reforms, today one becomes a support teacher by completing a one-year postgraduate university specialization program.

[2] IEPs (Individualized Education Plans) were introduced in Italy with Law No. 104 of 1992 to support the inclusion process of students with disabilities in the Italian compulsory educational system. The purpose of this document is to build inclusive teaching: "a welcoming community where everyone, regardless of personal circumstances, finds opportunities for growth experiences," as stated on the Ministry of Education and Merit website *"Progettare l'inclusione. Percorsi e modelli"* (*"Designing Inclusion: Paths and Models"*). The national unified model for IEPs (*Piano Educativo Individualizzato*) was introduced in Italian schools with Ministerial Decree No. 182 of 2020 and its related Guidelines, which updated the provisions established by Legislative Decree No. 66/2017. Subsequently, on August 1, 2023, Interministerial Decree No. 153 of 2023 was published on the Ministry of Education and Merit website, introducing corrective measures to the previous Ministerial Decree No. 182/2020. These updates were developed within the framework of a new approach to support measures for students with disabilities. Today, the most recent regulatory provisions on disability and inclusion (Decree No. 66/2017 and No. 96/2019) strengthen the multidisciplinary network for supporting inclusion. This approach aims to implement the inclusion process as a network action tailored to students with disabilities, reformulating the multidisciplinary network. Ministerial Decree No. 96 of 2019 places greater emphasis on the inter-institutionality of the inclusion project and renews working groups such as the Operational Working Group for Inclusion (GLO), the Territorial Inter-Institutional Group (GIT), the Territorial Support Centres (CTS), and the Polo Schools. The GLO, as a collegial entity, is responsible for drafting and approving the Individualized Educational Plan (IEP) for students with certified disabilities. It is composed of all the teachers of the Class Council, both curricular and support teachers, and is chaired by the School Head or a delegated figure. Additionally, it involves the student with disabilities and their parents or those exercising parental responsibility, along with internal and external professional figures who interact with the student in their development. The GIT is designed to facilitate collaboration among institutions and stakeholders involved in inclusion, while the CTS provides technical and operational support for inclusive practices. Lastly, the Polo Schools act as reference points for coordinating inclusive education activities. These measures reflect a structured, networked approach to ensuring tailored support for students with disabilities, fostering collaboration across institutions and professional figures involved in the inclusion process.

[3] To bring schools closer to the world of work, Law 107/2015 provided for the implementation of mandatory school-work alternation pathways for all students in the last three years of high school, the so-called "Percorsi per le competenze trasversali e l'orientamento" (PCTO). PCTO represents an integrated teaching methodology that complements classroom education by transferring curricular knowledge and skills to students. It creates formative experiences to help students better understand how the world of work operates. At the same time, students acquire so-called transversal skills (soft skills), which are qualities applicable to various contexts and are highly sought after by employers today. The PCTO are framed within the overall educational planning, and therefore they constitute a fundamental aspect of the study plan.

school grades; b) designing guidance plan on "predefined routes" based on summary students' categories; c) flattening guidance to an informative task; d) limited knowledge, skills and training of the teaching staff regarding personalized methodologies to implement guidance-oriented teaching activities, in particular with an inclusive focus; e) the weak connection with other formal, but also informal and non-formal structures in the territory; f) the still massive presence of prejudices and stereotypes linked to disability with the consequent risk of hypertrophying the identity, training and professional development of the person with disabilities and the limited dissemination of theoretical and practical knowledge to implement a training orientation that is truly capable of fully deploying its purposes also for students with disabilities.

These shortcomings urge enhancing specific teachers' training programs with respect to transition to adulthood and related guidance tasks (Grigal et al., 2011) aiming at providing functional knowledge and professional skills for implementing guidance and guidance-oriented teaching activities, while responding to the specific needs of learners with disabilities and finding highly inclusive solutions (WHO, 2022). To achieve this, research suggests to design specific training course starting from a preliminary exploration of professionals' knowledge, perceptions as well as their work experiences with respect to the subject matter (Knowles, 1996; Demetrio, 1999).

From these foundations, this contribution presents the results of an online qualitative questionnaire administered to support teachers who will attend a training program carried out in the intervention phase of the action research STrADE (*Supporting the Transition to Adulthood for persons with Disabilities from an Ecosystemic perspective*) delivered to Italian secondary school teachers in Bergamo area. Specifically, the paper collected knowledge, perceptions, challenges, and results around adulthood, transition, guidance and guidance-oriented teaching and data were analysed using an idiographic method (Allport, 1982).

## 2. Study design

This study is part of the STrADE action research launched in October 2021 by the University of Bergamo's Chair of Special Pedagogy, in collaboration with the "Lorenzo Lotto" institute. Using an ecosystemic (WHO, 2001) and participatory (McIntyre, 2007) approach, the project aimed to design an educational model supporting the transition to adulthood for students with disabilities in upper secondary school. *Table 1* illustrates all project phases.

| PROJECT PHASES | DESCRIPTION |
|---|---|
| 1. INITIATION | Formation of the Technical Group, comprising all members appointed by the Coordination Group, tasked with designing the model, promoting the process, and defining objectives, timelines, content, and tools |
| 2. PRELIMINARY ANALYSIS | Critical review of existing models and tools at local, national, and international levels, designed to meet the objectives and content targeted by the RAP process |
| 3. INSTITUTIONAL ACTIVATION PATH | Development of the model and its associated tools through a shared conceptual framework (both socio-pedagogical and methodological), tailored to the specific needs, resources, and context of the client |
| 4. INSTITUTIONAL EXPERIMENTATION | Iterative testing of the model and tools in multiple phases, beginning with predefined samples and refining them based on results through a cyclical process: analysis–application–reanalysis–modification |
| 5. INSTITUTIONAL INNOVATION | Full-scale implementation of the finalized model within the institutional framework |
| 6. DISSEMINATION OF RESULTS | Presentation and sharing of the outcomes of the action-research process, including both the methodology and results |

*Table 1 STrADE phases*

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*Planning the transition to adulthood for students with disabilities:*
*knowledge, perceptions, challenges from*
*STrADE teacher training program*

The present study focuses on the fourth phase, which includes a training program for support teachers on the transition to adulthood and guidance planning. Based on adult education literature (Knowles, 1996; Demetrio, 1999), the training design followed an exploratory qualitative approach (Thorne, 2008) to assess teachers' knowledge and practices. Data were collected using open-ended questions and analyzed with the idiographic method (Saqr & López-Pernas, 2021), which allows for deep insights into individual perceptions and practices (Trinchero, 2002). The findings aim to identify the specific training needs of support teachers, which are addressed in the further course.

### 2.1 Participants

This study involved 24 support teachers from the "Lorenzo Lotto" institute, with 58.3% female and 41.7% male participants. The most represented age group was 41-45 years (25%), followed by 31-35 and 46-50 years (both 20.8%). Fewer participants were aged 26-30 (8.3%) and over 50 years (8.3%). In terms of qualifications, 62.5% held a university degree, while others had a bachelor's degree (12.5%), secondary school diplomas (4.2%), or socio-pedagogical educator qualifications (4.2%). Over half (54.2%) had completed the Ministerial specialisation course for support teachers. Regarding professional experience, 41.7% had 1-10 years, 25% more than 10 years, and 16.7% had less than a year's experience. Half of the participants (50%) had permanent contracts, while the other half were substitutes. Additionally, 54.2% had participated in specific training on disability and educational guidance.

### 2.2 Data collection: Online Questionnaire

The survey was conducted using an online questionnaire with open-ended questions, designed by researchers to gather support teachers' knowledge, opinions, and reflections on topics such as transition, adulthood, educational guidance, and guidance-oriented teaching activities. It also aimed to explore concerns related to transition planning and guidance-oriented teaching, as well as the strengths and weaknesses of current educational practices for students with disabilities. The questionnaire consisted of 36 questions divided into four sections: *biographical* (collecting personal and professional data), *knowledge* (exploring respondents' understanding of key concepts), *perceptions of practices* (focusing on guidance-oriented teaching practices and external support), and *strengths and weaknesses* (examining factors that facilitate or hinder transition, and the effectiveness of Individualized Education Plans).

### 2.3 Data analysis: idiographic method

The textual variables from the questionnaire were analyzed using the idiographic research method (Allport, 1962) which focused on examining specific units of analysis (such as individuals or teams) over time or across different contexts. Unlike the nomothetic approach, which aggregates data from large groups, the idiographic method looks at variability within a single unit, allowing for the identification of functional relationships (Lyon et al., 2017). Although idiographic research is rare and its findings narrow (Ito, López-Pemas, & Saqr, 2024), it provides detailed insights into a phenomenon and helps establish causal relationships (Barlow & Nock, 2009). To answer the research questions, the researchers organized and reviewed the data, identified key themes, validated the findings, and analyzed intra-unit differences. The final step was to synthesize these insights into a coherent narrative (Trinchero, 2002).

## 3. Results and discussion

The analysis of responses from the 24 teachers offers a clear and coherent understanding of their knowledge and perceptions regarding the concepts of transition, adulthood, educational guidance and guidance-oriented teaching activities. It also suggests a deep reflection on the educational and instructional processes, strategies and challenges involved in supporting students with disabilities. Regarding the concept of transition, over 90% of participants associates the term with the idea of a "passage" understood as the movement from one phase of life to another. This transition is not only

described in terms of change but also as a process of transformation and growth, with 85% of responses using words such as "development", "transformation", and "progress". However, approximately 30% of teachers also underscores the more complex and critical aspects of this process, employing terms like "uncertainty", "effort," or "fear". Consistent with literature (Stewart et al., 2006), these feelings often result in a general sense of disorientation and abandonment that, in many cases, accompanies this passage.

Furthermore, some of the responses make use of visual metaphors, such as the "butterfly", to depict the process of change, conveying an image that embodies both fragility and the potential for growth. According to the definition of "emerging adulthood" by Arnett (2000), this metaphor highlights a dual perspective on the transition process: as both an opportunity for personal and social development— a time for individuals to grow and expand their possibilities—and a critical juncture requiring careful guidance, support, and accompaniment to successfully navigate its challenges. Moreover, this perception underscores the teachers' clear awareness not only of the difficulties and uncertainties that may accompany the transition to adulthood for students with disabilities, but also of its vital importance and the need of well-structured, thoughtful approach in designing Individual Education Plans starting from students' voices (Goussot, 2009). Their involvement is explicitly addressed in Italian legislation: the recent Legislative Decree No. 96 of 2019 repeatedly emphasizes the role they should play in collecting their needs, aspirations, and knowledge and shaping their educational journey and beyond (Bianquin & Sacchi, 2023).

Most participants (75%) define adulthood through key concepts such as "responsibility," "self-awareness" (65%), and "autonomy" (60%), describing it as a stage characterized by increased self-determination and life management. Additionally, 20% of responses focuses on social roles like work, family, intimate relationships, and sexuality, reflecting a practical understanding of adulthood's challenges, consistent with research on the role of social integration in adult identity and well-being. For individuals with disabilities, achieving these roles often requires tailored support and the removal of barriers (Buntinx & Schalock, 2010). However, 15% of teachers connects adulthood with fear, compromise, or uncertainty, underscoring its inherent complexities.

These results demonstrate support teachers' nuanced understanding of the multifaceted nature of transition and adulthood and their acknowledgement of the cruciality of such adult outcomes particularly for youth with disabilities (Wehmeyer & Palmer, 2003). Indeed, these students, upon completing high school, often face substantial limitations in accessing typical community roles and activities according to their needs (Stewart, 2006). This exclusion negatively affects their quality of life across various domains (Simoes & Santos, 2016) and hinders the development of positive life trajectories (Wagner et al., 2005). It also impacts the overall balance and well-being of their families (Brennan, et al., 2020). Furthermore, individuals with disabilities report limited opportunities to make autonomous choices and express preferences about key aspects of their daily lives (Shogren & Broussard, 2011).

Regarding educational guidance, 80% of respondents emphasizes the concept of "accompaniment" and stress the critical role of teachers in supporting students through the decision-making process and in designing transition plans aligned with their abilities and potential. This perspective settles on Italian legislative provisions, particularly on the *2014 Guidelines for lifelong guidance*, in which guidance aims to nurture those competencies necessary for individuals (including students with disabilities) to independently define or redefine personal and professional goals, develop or adjust life plans, and make informed choices that align with their aspirations and circumstances (MIUR, 2014). In this regard, 40% of participants also recognize the "planning phase" as one of the key actions for guidance and "collaboration" as necessary modus operandi to support students with disabilities during transition to adulthood across different life contexts.

Approximately 70% of teachers highlights the importance of tools like Individualized Education Plans (IEPs) and functional diagnoses in designing effective guidance pathways. They also stress collaboration with external services, as outlined in Law 104/1992, which promotes a multidisciplinary approach. Tools such as Percorsi per le Competenze Trasversali e l'Orientamento (PCTO) and checklists based on the *International Classification of Functioning* (ICF) are considered essential for monitoring and fostering life skills. Strategies such as workshop-based teaching (62%), cooperative

learning, and problem-solving methods appear effective in promoting inclusion, autonomy, and student engagement. Apprenticeships and experiential learning are particularly valued for helping students discover their strengths and develop independence. Key competences like autonomy in travel, money management, and daily tasks are identified by 75% of teachers as critical for transitioning to adulthood.

Family and student involvement in guidance plans is deemed essential but varied based on context and resources. About 70% of teachers reports engaging students through reflective practices, apprenticeships, and group activities to enhance relational skills, consistent with research on self-determination in transition planning (Wehmeyer & Schwartz, 2003). However, 30% notes limited student opportunities, particularly in the early years of guidance implementation. Family involvement, reported by 60% of teachers, primarily occurred during IEP development or Operational Working Groups (GLO) and focused on setting educational goals and PCTO placements, aligning with studies on the importance of family support across transitions. Consistent with literature (Turnbull et al., 2007), barriers determining low parental engagement and mismatched expectations are cultural background, socioeconomic factors, or stress. About 75% of teachers highlights the value of interagency collaboration and community partnerships, according to research on supporting young persons with disabilities during transitions (Hendricks & Wehman, 2009). External services such as social workers, cooperatives, and local agencies are critical in supporting guidance pathways, particularly in managing internships and providing vocational resources. Facilitators include strong territorial networks, such as cooperatives and inclusion projects, which offered key opportunities for internships and workshops, as emphasized in research on work-based learning and community-based rehabilitation (Kaske et al., 2022).

Regarding guidance-oriented teaching, around 80% of respondents demonstrates familiarity with the concept, describing it as a didactic methodology aimed at helping students to identify their aptitudes, skills, and limitations to make informed educational and career choices. According to 50% of teachers, the application of such an approach requires curriculum flexibility and personalized strategies. However, 40% cited issues such as limited resources, time, and teacher collaboration, highlighting the need for professional development and support. Additionally, 30% identifies a lack of hands-on activities as a gap in preparing students for adulthood, underlining the importance of experiential learning and practical applications (Thomas & Woods, 2003). Frontal teaching and insufficient cross-curricular activities are considered inadequate for fostering essential life skills, reinforcing the need for inclusive education (Ainscow, 2005) that emphasizes active, collaborative, and practical learning. These results gathered on the topic of guidance-oriented teaching confirm the growing awareness and knowledge among teachers about this concept, supported by recent ministerial guidelines and the training campaigns of recent years, but, at the same time, they also clearly highlight the challenges teachers face in translating it into daily teaching practice.

## 4. Final considerations and perspectives

The analysis of the questionnaire responses highlights support teachers' nuanced understanding of key concepts like transition, adulthood, guidance and guidance-oriented teaching, particularly for students with disabilities. They recognize transition as a transformative process requiring tailored support and view adulthood as a stage marked by autonomy and responsibility, though often accompanied by challenges such as uncertainty and fear. Despite growing awareness of guidance and guidance-oriented teaching, supported by recent national policies and informative champaigns, teachers still face significant barriers in applying these approaches in practice. Limited resources, time constraints, and the need for more experiential, collaborative methods hinder their ability to fully implement effective, inclusive guidance strategies that address students' diverse needs.

Concluding, the results offer valuable insights for designing teacher training programs that both recognize existing knowledge and skills and foster new skills for professional growth. Given the diversity of participants' backgrounds, a modular approach to training could be effective, allowing teachers to engage with different components based on their specific needs. Specifically, this

evidence shapes the training course and contents further delivered in STrADE fourth phase. It is composed of three modules respectively focused on: 1. *adulthood*, exploring autonomy, responsibility, and decision-making within the framework of key competencies for lifelong learning; 2. *on-the-job training and support* using teachers' transition plans, simulations and case studies and equipping them with evidence-based methods; 3. *stakeholders' network* highlighting collaboration with families and external services, offering tools/skills for effective communication, conflict resolution, and shared goal-setting to align expectations for students' futures.

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# 'People are people'
# An investigation of long-term impacts of an international practicum

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## Abstract

Study abroad programs and international practicums are considered an effective way of developing intercultural competence and global awareness among students. Most studies on international practicums are based on fieldwork and interviews with the students during and/or just after the international experience, while there are few studies on the long-term impacts of the teaching abroad experience. In this study we examine the long-term effects of an international practicum in Zambia for Norwegian student teachers. We have interviewed six teachers that had and international teaching practicum during their studies five to ten years ago. The material was analyzed in an inductive manner and the findings are discussed in light of transformative learning theory.

**Keywords:** international practicum; teacher education; transformative learning.

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## 1. Introduction

A typical strategy for internationalization of teacher education is to send students on different types of exchange programs or practicum arenas abroad. According to Parr and Chan (2015), many studies on international teaching practices and other study abroad programs conclude that it helps students to develop a deeper understanding of global issues and appreciation of cultural differences. Several authors highlight that students who participates in such programs were empowered by the experience (Smolcic & Katunich, 2017), and further, that it led to personal growth and the development of empathy (Tang & Choi, 2004). However, an emerging strand of research also have raised concerns about the possible outcomes of international practicums. These studies indicate that such programmes can strengthen negative stereotypes about other cultures, and especially when students travel from the Global North to the Global South, they might foster neo-colonial attitudes (Klein & Wikan, 2019; Major & Santoro, 2016; Parr & Chan, 2015). In a recent study, Juul-Wiese (2023) shows how culturally shaped and normative educational ideas travel with the students and reinforce the notion of the superiority of 'Western' education in Global South settings.

## 2. Long term impacts: literature review

However, most of the studies referred to above are based on fieldwork and interviews with the students during and/or just after the international experience, while there are few studies on the long-term impacts of the teaching abroad experience. Gaudino & Wilson (2019, 22) write that there is scant literature involving studies with classroom teachers who previously taught abroad to determine the lasting effects on their careers and teaching. In their study they conducted focus-group interviews with 28 American teachers who participated in an eight-week international student teaching placement program in the UK four to eight years previously. They found that the participants in the study felt more self-confident both personally and professionally in their teaching and were better able to work with diverse learners (Gaudino & Wilson 2019, 26). Paige et al. (2009) conducted a quantitative study of global engagement among teachers, several years after a study abroad experience. They found that that the impact of the experience was clearly manifested in various forms of global awareness. In another study, Kim, Yun & Sol (2021) investigated the long-term effects of an international teaching practicum of South-Korean pre-service teachers doing their teaching practicum in New Zeeland and USA. With an emphasis on identity formation and professional development, they conducted interviews with seven former student teachers 1-2 years after they had participated in the international practicum. The main finding was that the participants reported that the experience contributed to personal development, especially regarding open-mindedness towards differences and intercultural teaching competence.

The above-mentioned studies investigated the long-term effect of international practicums from students going from one high-cost country to another. This section reviews research on students going from the Global North to the Global South. Bernardes et al. (2021) investigated the intercultural understandings of Canadian student teachers 5-6 years after they took part in a 3-week practicum in Kenya. They find that although the international experience provided an awareness of the *other*, they failed to address systems of power and to some extent perpetuated colonial perspectives (Bernardes et al., 2021).

Mwebi & Brigham (2009) investigated how a six-week experience of pre-service teaching in Africa (country not specified) affected the teachers personally and professionally one year after their international practicum. The study concludes that the immersion in a cross-cultural context can enable student teachers to see themselves and their own culture in a different light, and thus to become more globally oriented teachers. The authors conclude that an international practicum can be a transformative experience and affect future teaching. However, they strongly recommend that pre-service teachers' curriculum must incorporate understanding of global interdependence and critical perspectives on global issues. Okken et al. (2019), interviewed 17 Dutch teachers, with at least three years of teaching experiences, after participating in study abroad programs in a variety of destinations. They found that the impact of the study abroad experience on personal and professional

development continues throughout a teacher's careers, but that it depends on the working environment.

Based on this short literature review, we can conclude that teaching abroad can be a transformative experience. This is especially related to personal and professional development, as well as more openness to differences. Studies that focus on practicums where students travel from the Global North to the Global South, however, find that critical perspectives on global power relations were lacking, and this might lead to a strengthening of (neo) colonial perspectives.

## 3. Transformative learning theory and disorienting dilemmas

Many of the studies related to international practicums draws on transformative learning theory (Mezirow, 1997, Taylor, 2008) to explain the observed changes. Transformative learning theory describes the process of transformative learning that must take place to achieve perspective transformation. Mezirow (1997) found that perspective transformation can lead to change in the frame of reference, which includes shifts in ways of thinking and worldviews. According to Taylor, (2008, p. 5), frames of reference are structures of assumptions that determine an individual's perspective. This encompasses their beliefs, values, thinking and actions. Perspective transformation comprises a revision of a frame of reference, and thus, an alteration of the meaning perspective. Mezirow describes several phases of perspective transformation, and the catalyst for the process begins with a disorienting dilemma.

According to Leming & Steele (2022, p. 190-191) a disorienting dilemma emerges when the frame of reference no longer is sufficient to explain what we experience in real life settings, and we start going through a phase of reorientation. Leming & Steele (2022) identify several disorienting dilemmas, and of special interest for this paper is how pre-service student teachers must negotiate normative pedagogical ideas from their own teacher training when facing the realities of the Zambian classroom. Other examples of such dilemmas, as identified by Trilokekar & Kukar (2011), are experiences of racial dynamics, power relations or being ascribed as an 'outsider'.

A number of authors that have studied international education programs find that 'culture shock' and experiences of 'otherness' triggers disorienting dilemmas (Cushner, 2007; Leming & Steele, 2022; Klein & Wikan 2019). Tarrant (2009, p. 442) argues that education abroad is the 'delivery mechanism' for a transformational learning process in which disorienting dilemmas leads to reorientations and new values and meanings are shaped. However, several authors note that the culture shock in itself is not enough, it also needs to lead to critical refection. Thus, the international practicum programs must be designed so that they facilitate critical reflections among the students (Juul-Wiese, 2023, Klein & Wikan 2019, Trilokekar & Kukar 2013).

## 4. Research question, methodology and sampling

The overarching research question for this study was: what are the long-term effects of an international practicum in Zambia for Norwegian student teachers? During semi-structured interviews, based on an interview guide, the informants were encouraged to tell us freely about their most important experiences and learning outcomes from the international practicum.

We conducted individual interviews with six previous student teachers during January/February 2023. The informants had all been completing a five-week teaching practicum in Zambia 5-10 years ago and were now working as teachers at different locations all over Norway. We sent e-mails to 73 former students and received replies from 10 of them. Of these 10, 6 showed up to the interview session. We acknowledge that there might be a bias in the material, regarding who wanted to participate in the study. Altogether there were five females and one male volunteering as informants. Due to practical reasons, most interviews were conducted by zoom, while one interview took place physically at our institution. Below is a table of the informants and the year of the international practicum. All names are anonymized.

| Informants | Year of int. practicum | Interview |
|---|---|---|
| Mary | 2016 | Physical |
| Nina | 2015 | Digital |
| Lisa | 2013 | Digital |
| Grace | 2015 | Digital |
| Jenny | 2015 | Digital |
| Phil | 2013 | Digital |

*Table 1: The informants and interviews.*

The interviews, which lasted between 45 and 60 minutes, were recorded and transcribed verbatim. We conducted an inductive qualitative content analysis of the material. All three authors read the material individually. Then we met to discuss what we saw as the most important and interesting findings from the material. This process allowed the data to guide the analysis to identify emerging themes and concepts, and it also catered for inter-rater reliability. Based on our discussions we categorized the material under the three main headings; personal development, professional development and focus on similarities instead of differences. In the following part we present the main findings and exemplify them by quotes from the material.

## 5. Empirical findings

Following the results from the inductive analysis we structure the teachers' reflections of the practicum in Zambia under the headings: (1) Personal development, (2) professional development, and (3) focus on similarities instead of differences.

### 5.1 Personal development
When the participants talk about their experiences from the teaching practicum in Zambia, personal development is emphasized by all of them. They describe how they learned a lot about themselves, and they express that this has been important for their personal development. One participant says: «The most important thing, I think, was that you learn quite a lot about yourself. What values and attitudes you have towards the world. You expand your own horizon by seeing slightly different parts of the world and how things work» (Nina). Another teacher emphasizes that you become less prejudiced by encountering a culture that is different from your own (Phil).
Some of the participants talk about the culture shock in the beginning of their stay, and how this was a transformative experience, because they changed their perspectives and had to adjust to the new culture. Grace put it like this:

«When we travelled, we felt a bit like backpackers. But when we got there, I was completely shocked. I wasn't mentally prepared for how 'primitive' it was, and how little they had. (…) I was thinking… I don't know if I can handle this mentally. I also told my roommate. But then a week passed, and we loved being there» (Grace).

Mary has some of the same experience, but the feeling of discomfort lasted longer:

«I had been in Europe and North America, but I had never been to places like this. My holidays had been in cities and beaches south in Europe. I had never experienced another culture, like this. It was a shock. (…) No one had told us that many days we would wake up without water, that the electricity would come and go» (Mary).

Grace describes a memory from a classroom situation that might be seen as a transformative experience. They had brought letters from 6th grade pupils in their Norwegian twinning school, who described their Norwegian family. The Zambian 6th graders should answer and write about their family:

«I'm sitting with a girl, and she doesn't really know what to write. I say: – maybe you can write about what your mom does? – No, I don't have a mother. Ok, what about your dad? – I have no dad. Do you have siblings? – No. I have a grandma. The rest of the family is dead. HIV and AIDS. And then it is like … Shit. How do you

react to that? And that's everyday life. There were many learners in the same situation. I think we grow a lot from such experiences, as humans» (Grace).

Several of the participants mentions that they got new perspectives on how they live their own lives. They learned to appreciate what they have at home, and underline that it is important to reflect on differences in the world. Nina says that she will take her children to visit the same places, when they are big enough to understand. A kind of formative journey, to create new perspectives on what it's like to grow up under different circumstances.

Some of the participants also reflect on environmental issues. Phil informs that he wrote his bachelor's thesis on environmental awareness in Zambia. He still remembers that an average Zambian must have lived for 37 years before he has emitted as much $CO_2$ as the round-trip flights to Zambia. He says that this has become an important perspective for him: «I have not travelled abroad since 2014, because I try to reduce travels by plane». Others are worried about the waste of food. Lisa describes that after she came home from Zambia, she thought a lot about the fact that we have so much abundance: «I became very conscious that should not throw away food, that we should finish the food».'

### *5.2 Professional development*

Another main finding is that the international practicum is seen as important to the participants professional development, but they highlight different aspects such as: development of language skills; become more creative; more nuanced understanding of global relations; and more substantial knowledge about Africa and Zambia. Lisa says:

> «I have something that I can refer to – Africa and Zambia. I used to show pictures in connection with teaching social studies (…). About rich/poor countries and about continents. I am left with something after the practice, both personally and as a teacher, that those who has not been practicing abroad are lacking» (Lisa).

Many of the participants say that the practice has had an impact on their teaching on global issues, for instance that they put more weight on teaching about global variations and that they try to avoid polarization. Nina says that her experiences from the practicum gives her more credibility when she teaches. She has two pupils from Africa in her class, and she has become closer to these pupils because she has been teaching in Africa: «They think that I know something about their background» (Nina).

The participants express that they have got an understanding of variations in educational cultures. This is useful when they meet pupils with backgrounds from other parts of the world: «There is a reason why they bring that packed lunch or respond to this and that the way they do» (Jenny). Jenny also underlines that the international practicum helps in understanding parents from foreign cultural backgrounds.

Regarding classroom management, many of the participants are impressed by the discipline in Zambian classrooms, something they feel is lacking in Norway. At the same time, they are critical to the Zambian teacher's authoritarian attitudes, and that learners could be harassed and ridiculed in front of the class. Mary explains:

> «It has made me more aware of how I speak to my pupils. There are power relations between teachers and pupils. I am their teacher, and we should treat each other with respect. They should feel that they are taken seriously and that they are respected for who they are, whether they are 6 years old, 10 years old, or whatever age they are» (Mary).

Others mention corporal punishment: «It was a lot of things I didn't agree on. They said they didn't hit the children, for example, but they did» (Lisa). But the students also reflect on the importance of not appearing as experts on teaching, and that there are reasons for how things are done. «We must learn from how they do things», as expressed by Grace.

### *5.3 Focus on similarities instead of differences*

During the analysis of the material we noticed that several of the participants highlighted that the similarities between people from Zambia and Norway were much greater than the differences. Phil returned to this point repeatedly throughout the interview: «The most important thing is that people are people, there isn't such a big difference. (…) People are people and no matter where you come from, you are searching for a good life» (Phil). Lisa emphasized that: «Kids are kids, in a way, regardless of whether they are poor or rich. I noticed that they are similar». Nina also reflects on this: «Children in Zambia are quite like Norwegian children. (…) They bonded with us in the same way as the pupils do in Norway» (Nina).

The authors have been involved in international practicums for many years, and in the analysis of the material we all found this surprising. In our experience, when we talk to or interview students straight after their return from an international experience, they tend to be very absorbed in all that is different from the home environment. It seems like the years that have passed since the experience have made the immediate impression of differences and unfamiliarity give way to more recognition of the similarities.

## 6. Discussion and conclusions: long term impacts and transformative learning

The purpose of this study was to investigate the long-term effects of an international practicum in Zambia for Norwegian student teachers. In doing so we have been inspired by Mezirow's (1997) theory of transformative learning, as well as empirical research on international students' exchange. Although we were aware of the conceptual understandings from these models and theories as we developed our research, our strategy when interpreting the material was inductive. After analyzing and discussing the material we ended up with three main findings which we will now discuss in light of the theory.

Personal development appears to be a very important long-term effect of the teaching practice in Zambia. Several of our informants mention that they felt very uncomfortable in the beginning, finding themselves in a very challenging situation. When they learned to master the situation, they became much more comfortable and felt personal growth because of the experience. According to Mezirow (1997), a typical catalyst for perspective transformation would be a disorienting dilemma, where the regular frame of reference is no longer sufficient to explain the experience. We can identify perspective transformation, especially noticeable in the shift in values and world view. The students were not mentally prepared for the emotional effects of being the outsider in a new environment and having to see things from a quite different angle. We argue that for some of the students it does not only lead to personal growth in terms of more independence and self-confidence, but also to become more reflective upon global economic differences as well as environmental awareness. In line with Gaudino and Wilson (2019) we find that the teachers express that they are more competent to work with diverse learners and that they feel greater self-confidence.

The dissonance between educational systems, make the student teachers develop reflective thinking about teaching. This is in line with what Leming & Steele (2022) identify as an example of a disorienting dilemma, when the pre-service student teachers must negotiate normative pedagogical notions from their own teacher training as they are facing the realities of the Zambian classroom. In our study this was especially noticeable regarding teacher authority and classroom management strategies. Although the informants to some extent changed their frame of reference, there can be no doubt that this disorienting dilemma have several outcomes. In line with Juul-Wiese (2023), we also notice indications of 'normativity on the move' in the way the students describe the situation 'down there'. For instance, corporal punishment and harassment of pupils were not something they got accustomed to, although they appreciated some aspects of enhanced teacher authority.

The most striking finding from our study is that by interviewing the teachers several years after their international experience we find that the process of perspective transformation has had sufficient time to mature and affect the perspective. In our material this is manifested in perceptual understanding of "the other" as being very much alike us, looking beyond the apparent cultural differences.

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# Helping to learn. What are good practices of educational intervention?
# Structure and preliminary results of a participatory research study

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## Abstract

The impact of Covid-19 has produced a renewed debate on the quality of teaching and invited us to reconsider the strategic role of the teaching profession in providing quality education. Educational interventions that support the development of literacy skills represent a key direction of intervention, which also needs to be explored on the basis of a deeper understanding of educational processes in context. In relation to these issues, the contribution aims to present the framework and initial results of a participatory research project. The study re-proposes the usefulness and the problem of how to study teaching practices in order to obtain useful knowledge for the improvement of teaching processes.

**Keywords:** didactic mediation; analysis of teaching practices; professionalisation of teachers; participatory research; quality of teaching.

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[1] Daniela Maccario is responsible for and author of the Mediations Project: conception and problematisation, theoretical-methodological framework; identification of the sampling criteria and implementation; elaboration of the original survey instruments; data processing; she is the autor of paragraphs 1, 2, 3, 4: 4.1, 5. Annamaria Garibaldi is  research fellow in the Project (funding Department of Philosophy and Educational Sciences University of Turin; CRC Foundation co-financing 2023-2024; 2024-2025),): she collaborates in the implementation of the activities and is responsible for paragraph 4.2.

## 1. Problem and research aim

The didactic emergency that occurred during the pandemic period drew attention to teaching as a professional activity characterised by its own competences and knowledge, specifically pertaining to what can be done to support students' learning processes and personal growth (Maccario, & Garibaldi, 2023). The issue concerning the quality of teaching action is also proposed in relation to the orientations of training policies with respect to the competence profiles expected at the end of the educational cycles and for the exercise of citizenship and social insertion (Council of the Europe 2018; 2023), as well as following the dissemination of the results of national and international surveys on school learning (INVALSI, 2022; Pisa, 2018, 2022) and the competences of the adult population (OECD, 2024). In the face of social expectations, phenomena and socio-educational issues that require to be interpreted and addressed by the professionals in the field, educational research is called upon to take action in order to produce scientific knowledge on teaching-learning processes and their possibilities for innovation. Starting from this problematic framework, we sketch the outlines and some initial results regarding the start-up of a research project promoted at the University of Turin - Progetto Mediazioni© - in order to reconstruct 'good' teaching practices for the development of literacy skills of pupils from pre-school to the first two years of secondary school, to be analysed in order to extract, with the participation of the teachers, elements for the definition of operational criteria capable of responding, through comparison with the theoretical knowledge available, ever better to the training needs and requirements in school contexts.

## 2. Theoretical framework

The object of investigation identified is the teaching action with reference to how the teacher teaches in order to promote literacy skills in students. Teaching action is considered in terms of didactic mediation, in a processual and interactive key. Reference is made to a conception of knowledge and learning of a fundamentally Piagetian and Brunerian constructionist matrix (Damiano, 2016), with Vygotskyian references (Lenoir, 2017), according to which the indispensable condition for the learning process to take place is the possibility given to the subject to intentionally intervene in the situations he/she experiences. This dynamic is developed at school through the mediation of teachers, who assume a role of promoting learning when, by activating appropriate forms of communicative exchange with pupils, they offer them the opportunity to interact with the didactic situation -in mental and/or practical terms- and to reflect on the experience they live, carrying out a process of structuring and restructuring of their knowledge. In the context of this study, we adopt an approach aimed at trying to "make evident" some salient aspects of the phenomenology of the processes of instructional mediation enacted by teachers with the intention of promoting appropriate skills with respect to language mastery in relation to teaching in different subject areas, thus intercepting aspects of the "de facto curriculum" (Perrenoud, 1993).These are processes that are little known even by the teachers themselves, at least in an explicit and formalised key, the analysis of which can fuel reflection on how to improve teaching in order to promote consistently effective forms of learning. The working hypothesis underlying the project is that of trying to explore teaching-learning processes that can be traced back to the "teacher effect" (Bru, 2021), not with respect to presumed personal characteristics - on which it is difficult to intervene - or effectiveness "traits" considered in a stable and decontextualised form, but according to an interactive conception, which requires experimenting with forms of detecting the ways in which the "teacher teaches", from the point of view of implementing a modulated set of cognitive, material, relational and temporal conditions with which the learners are confronted, in order to help them learn through the appropriation of disciplinary knowledge. It is a matter of trying to identify the professional gestures that arise from the activation of decision-making levers that can be considered typical and inherent to teaching activity, "multi-agenda" (Boucheton, Soulé, 2009) insofar as they only partially correspond to predefined and predictable didactic settings, rather significantly attributable to unforeseen events, psychological

loads, conditioning, simultaneous and often contradictory demands in classroom management, the subjectivity of pupils and the forms of resistance they normally express.

## 3. Method

The study was developed according to a methodological pathway with "structural" connotations (Maccario, 2021; 2022), in relation to a framework based on a critical reconnaissance of the literature (Maccario, 2023), screened with the recipients of the research as to its significance in intercepting the experience and decision-making underlying the conduct of teaching interventions aimed at addressing recurring problems in teaching for the development of literacy skills. A specific research problem was identified as the construction of a reasoned national sample of teachers "experienced" in teaching language communication in various subject areas, from kindergarten to the first two years of secondary school (corresponding to compulsory education), who could be motivated with respect to the objectives of the research and the role proposed to them. The involvement of participants in the survey took place thanks to the activation of professional communities involved through a specific "research alliance pact"[2]. A key challenge was the construction of original data collection tools, including a semi-structured questionnaire – Questionario Mediazionis© -.This is a self-completed questionnaire, delivered in a computerized manner on a Limesurvey university platform, which, partly through dedicated technical support, has been enhanced for potentially large-scale detection of narrative reconstructions of teaching interventions in response to specific problems encountered in professional practice (supported by documentary material and in-depth interviews). The construction of the research team, the process of pre-validation of the questionnaire from the point of view of its coherence and validity with respect to the purposes of the survey flowed into the development of a participatory research-training process started in 2022, with the conclusion of the first phase, corresponding to the administration of the questionnaire, in March 2024.

## 4. Some initial results

### *4.1. Traces of good teaching practice to help learning*
The survey involved 85 teachers working in Lombardy and Piedmont who, starting from the invitation within the professional communities adhering to the research, self-selected themselves as "experts" for having developed intervention strategies in the classroom that they recognised as effective in dealing with the problems intercepted by the survey. This is a sample of teachers who are almost totally engaged in teaching in the language field, 60% of whom have more than twenty years of service; il 40%, 24%, 21%, 15% of whom are primary, secondary and pre-school teachers. Although the composition of the group of respondents denotes a sample with specific characteristics, an initial exploration of the data base obtained suggests the possibility of constructing significant and adequately reliable knowledge to deepen the object of study and returns forms of feedback on the informative potential of the survey device adopted. An initial thematic analysis carried out on the teaching situations reported as problematic (Maela, 2022) and taken care of with targeted interventions, attests to the widespread presence of reading criteria that well intercept the "medial heart" of didactics, with an articulation of directions of problematisation that makes one note, by way of example, the need, in order to "teach well", to understand the causes of the linguistic-communicative difficulties that students manifest; to know better the learning needs and potentialities of the pupils; to realise an adequate didactic differentiation in the classroom; to succeed in engaging the pupils; to support the connection between school language learning and out-of-school experience; to work on the acquisition of an adequate lexical repertoire to understand and be understood; to find solutions to make pupils acquire linguistic awareness and competence through

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[2] The professional associations of teachers operating at a national level have formalised a cooperation pact within the Project - Department of Philosophy and Educational Sciences University of Turin: AIMC (Piedmont section: Turin, Asti; Lombardy: Milan-Monza); Ecogeses Cooperative; UCIIM (Piedmont and Lombardy); OPPI.

the study of grammar. The reduced recurrence of problems read in a tendentially extrinsic key with respect to the teachers' professional responsibility (problems considered to be more or less permanently borne by the students, such as lack of interest, difficulty in concentrating, lack of recognition of the role required by the school, learning difficulties, deficiencies relating to the students' cultural and experiential heritage) or according to a partial vision (for example, where the need to devise generic innovative teaching activities is perceived above all) seems significant.

### *4.2 The questionnaire: feedback on the sustainability and effectiveness*

After the questionnaire instrument was put online, there followed a "test" phase through a selected sample that allowed not only to improve the wording of some items, but also to verify the proper functioning of the system and, for the purpose of scientific reliability, to test the stability of the entire survey corpus. Each participant, associated with a specific identifier generated through an "access code" to the survey, received by e-mail the link to access the compilation with the "instruction vademecum" attached. All participants had the opportunity to write to the dedicated e-mail address ('progetto.mediazioni@unito.it') to report any problems encountered during the compilation phase, also receiving technical support and alternative solutions. The narrative reconstruction questionnaire administered through the university's Limesurvey platform, according to the respondents, essentially provided reassurance that the research could be traced back to the relevant university institution and that the scientificity and confidentiality of personal data were guaranteed; the graphical iteration and intuitiveness of the online environment were valued as facilitating factors in writing.

The questionnaire is divided into three sections: the first concerns the biographical data of the respondents; the second contains personal professional and educational experiences; and the last is the reconstruction of a classroom teaching intervention in relation to a particular area of teaching-professional problems and represents the "heart" of the questionnaire. An acquired fact regarding the scientific and educational valence of the Project, concerns the recognition of the questionnaire as a tool to support the reflective reconstruction of practices in a form oriented by relevant theoretical keys in the scientific literature.

We report some specific aspects. As a first element, the "paradigm of reflexivity" emerges widely: , the reflective posture with the explication of non-overlapping meanings:

> «The setting of the questions allows you to look at the educational path with greater depth of gaze and to observe the gaps that accompany us» (one of the respondents to the survey).

The questionnaire is configured as: a tool that helps to stop and read within oneself, a pause to bring out teaching and educational practices unconsciously enacted, a return to reflect at the metacognitive level, a retrospective look at one's teaching. The questionnaire is considered a useful tool for in-depth and metacognitive investigation of one's professional identity. Other strategic elements that emerged are: awareness of the teacher's mediating role in helping students learn; recognition of the importance of documentation of teaching pathways and the need to implement it for the reconstruction and enhancement of classroom practices; and finally, the importance of understanding the "impact" that one's teaching has on all students.

## 5. Conclusion

An initial analysis seems to confirm the consistency of the survey device adopted with respect to the objectives of the research and as a tool to support the reflective reconstruction of practices in a form oriented by the relevant theoretical keys in the literature. The reconstruction of classroom interventions, in dialogue with frames of reference that refer to certain fundamental "structures" peculiar to teaching action, seems to favor the emergence of processes recognized by professional actors as indicative of the problems and operational strategies of a didactics oriented to the acquisition of linguistic-communicative skills. On the epistemological level, the device seems to respond to the need to build a knowledge to support the exercise of the teaching profession based on a double validation, theoretical-scientific and practical, based, therefore, on the interrogation and

dialogue of a multiplicity of different sources. In terms of scientific investigation, the launch of the project highlights the importance for researchers of a commitment to investigation and theoretical reconnaissance, oriented towards outlining frameworks that are more consistent with the complexity of the object of investigation, represented by the transformative interaction between the formalised structures of knowledge proper to scientific-disciplinary knowledge and the growing cognitive structures of students, through a continuous dialogue, intentionally prepared and facilitated by teachers, in the exercise of their professional activity of didactic mediation. On the methodological front, the need to collect 'embodied' and contextualised data, susceptible, however, to forms of re-appropriation even in a trans-contextual key, also requires a particular commitment to the definition of valid and reliable tools and approaches for data collection and processing, even original ones, when not directly borrowed from other scientific fields. We can also observe that while the challenge of participatory research seems to be a scientific path, as well as an educational one, not to be underestimated or, even, according to the posture of the writer, to be favoured, it remains realistically to be analysed through systematic experiences and project realisations the junction of sustainability for the actors themselves, within a framework of clarity with respect to professional roles and institutional frameworks.

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# Improving Inclusive Education:
# the Turin Model of Collaboration between Schools, Universities and Communities

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## Abstract

The training course *Expert in Inclusive Educational Processes*, developed by the University of Turin, addresses the growing need for qualified trainers in the *Specialisation Course for Support Activities* (CdS). Grounded in Disability Studies in Education (DSE), the program reframes inclusion as a strength, fostering skills such as cultural awareness, organisational agility, relational expertise, and strategic thinking. Initial evaluations highlight its transformative impact, enabling trainers to inspire future educators to integrate inclusive principles into practice. This initiative exemplifies how targeted professional development advances inclusion, aligning with national and international educational priorities.

**Keywords:** disability studies in education; support teachers; training of trainers; professional development; inclusive education.

## 1. Building Capacity for Inclusive Education Through Trainer Development

Inclusive education represents one of the greatest challenges and opportunities for the modern school system. By ensuring the full participation of students with different abilities and needs, inclusive practices promote equal access to quality education and a culture of respect and cooperation (UNESCO, 2017). In Italy, the pursuit of inclusion is deeply rooted in a solid legal framework and a pedagogical tradition that dates back to the 1970s, when the country pioneered the integration of students with disabilities into mainstream classrooms. This "single option" approach makes inclusion not a marginal issue, but a fundamental principle of education (Pavone, 2010; Cottini, 2014).

At the center of this model is the role of support teachers, professionals who are mandated by law to facilitate the inclusion of students with disabilities. They work with other teachers to ensure that all students, regardless of their abilities, have equal access to educational and social opportunities. To become a certified support teacher, candidates must complete the *Specialisation Course for Support Activities* (CdS), a demanding university specialization pathway that includes 1,500 hours (equivalent to 60 ECTS) of theoretical coursework, practical labs, and extensive internships (Calvani *et al.*, 2017; Romano *et al.*, 2021). This rigorous training is essential to equip support teachers with the skills needed to manage the complexity of inclusive education (Bocci, 2018; 2021).

The growing demand for support teachers in Italy poses a double challenge: to meet the quantitative need for more trained professionals without compromising the quality of their preparation. The University of Turin has recognized this and, in collaboration with the Piedmont Region and other local institutions, has launched the *Expert in Inclusive Educational Processes* (CUAP) training course over the last three years. With a focus on training lab instructors and internship tutors for the CdS, the program is designed to enhance the competencies of educators who play a critical role in the preparation of support teachers.

The CUAP course is based on the principles of Disability Studies in Education (Gabel, 2005; Slee *et al.*, 2019; Baglieri, 2023) and provides educators and trainers with both the theoretical framework and the practical tools needed to promote inclusive education. By fostering cultural awareness, relational skills and strategic thinking, the program aims to empower trainers who, in turn, inspire future educators to incorporate inclusive principles into their teaching.

This article describes the theoretical underpinnings, practical methods, and initial outcomes of the program and offers insights into how targeted professional development can drive systemic change. It provides a case study of how local initiatives can be aligned with international standards to promote sustainable and meaningful educational reform. In this way, it aims to contribute to the global discourse on inclusive education.

## 2. Bridging Theory and Practice: Collaborative Strategies for Inclusive Education

Effective inclusive education is not the result of isolated efforts, but rather the result of coordinated collaboration between different stakeholders. The University of Turin has recognized this and developed a model that focuses on partnerships between universities, schools and local communities. This framework recognizes that the complexity of inclusion cannot be addressed through top-down measures or individual initiatives alone. Instead, a networked system is required in which educators, policy makers and the community work together to create an inclusive learning environment (Alessandrini, 2007).

Central to this collaborative effort is the establishment of local networks that bring together different actors to address the practical challenges of inclusion. These networks operate as hubs for the exchange of resources, expertise and innovative practices. Universities play an important role in these networks as centers for research and advanced knowledge and serve as catalysts for systemic change (Grau *et al.*, 2017).

This emphasis on collaboration is based on the recognition that inclusion is a multi-faceted issue. Effective strategies must consider not only pedagogical practices, but also organizational structures,

cultural perceptions, and community engagement (Ko & Sammons, 2013). For example, creating an inclusive classroom involves more than simply equipping teachers with technical skills; it requires fostering a school culture that values diversity, supports peer collaboration, and promotes equity at all levels of decision-making (EADSNE, 2012). Territorial networks provide a platform to address these broader dimensions and enable stakeholders to work together to develop solutions tailored to the particular needs of their communities (Harkavy, 2006).

The CUAP program is an example of this collaborative ethos. The course was developed as part of an agreement between the University of Turin and key regional and local institutions and reflects a shared commitment to promoting inclusion as a core value (Bianchini *et al*., 2023). In this agreement, the roles of each partner were formalized to ensure that the program benefited from a broad range of perspectives and resources. Schools contributed their practical insights into the challenges of inclusion, while universities provided the theoretical framework needed to address these challenges. Local governments facilitated the integration of these efforts into broader regional policies and ensured alignment with national and international standards.

The collaboration also extends to the course participants themselves, who bring a wealth of professional experience to the program. Through mutual learning and shared reflection, participants contribute to a dynamic learning environment that bridges the gap between theory and practice. Through this interplay of knowledge and experience, the program not only prepares educators to meet the demands of inclusive education, but also fosters a community of practice committed to continuous improvement (Gibson *et al*., 2016).

By incorporating collaboration into its design, the CUAP program closes a critical gap in traditional teacher education: the gap between pedagogical theory and the practical reality of the classroom. This integrated approach ensures that participants are not only prepared to implement inclusive practices, but are also able to adapt these practices to the changing needs of their students and communities. It emphasizes the principle that inclusion is not a static goal, but a dynamic process that requires constant dialog, innovation and collaborative effort.

## 3. Theoretical Foundations and Structure of the CUAP Program

The *Expert in Inclusive Educational Processes* program draws its strength from a solid theoretical foundation rooted in Disability Studies in Education (DSE). This paradigm challenges traditional deficit-oriented approaches to disability by advocating for a perspective that views diversity as an asset rather than a limitation (Naraian, 2017). At the heart of the DSE framework is the belief that inclusion is not just about accommodating students with disabilities, but reshaping educational systems to celebrate and leverage differences as a source of collective enrichment (Kauffman & Hornby, 2020). By adopting this perspective, the CUAP program equips educators with the mindset and tools to foster a truly inclusive environment.

At the core of the CUAP curriculum is a commitment to align pedagogical practices with the principles of DSE. The program introduces participants to a range of theoretical models and methodologies and encourages them to critically engage with existing paradigms and explore innovative approaches to inclusion. For example, the course challenges participants to reconsider conventional notions of ability and success and to shift the focus from standardized outcomes to individual learning and growth pathways. These theoretical foundations enable educators to navigate the complexities of diverse classrooms with confidence and creativity.

The structure of the CUAP program is designed to translate these theoretical insights into practical competencies. Following a Competency-Based Education and Training model (Burke, 2005), the course combines theoretical instruction with practical learning experiences. A distinctive feature of the CUAP program is its emphasis on experiential learning. Participants take part in workshops, collaborative projects and internships that give them the opportunity to apply what they have learned in authentic contexts. As we will see below, the program includes a critical incident analysis component in which participants examine real-life scenarios that occur in inclusive classrooms. This

exercise not only sharpens their problem-solving and analytical skills, but also deepens their understanding of the relational dynamics that underlie effective inclusive practice.

Another important aspect of the program is its focus on interdisciplinary collaboration. Recognizing that inclusion requires a holistic approach, the CUAP curriculum incorporates insights from fields such as psychology, sociology and organizational leadership. This interdisciplinary perspective provides participants with a comprehensive understanding of the factors that influence inclusion, from the individual needs of learners to broader systemic and cultural considerations.

The program also places a strong emphasis on developing strategic competencies. Participants are trained to design and implement inclusion strategies that are both contextual and scalable. This is not just about addressing immediate challenges in the classroom, but also about contributing to the broader transformation of school culture and policy (Gephart & Marsick, 2016). By fostering strategic thinking, the CUAP program prepares educators to act as change agents in their institutions and communities (Brown *et al.*, 2023; Van der Heijden *et al.*, 2015).

Through its integration of theory, practice and collaboration, the CUAP program is an example of a forward-looking approach to teacher training. It not only equips participants with the skills they need to meet the challenges of inclusive education, but also inspires them to advocate for more equitable and inclusive education system.

## 4. Critical Reflection as a Core Pedagogical Tool

A cornerstone of the CUAP program is the emphasis on critical reflection as a tool for professional growth. Inclusive education, with its inherent complexities and dynamic challenges, requires educators to move beyond prescriptive methods and engage deeply with the nuances of their practice. By fostering critical reflection, the CUAP program equips participants to interrogate their assumptions, analyze their experiences, and adapt their approaches to meet the diverse needs of their students and communities.

Central to this reflective process is the use of the Critical Incident Technique (Flanagan, 1954), a methodological tool that is integrated into several modules of the program. This technique encourages participants to examine significant events in their professional practice, whether these are moments of success, conflict or unexpected outcomes. For example, participants are asked to identify incidents from their own teaching experience. These incidents are then analyzed in a collaborative setting where participants discuss the underlying factors, explore alternative responses and identify the competencies mobilized to address the situation.

The value of this approach lies in its ability to combine theory and practice. By analyzing real-life scenarios, participants gain a deeper understanding of how inclusive principles operate in complex educational contexts. This reflective practice also fosters a sense of shared learning as participants share insights and strategies from their diverse experiences. Such discussions often uncover systemic challenges – such as cultural biases or institutional barriers – that may not be apparent at first glance, but are critical to effective inclusion implementation.

The reflective components of the CUAP program not only promote individual growth, but also impact professional practice. Participants are encouraged to document their reflections and share them with colleagues. This process not only broadens the scope of their insights, but also contributes to the development of a reflective culture in their schools and organizations. By exemplifying reflective practice, CUAP participants inspire their colleagues to adopt similar approaches, creating a domino effect that improves the overall quality of teaching and learning.

Furthermore, the reflective framework chosen by the CUAP program aligns with the principles of transformative learning (Taylor & Cranton, 2012), which emphasize the importance of challenging existing perspectives and adopting new ways of thinking. Participants are guided to critically examine how societal norms, institutional policies and personal biases influence their understanding of inclusion. This process ensures that participants internalize the principles of reflective practice and are able to maintain this mindset beyond the duration of the course (Naraian, 2017).

An illustrative example of the impact of the program is the reflective exercises that focus on the role of support teachers in the Italian model of inclusive education. Participants often begin the course with a narrow view of their role, seeing it primarily as a means of providing individualized support to students with disabilities. Through critical reflection, however, they recognize the broader dimensions of their work, including their responsibility to foster collaboration among colleagues, advocate for systemic change, and contribute to the creation of an inclusive school culture.

By encouraging participants to think critically about their experiences, the program prepares them to navigate the complexities of inclusive education with adaptability, empathy and strategic understanding. This approach not only strengthens their individual competencies, but also contributes to the overarching goal of building resilient and reflective educational communities.

## 5. Conclusions

Initial evaluations of the CUAP program underscore its transformative potential. Participants have reported that they have developed a deeper understanding of the principles of inclusion, moving from seeing diversity as a challenge to appreciating its value as foundational principles (Damiani *et al.*, 2021). The program's focus on reflective practice has allowed educators to critically question their assumptions, adapt to the complex dynamics of the classroom, and develop innovative strategies to promote collaboration and equity. This shift in perspective is evident in the participants' ability to implement inclusive practices that extend beyond the individual classroom and influence whole school culture and policy.

One of the most promising outcomes of the program is its multiplier effect. By focusing on the professional development of trainers, the CUAP course ensures that the principles of inclusion are incorporated into the training of future educators. Participants have reported gaining more confidence in guiding prospective teachers, facilitating workshops, and mentoring colleagues, creating a cascading effect that extends well beyond the immediate cohort of the program (Di Masi *et al.*, 2023).

Impact evaluations have also highlighted the success of the program in addressing systemic challenges. For example, participants have found that they are better able to overcome institutional barriers and advocate for inclusive policies in their schools. The collaborative networks created through the program have fostered a sense of shared responsibility for inclusion and enabled educators to draw on collective expertise and resources (Damiani *et al.*, 2021).

The CUAP program's early achievements underscore the importance of investing in targeted professional development to drive systemic change. By prioritizing the training of trainers, the program has demonstrated that sustainable inclusion requires not only individual competencies, but also the creation of supportive ecosystems in which educators can collaborate, innovate, and thrive (Priestley *et al.*, 2015). This holistic approach ensures that inclusion is not treated as a one-size-fits-all solution, but as a flexible, adaptable process that responds to the changing needs of diverse learners and communities.

As the program continues to evolve, further research and evaluation will be critical to refine its methods and expand its reach. Longitudinal studies could provide deeper insights into the lasting impact of the CUAP program on participants' professional trajectories and on the educational outcomes of the students they serve. In addition, expanding the program to other contexts could help disseminate its principles and practices, contributing to the global discourse on inclusive education.

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# Life Designing and inclusive prospects in Italian schools

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## Abstract

The article examines the integration of the narrative approach, Life Designing, and Universal Design for Learning (UDL) (Rose, 2000) in the Italian educational system to promote the inclusion of students with disabilities. Introduced from early childhood, these approaches foster resilient identities and educational equity through assistive technologies and flexible teaching. The narrative approach supports identity development through storytelling (Bruner, 1990), while Life Designing encourages adaptability and proactive career planning (Savickas et al., 2009). Their integration creates inclusive environments that value diversity and prepare students for workforce challenges, contributing to a more just society.

**Keywords:** inclusion; didactics; Life Designing; narration; Universal Design for Learning.

## 1. Introduction

In the current Italian educational landscape, inclusion is a central goal that requires strategies to recognize and value the uniqueness of each student. Within this theoretical framework, the narrative approach (Bruner, 1990) and the Life Designing paradigm (Savickas et al., 2009) emerge as powerful pedagogical tools to support the construction of a strong identity and the planning of a meaningful life path for all.

The autobiographical narrative approach is based on the idea that personal stories are not merely accounts of past experiences but constructs through which individuals assign meaning to their lives, developing self-awareness, aspirations, and aptitudes. When applied in education, this method enables students to deeply reflect on their experiences, fostering a more integrated understanding of their identity.

Similarly, the Life Designing paradigm, developed by Savickas and Guichard, promotes a proactive approach to life planning (Biancalana & Canevaro, 2019), which is particularly relevant for individuals with disabilities. This framework emphasizes the ability to design and adapt one's life path, facing transitions and challenges with resilience. Autobiographical narrative techniques integrated with Life Designing provide a theoretical and practical framework to support personal and professional growth in inclusive educational contexts.

This article aims to analyze the effectiveness of integrating the autobiographical narrative approach, applicable to all students from early education, with Life Designing and Universal Design for Learning in the Italian educational context. It seeks to understand how these three approaches can foster inclusive education that enhances self-awareness. Through theoretical analysis and intervention models, the article offers practical insights for Italian schoolteachers engaged in designing inclusive schools.

## 2. Guidance processes and analysis of the contemporary Italian educational context

Guidance constitutes a distinct educational construct, grounded in the significance of formative experiences in shaping an individual's life trajectory and fostering appropriate responses to developmental tasks and challenges. From this perspective, guidance is conceptualized as a dynamic process through which individuals develop the capacity to integrate knowledge and experiences, narratives and meanings, as well as internal and external dimensions, thereby aligning personal needs with contextual realities (Priore, 2024).

Currently, guidance processes unfold within a landscape marked by a crisis of values, a lack of solid reference points, and forms of liquidity and plurality (Bauman, 2000) that hinder the establishment of a clear taxonomy of life design processes. The social representation of the future, steeped in uncertainty, has shifted from a "future-as-promise" to a "future-as-threat" (Benasayag & Schmit, 2004). Moreover, as Bencivenga (2017) notes, a "disappearance of thought" or the prevalence of superficial thinking appears connected to an anthropological shift. This highlights the growing difficulty among younger generations in analyzing the world and themselves, taking time to imagine possible futures, and engaging in proactive planning and change. Galimberti (2007) had already identified the educational need to integrate cognitive and emotional dimensions, fostering "reflective cooling" to guide young people toward reflective thinking and conscious self-management.

Thus, guidance processes, unfolding beyond established frameworks, present increasingly complex challenges centered on the continuous redefinition of identity. Pedagogical analysis of the educational processes underlying life design prioritizes the conditions that enable individuals to balance internal needs with environmental demands, achieving authentic self-expression. Education systems must assume responsibility for designing guidance actions responsive to emerging needs, rather than fragmenting them into isolated moments or focusing solely on specific problems (Cunti & Priore, 2020; Riva, 2022).

This involves giving meaning and credibility to the future through the development of life-oriented competencies, such as nurturing aspirations, activating critical self-reflection, and consciously managing choices. In a knowledge society, where the aim is to foster "employable" and "competitive"

individuals (Jarvis, 1987), knowledge and competencies become vital resources that enable individuals to align thinking, feeling, and acting with their environment (De Carlo, 2013, pp. 237–238). In complex societies, guidance processes gain significance when they support individuals in navigating life contexts, fostering empowerment and the development of adaptive, proactive, and critical thinking skills. Higher-order competencies, such as strategic and reflective critical thinking, play a key role in guidance. Among these, "learning to learn" stands out as a core competence for organizing and applying knowledge for life design and for exploring and developing one's potential.

## 3. The use of the narrative device

The disappearance of stable structures and predictable life trajectories has shifted guidance toward individualizing life paths, requiring methodological tools that support individuals in valuing and integrating experiences into their life stories (Priore, 2018). From a narrative perspective, self-interpretation and the perception of the world are central to life-design processes (Guichard, 2005, 2012; Savickas, 2014, 2015), which focus on identity construction across the multiple roles individuals assume within broader ecosystems.

By reorganizing fragmented experiences, self-narration becomes a key reflective tool in guidance. In recent decades, guidance practices have undergone a paradigm shift, aligning with the narrative turn and adopting a more qualitative approach. Autobiographical narration now holds a central role in life construction (Bruner, 1990; Ricoeur, 1983), fostering constructive and dialogical reflection on identity-described as "making oneself self" (Guichard & Pouyaud, 2015)-as it is both produced by and inherent to the individual.

The narrative approach in guidance develops reflective skills essential for critical self-observation, enabling individuals to recognize their strengths and limitations. Narrative exercises help interpret identity, navigate diverse experiences, and strengthen agency in seeking and constructing meaning. They encourage exploring possible roles, imagining future scenarios, and transforming desires into achievable life and career paths.

Narrative methodologies in guidance, particularly in career counseling, are supported by models such as Narrative Career Counselling (McIlveen & Patton, 2007), which promotes deep, critical reflection beyond merely identifying interests, needs, and skills (McIlveen & Patton, 2006). From an auto-ethnographic perspective (McIlveen, 2008), personal stories are central to individual development and vocational work through reflective exercises (McMahon & Patton, 2006; Watson, 2006).

Narrative Career Counselling has evolved into storytelling-based guidance (McMahon, 2006; McMahon & Watson, 2010, 2012), which explores identity through contextual and cultural dimensions and emphasizes key constructs (McMahon & Watson, 2013):

- Connectedness: the influence of contextual factors on career choices;
- Meaning-making: the process of understanding and generating meaning from stories to identify core themes;
- Agency : the individual's role in shaping their identity.

Through re-signifying personal experiences, narration fosters transformative learning (Mezirow & Taylor, 2009) and the development of transversal skills, including emotional competencies. These skills are crucial for creating life projects that align with all aspects of the self.

## 4. Theoretical foundations of Life Designing

The Life Designing paradigm marks a major advancement in career guidance and life planning, offering a modern framework to address today's complexities. This evolution stems from Parsons' formula (1909), which aligned individual abilities and interests with occupational demands. It later evolved into the person-environment fit theory and Holland's (1997) vocational choice congruence theory, enhancing self-awareness and labor market understanding for effective career matching.

With shifting labor market dynamics, the 21st century moved from organization-centered to individual-centered models, leading to Savickas' (2005) Career Construction Theory. This theory supports individuals in shaping their careers through brief personal narratives, which are deconstructed and reconstructed into broader life stories, co-creating their professional future.

Savickas (2005) also introduced a distinct career counseling model emphasizing interpersonal processes, aligning with Super's definition:

> «...the process of helping a person develop and accept an integrated and adequate self-concept and their role in the world of work, test this concept against reality, and translate it into reality, benefiting both the individual and society... » (Super, 1988, p. 92).

Career construction counseling complements, rather than replaces, traditional guidance and education by offering a holistic, person-centered approach. A modern career guidance paradigm must integrate biographical work and identity development, emphasizing employability, adaptability, emotional intelligence, and lifelong learning.

The Career Construction Theory (Savickas, 2015) addresses modern challenges such as occupational restructuring, workforce transformation, and multicultural demands. Life Designing, a core element of this paradigm, provides a framework for building coherent, fulfilling lives through proactive and reflective planning. It uses narrative as a tool for constructing self and career, encouraging reflection on life stories to inform decisions and future plans.

A key innovation of Life Designing is its adaptability to contemporary challenges. It fosters resilience and equips individuals to navigate life transitions with greater awareness and confidence.

This approach integrates personal and professional dimensions, recognizing the connections between life experiences, relationships, and work-factors that shape identity. It encourages individuals to consider all aspects of life in their planning.

The Life Designing paradigm offers both a theoretical framework for career construction and a practical approach to designing meaningful lives. It emphasizes flexible, future-oriented planning, empowering individuals as active agents in their development.

Life Designing practitioners use the Career Story Interview, a narrative tool with open-ended questions that explore life experiences and form coherent narratives. These stories often highlight transitions or deviations from expected paths, using narrative to interpret change (Bruner, 1990). Emerging themes reflect evolving perspectives, giving personal meaning to past experiences, present realities, and future aspirations.

## 5. Guidance practices in Italian schools: integrating approaches for an inclusive perspective

The integration of the narrative approach, particularly biographical narration, with the Life Designing paradigm creates a theoretical and practical synergy that fosters inclusive and personalized education. Both methods aim to develop resilient, self-aware identities through reflection and intentional life planning. In educational contexts, this combination offers effective strategies to support students in achieving self-awareness and constructing meaningful life projects.

The biographical narrative approach, through life storytelling, enables students to explore and articulate their identities. Narration builds a cohesive sense of self by giving meaning to experiences and reflecting on aspirations. The Life Designing paradigm complements this by providing a structured framework to organize these experiences into a continuous growth process.

This integration is particularly effective in inclusive education, where diverse experiences demand flexible, personalized methods-especially for students with disabilities. However, implementing autobiographical narration and Career Story Interviews can be challenging due to limited adaptations for full inclusion, highlighting the need for the Universal Design for Learning (UDL) (Rose, 2000).

UDL fosters inclusive environments where all students, regardless of abilities, actively participate and benefit from education. Achieving this requires collaboration among parents, teachers, and social and healthcare services to support students in future planning. Education, as an ongoing process of self-

perception and self-assessment, becomes a valuable opportunity for lifelong guidance and personal development.

The Life Designing paradigm and the narrative approach share a vision of education as continuous identity construction. Through reflection, individuals give meaning to life paths and actively plan their futures. This integration not only enhances self-awareness and life planning but also promotes inclusion, ensuring students with disabilities fully engage in learning.

In Italy, guidance begins in preschool by fostering emotional recognition and expression, crucial for identity development (Piaget, 1952; Vygotsky, 1978). Developmental theories (Bandura, 1977; Erikson, 1950; Freud, 1905; Pavlov, 1927; Piaget, 1952; Skinner, 1938; Vygotsky, 1978; Watson, 1924) emphasize the importance of symbolic play and social interaction in cognitive and emotional growth. Activities like symbolic drawings or timelines encourage reflection and peer engagement, fostering inclusive development (James, 2017).

In primary school, students deepen narrative and reflective skills. Autobiographical narration consolidates identity and self-awareness (Bruner, 1996). Diaries for recording experiences support reflection and emotional processing, while storytelling fosters expression and mutual understanding, aligning with Bruner's view of narration as central to understanding human experience.

In middle school, guidance becomes more complex as students explore interests and aspirations (Erikson, 1968). In high school, the focus shifts to preparing for work and adulthood. Professional autobiographies help link educational and work experiences with future goals (Savickas, 2014).

The Life Designing paradigm emphasizes narrative career construction, encouraging individuals to reorganize experiences into career paths. Integrating Life Designing with Career Portfolios is crucial, guiding students to document skills, experiences, and goals for future careers.

Combining the narrative approach and Life Designing, supported by UDL, is essential. UDL designs educational materials and strategies to be accessible to all students by default, ensuring participation and learning for everyone. This approach ensures all students can develop self-awareness and engage in active life planning, overcoming barriers that hinder full participation for students with disabilities. Work, as a core aspect of identity construction, remains central to this vision.

In conclusion, integrating the narrative approach and Life Designing, reinforced by UDL, provides a strong foundation for inclusive and equitable education. Adhering to UDL principles ensures that all students have the resources to design meaningful life paths and actively engage in their educational journey.

## 6. Conclusions

The integration of the narrative approach and the Life Designing paradigm, reinforced by the pedagogical framework of Universal Design for Learning (UDL), offers an innovative perspective within contemporary educational contexts.

UDL functions as a flexible framework for reflection and the advancement of educational practices toward more effective and inclusive learning. This approach moves schools beyond rigid curricula and standardized models, centering instead on individual students, their personal pathways, and their potential. It promotes intentional teaching practices within engaging and accessible learning environments.

The proposal to implement inclusive actions through UDL arises from critical reflection on how this paradigm can be effectively applied in educational practices, acknowledging the Italian school system's long-standing commitment to inclusive education.

The adoption of these approaches in schools would not only support all students in developing self-awareness and constructing meaningful life projects but also foster the transversal skills necessary for building a more promising future. By implementing flexible teaching methodologies, universally accessible learning environments can be cultivated, recognizing and valuing each student's uniqueness (Sgambelluri, 2023).

This integrated educational model has the potential to strengthen students' self-esteem and resilience, equipping them to face future workforce challenges with confidence. Ultimately, the convergence of these approaches offers a concrete response to diverse educational needs, fostering personal growth within a more equitable and inclusive society.

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# Preventing early school leaving.
# Perspectives of intervention research between school and territory

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## Abstract

This paper presents an exploratory study on the definition of early school leaving (ESL) in Italy. The study involved a desk study utilising keywords in major search engines, complemented by documentation from the Ministry of Education. A thematic analysis of the definitions identified five macro-categories: the definition and characterisation of the issue, risk factors and causes of ESL, economic and social consequences, ESL indicators, and fragmentation of the school system. The study aims to further investigate the strategies implemented in Italy to prevent ESL, with a particular focus on projects developed through collaboration between schools, local authorities, and third-sector organisations.

**Keywords:** drop out; school; youths; early school leavers.

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## 1. Introduction

Early school leaving (ESL) represent a complex and multifactorial challenge (MIUR, 2014, 2018; AGIA, 2022). Recent scientific literature underscores the importance of adopting systemic and multidimensional models to deepen the understanding of this issue. These models move beyond quantitative indicators used to measure the prevalence of ESL, focusing on the diverse dynamics and interactions among several factors that influence the broader education and training system (Pandolfi, 2017; Colombo, 2015; Ross & Leatwood, 2013). In the Italian context, the Constitution enshrined principle of equitable and inclusive education and training system in Article 34. Over time, government have been progressively developed policies to enhance access to education and promoting inclusivity and equity (Eurydice, 2020).

However, significant challenges remain in fully realizing the constitutional mandate (Eurydice, 2020). A parallel scenario exists regarding the issue of ESL in other countries, though the scope and characteristics vary across context (European Commission, 2022). Since the early 2000s, Europe has convened round tables (Eurydice, 2014) to develop effective strategies for addressing this phenomenon. Notable initiatives aimed to reducing ESL include the Lisbon Strategy 2020 and the Europe 2030 project, both of which prioritize the development of equitable and inclusive education and training systems. In alignment with the objectives set forth in the Italian Constitution and European policies, Italy has established a regulatory framework, beginning with Legislative Decree 275/1999 (School Autonomy), and later reinforced by Law 107/2015 (Buona Scuola) to address the problem. Additionally, to address regional disparities and support efforts to combat ESL, the Italian government has recently introduced the PNRR fund.

In this context, an exploratory study was conducted to examine how ESL is conceptualized in both scientific and grey literature, as well as in the documents and report issues by the Ministry of Education from 2000 to the present.

## 2. Theoretical framework

Bronfenbrenner's (1979) ecological system model provides the theoretical framework for the analysis of school dropout. This model conceptualizes school dropout as the result of dynamic and reciprocal interactions between the student and various contextual factors, including family and school environments, as well as broader historical and cultural influence. Such an approach facilitates a nuanced understanding of the interplay among diverse variables that shaped school dropout trajectories.

Bronfenbrenner's model delineates five structural levels of the environment: the microsystem, encompassing direct interaction between the individual and their immediate contexts; the mesosystem, representing the interconnections between two or more microsystem in which the individual actively participates; the exosystem, comprising environmental settings that indirectly influence the individual; the macrosystem, defined by cultural and subcultural frameworks; and the chronosystem, which refers to temporal changes and continuities in the individual's environment.

Addressing the issue of school dropout requires a comprehensive approach that extends beyond the characteristics of at-risk individuals encompass the environments in which they are situated. From a systemic perspective, risk factors are cumulative, and tailored intervention strategies may be implemented at each structural level (Colombo, 2010; Cunti, 2017). For instance, at the macrosystem level, the prevention of school dropout is supported by the implementation of targeted educational and social policies. At the mesosystem level, intervention may focus on improving teaching practices and school infrastructure. At the mesosystem level, the emphasis lies on supporting individual at risk and fostering their immediate social relationships.

Another pivotal concept for analysing school dropout is equity. Equity is defined using the socio-economic-cultural status index (ESCS) developed by INVALSI, which reflects student's socio-economic-cultural backgrounds. Research consistently indicates that the educational system struggles to mitigate the challenges faced by students from disadvantaged socio-economic backgrounds, with educational disparities tending to exacerbate over the course schooling (Barone, 2017; INVALSI, 2024). While redistributive income policies in adulthood can alleviate some inequalities, the most effective strategy

involves implementing early interventions aimed at improving familial and educational environments during childhood (OECD, 2022).

## 3. The documentary study

The exploratory design of this study necessitated the use of desk research and the formulation of specific criteria for selecting relevant projects and theoretical contributions for analysis. The selection of information sources was guided by chronological criterion, beginning in the year 2000, which marked the introduction of school autonomy in Italy, and extending to 2024. This temporal focus aligns with a significant European milestone: the 2000 year is also saw the launch of the Lisbon Strategy, which outlined objectives for addressing early school leaving across European countries. In addition, to the chronological criterion, a keyword-based approach was employed, using terms such as early school leavers and synonymous or antonyms associated with educational failure. The search encompassed multiple academic disciplines- including education, economics, sociology, psychology, and statistics- reflecting the interdisciplinary relevant of the topic.

The initial documentary search yielded twenty-four definitions that satisfied the established criteria, from a total of forty sources. Sixteen definitions were excluded because they were secondary sources, merely citing definitions of ESL from the twenty-four primary sources identified in the desk research. The selected definitions were systematically organized into a table containing the author, publication year, research field and corresponding definition. This structured format facilitated a detailed comparative analysis, highlighting both similarities and differences with the same research field and across various disciplines.

This methodological approach provider deeper insights into evolution of the concept of school dropout, moving beyond a mere chronological account. The table of definitions (see Appendix A) also offered a comprehensive framework for comparing contributions across disciplines, thereby enhancing the understanding of how perspectives on school dropout have developed over time.

### 3.1 Thematic analysis of early school leaving: definitions, risk factors, social and economic implications, and educational system challenges

The twenty-four definitions were analysed from multiple perspectives. Initially, the changes, nuances, and developments of the phenomenon over time were examined. It was observed that socio-economic disadvantage is a recurrent theme in the definitions, suggesting that early school leaving (ESL) is not merely an educational issue but a broader, multifaceted phenomenon. For example, the definition of NEETs (Not in Employment, Education, or Training) extends the problem to the preliminary stages of workforce participation.

A significant contribution to the discourse, introduced in 2012, was Vertecchi's concept of the "dispersion inapparent" later defined by Ricci (2019) as "hidden" or "implicit" dropout. This form of dropout pertains to students who obtain a secondary school qualification but lack the essential skills to make informed decisions and engage responsibly within a social context (INVALSI, 2019).

Following consultations with experts in relevant fields, a thematic analysis was employed to identify key themes that could adequately explain the content of the various definitions. The analysis underscored the necessity for a multidimensional and integrated understanding of ESL, which consider the various contributing factors, diverse manifestations, and far-reaching consequences within the complex educational and socio-economic environment.

The analysis yielded five main categories: definition and characterization of the problem, risk factors, economic and social implications, indicators of school dropout, and fragmentation of the educational system.

1. *Definition and characterization of the problem.*

The analysis revealed that ESL is a multifactorial problem, encompassing not only early school leaving but also marginalization and the failure to acquire basic competencies (MIUR, 2000; Save the Children, 2011; AGIA, 2022). For instance, Save the Children (2011) identified at least six categories within the general term "dropout":

- Push-outs: student who are implicitly or explicitly encouraged to leave school due to dissatisfaction;
- Disaffected students: those who cannot connect with the school and sub consequently stop attending;
- Capable dropouts: socially disengaged and academically proficient students;
- Dropouts for external reasons: those who leave due to external factors;
- Capable dropouts (second variation): academically capable students who struggle to adapt to school demands and become marginalized;
- Stop-outs: students who temporarily leave school but later return;
- In-school dropouts: students who attend school but lack motivation and are at risk of dropping out.

This categorization aligns with the Italian Authority for Children and Adolescents (AGIA, 2022), which defines school dropout as the "failure to regularly, fully, or adequately use educational and training services by young people of school age." This definition encompasses individuals who, for several reasons, fail to participate in education during compulsory schooling, do not complete their educational path, or complete it late (e.g., repeating grades). In addition to these categories, Vertecchi (2012) introduced the concept of "dispersion inapparent," or hidden dropout, later refined by Ricci (2019) as "implicit dropout." This refers to students who, despite obtaining a secondary school diploma, lack the necessary competencies for informed decision-making and responsible behaviours in social contexts (INVALSI, 2019).

*2. Risk Factors.*
The analysis of risk factors highlights the critical role of socio-economic elements in understanding ESL. While no direct causal link has been established, a strong correlation exists between vulnerable individuals and early school leaving. The literature (Barone, 2017; INVALSI, 2019) identifies three categorised of factors that facilitate ESL:

- Ascribed factors: such as origin status, cultural capital, and social class, which continuously affect access to higher educational opportunities;
- Educational system-related factors: including school characteristics, teacher motivation, evaluation procedures, and teacher training;
- Motivational factors: such as time management, personal motivation, and a history of interpersonal difficulties (INVALSI, 2019).

These factors suggest that ESL arises from a complex interplay of individual, familial, and contextual elements.

*3. Economic and social implications*
ESL is recognized as an issue with significant economic and social consequences. It hampers productivity and competitiveness within the economic system, contributing to poverty and social exclusion (European Commission, 2017). Additionally, it exacerbates youth unemployment rates and the shortage of skilled labour, negatively impacting economic growth (Pandolfi, 2017). From a sociological perspective, ESL perpetuates social inequalities, highlighting the failure of the educational system to offer equitable opportunities for all young people, with enduring effects on employment prospects and social welfare (Pandolfi, 2017).

*4. Indicators of school dropout*
The analysis identified several key indicators used to measure school dropout, which are essential for assessing the effectiveness of educational systems and monitoring trends over time. Two particularly indicators are:

- Explicit school dropout: defined as the percentage of youth aged 18 to 24 who have completed no more than compulsory education and have not been involved in further education in the four weeks preceding the survey (AGIA, 2022);

- Implicit school dropout: measured through standardized assessments conducted by INVALSI since 2019, focusing on competencies in areas such as text comprehension, mathematics, and language skills.

There is no universal agreement on the indicators for measuring ESL, as educational systems vary across countries. Some European countries use national indices alongside Eurostat and OECD indicators, while the differences in educational structures influence the development of policies to address ESL, which vary across nations (Eurydice, 2014).

*5. Fragmentation of the educational system*

The final category addresses the fragmentation within the educational system, particularly in the context of economic challenges. Institutional difficulties in maintaining cohesion and providing adequate support to students are highlighted. The deceleration of educational pathways is viewed as an inefficient use of resources, including time, cognitive capacity, and human capital. Educational fragmentation (Priore, 2017) can also result in discontinuity, preventing students from experiencing consistent, continuous learning.

## 4. Conclusion

The thematic analysis underscores that early school leaving (ESL) represents a multifaceted and complex issue that cannot be understood through a singular lens. Instead, it is shaped by a confluence of individual, familial and contextual factors, which interact in complex ways. ESL extended beyond traditional metrics of explicit dropout rates to encompass implicit forms of disengagement, which are equally critical for understanding the broader implications of the issue.

Building on these findings, the study proceeds with an in-depth examination of a specific region, employing a framework that incorporates documented educational alliances. The analysis will draw on data from INVALSI to pinpoint areas characterize by elevated levels of implicit school dropout. Additional insights will be gained from ISTAT data to explore the region's demographic and social characteristics. Furthermore, municipal council resolutions and administrative documents obtained from local government records will serve to analyse collaborative educational efforts involving schools, third-sector organizations, and local authorities. This investigation aims to identify both the strengths and limitations of these alliances, thereby contributing to the formulation of guidelines that could inform strategies in other regions with comparable profiles.

The risk factors associated with ESL are diverse and include inherent determinants- such as socio-economics-status- and systemic deficiencies within the education system. This systemic problem includes inadequate school infrastructure, low teacher motivation and ineffective assessment methodologies. Together, these factors create an environment conducive to early school leaving. The social and economic ramifications of ESL are profound, impacting individual life trajectories and broader societal welfare. These consequences include stunted economic development, elevated youth unemployment rates and heightened social exclusion. These outcomes highlight the need to address ESL not merely as an educational challenge but a pressing societal concern.

Moreover, the fragmentation within the education system constitutes a significant impediment to supporting at-risk students. The lack of cohesion and continuity in educational pathways exacerbates existing inequalities, underscoring the need for targeted interventions. Such interventions should prioritize fostering systemic integration, reducing fragmentation, and providing enhance support mechanism for student facing adversity to promote inclusivity and educational achievement.

Considering these findings, a comprehensive and multidimensional approach is essential to effectively addressing the issue of early school leaving. This approach should actively involve stakeholders across various levels, including policymakers, educators, community organisations and focus on both preventive measures and targeted intervention strategies.

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# Digital innovation and artificial intelligence (AI): schools, teachers and students between real and virtual world

# Digital Innovation and Artificial Intelligence in Museum Education:
# perspectives, debates and psychological implications

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## Abstract

This paper investigates the impact of digital innovation and artificial intelligence (AI) on museum education, focusing on the transition between the real and virtual world and the involvement of all educational actors, including schools, teachers and students. Through an analysis of case studies, recent debates and concrete experiences, the integration of virtual reality (VR) and AI in museum contexts is explored. The methodology is based on the analysis – through studies and field experiences – of the educational perspectives offered by these technologies, with a focus on the psychological effects related to motivation, information retention and the development of key skills. The research investigates how VR and AI can overcome physical barriers and personalise learning, balancing technological innovation and human elements to maximise educational effectiveness.

**Keywords:** museum education; virtual reality; artificial intelligence; digital innovation; school.

[1] For the purposes of scientific recognition, please note that the introduction and paragraph 1 are attributed to Valentina Berardinetti, paragraph 2 to Michele Ciletti, paragraphs 3 and 4 to Andrena Lavanga, the abstract and conclusions to Giusi Antonia Toto.

# 1. Introduction

The integration of digital innovation and artificial intelligence in museum education represents one of the most promising and debated frontiers of the contemporary educational landscape. These tools, capable of redefining the ways of learning and interacting with cultural heritage, offer extraordinary opportunities to make museums inclusive, interactive and personalised spaces capable of meeting the needs of an increasingly diverse and technologically advanced society.

Today, also in the light of the educational alliance between schools and the surrounding area, the museum is much more than just a place for the preservation of cultural heritage: alongside its transmissive or instructive role, where knowledge is offered in a structured and direct way, often through the guidance of experts or cultural mediators, the museum is increasingly becoming an educational space, where knowledge is constructed through active interaction between visitors, content and context. In this sense, the museum balances the need to be a place of active learning with the importance of providing solid and well-contextualised knowledge in order to ensure the understanding of complex concepts or to preserve the authority of certain contents.

Unlike other traditional educational spaces, such as schools or universities, the museum offers a unique environment in which learning takes place through direct experience, reflection and personal discovery in line with the constructivist principles of Piaget and Vygotskij (Calvani, 1998; Giaconi, 2008). Here, the visitor is not just a passive recipient of information, but an active protagonist who interprets, reworks and connects knowledge to his or her own experience. This educational dimension is expressed in different ways: narrative paths that stimulate the imagination, interactive tools that engage the senses and innovative technologies that make learning accessible, participatory and personalised.

Indeed, the museum as an educational space is not limited to the transmission of content, but fosters the development of critical and creative skills. The enjoyment of works of art, historical objects or scientific content becomes an opportunity to explore cultural connections, reflect on universal issues and cultivate independent thinking. In this sense, the museum not only enriches the visitor cognitively, but also contributes to his or her personal and emotional growth.

The introduction of digital tools and artificial intelligence further amplifies the museum's educational potential, transforming it into an increasingly dynamic, inclusive and interactive environment. Technologies such as augmented reality, virtual tours or artificial intelligence-based assistants can create tailor-made experiences for visitors, adapting to their interests, knowledge level and learning style. These innovations not only broaden access to cultural heritage, but also enrich the educational experience by making it more engaging and immersive.

However, the adoption of these technologies also poses significant challenges. It is crucial to avoid that interaction with digital tools reduces the authenticity of the museum experience or that the use of artificial intelligence limits the critical thinking of visitors, turning them into mere consumers of pre-packaged content. On the contrary, the museum must know how to integrate technologies in a conscious way, using them as tools to enhance learning, stimulate curiosity and encourage critical reflection on the content on offer.

This study, therefore, investigates - also through the analysis of concrete experiences - the museum as an educational space and an irreplaceable resource for contemporary society, a place where tradition and innovation meet to promote knowledge that is not only informative, but transformative. Through the challenges and opportunities offered by today's digitised society, the role of artificial intelligence and digital technologies in museum didactics is explored, and it is proposed to reflect on how these tools can enhance the museum as a learning laboratory, where each visitor finds the opportunity to grow, discover and connect with cultural heritage in an authentic and meaningful way.

# 2. Evolution in Museum Education: new opportunities and challenges

In recent decades, museum education has undergone a profound transformation, moving from a traditional approach, focused on the mere display of objects, to a dynamic and interactive paradigm

that enhances the visitor experience. This evolution has been driven by a growing awareness of the educational and social role of museums, as well as by technological innovations that have broadened the possibilities of enjoyment and participation. Initially, museum education was reserved for an elitist audience, focusing on the preservation and dissemination of historical and artistic collections. However, with time and the advent of the new museology in the 1970s-1980s, there was a significant shift towards an interdisciplinary approach that put the visitor and his or her interaction with cultural heritage at the centre. This approach encouraged museums to transform themselves into spaces for dialogue, learning and inclusion, offering new and multiple opportunities especially to the school world (Toto, 2024).

Museums have started using participatory approaches that actively involve visitors through workshops, interactive events and customised educational programmes, making the museum experience more accessible and meaningful. The digitisation of collections has opened the door to a global audience, overcoming geographical and physical boundaries and offering high quality educational resources available everywhere. Among the most significant innovations, the use of immersive technologies such as virtual reality (VR) and augmented reality (AR) has revolutionised the museum experience (Rossi et al., 2024). Virtual reality allows visitors to fully immerse themselves in reconstructed three-dimensional environments, offering unique and detailed sensory experiences ranging from visiting archaeological sites such as the ruins of ancient cities to exploring the depths of the oceans or travelling through space, as exemplified by the experiences available in astronomical observatories or science museums, such as the 'Leonardo da Vinci' National Science and Technology Museum in Milan[2].This technology transcends physical limits, providing access to inaccessible collections or remote locations, and is a powerful educational tool for deepening historical and cultural understanding. Augmented reality, on the other hand, enriches the real experience through digital overlays, providing additional information on works and exhibits or animated reconstructions showing their original use or historical context. For example, visitors can point their mobile devices at a painting to view hidden layers, such as sketches or modifications, or watch a statue 'come to life' and tell its story, as can be experienced in the visit to Casa Batllò, during which at the end of a virtual tour that allows visitors to reconstruct the history of the place, it is possible to enjoy a 360-degree immersive experience that allows the visitor to better understand the genius of Gaudí's art[3].

These technologies not only improve accessibility and audience engagement, but also contribute to personalised teaching, adapting to the learning needs of different types of visitors. In school contexts, VR and AR are proving to be extremely effective tools to complement the traditional curriculum. Through simulations and interactive environments, students can delve into complex concepts in an engaging way, improving comprehension and memory. For example, a virtual journey to ancient Egypt can complement history lessons, while augmented analysis of artworks allows for the exploration of pictorial techniques and symbolic meanings, enriching art history teaching.

Interdisciplinary collaborations between museums, schools, universities, research centres and artists are a further strength for museum education, as they foster the creation of innovative content that integrates history, art, science and technology, thus expanding learning opportunities. Particularly relevant is the integration of museum education into school curricula. Guided tours and educational workshops offered by museums are complementary experiences to the traditional curriculum, enriching students' education through direct contact with cultural and historical heritage, which also helps them to regain their identity and get in touch with their origins. Collaboration between schools and museums enables the development of interdisciplinary projects that stimulate critical thinking, creativity and experiential learning (Re, 2023). For example, many schools organise thematic tours involving different disciplines, such as art history, science and literature, using museum resources to explore complex topics in depth and link them to real-life contexts. In addition, museum education in schools contributes to developing cultural awareness in young people, promoting values such as respect for diversity and common heritage. This integration also has a significant impact on social inclusion, offering students from disadvantaged backgrounds the opportunity to access high quality educational experiences (Lora, 2020).

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[2] For further information visit the website: https://www.museoscienza.org/it/offerta/virtual-zone.
[3] For further information visit the website :https://www.casabatllo.es/it/experience.

Despite this progress, significant challenges remain. The cultural and social diversity of visitors is often underrepresented, and many museums face the task of reformulating their narratives to include more diverse perspectives accessible to all. Economic sustainability is another critical issue, as the implementation of advanced technologies requires considerable financial resources and specialised technical skills on the part of teachers and museum staff (Castillo et al., 2023). Training of museum staff is crucial to meet these challenges, ensuring that educators are prepared to use digital tools, design interactive experiences and manage the dynamics of heterogeneous groups (Orlandi et al., 2023). Moreover, museums need to strike a balance between respecting tradition and introducing innovations, ensuring that new technologies do not compromise the historical and cultural integrity of collections.

A key element for the future of museum education is the continuous evaluation of programmes by collecting feedback from visitors and analysing the educational impact of proposed activities. Tools such as questionnaires, interviews and digital data analysis can provide valuable information to optimise the offer and better respond to the needs of the public. One of the most fascinating transformations in museum education is the adoption of multisensory narratives. More and more museums are integrating experiences that involve not only sight, but also hearing, touch and even smell, creating a deeper and more immersive interaction. The use of tools such as narrative audio guides, tactile panels for the blind and sound reconstructions of historical environments enriches the understanding of cultural heritage, making the experience inclusive for different categories of visitors. An important experience in this sense is that of the Civic Museum of Accadia, in the inland areas of the Monti Dauni, which with its new multimedia set-up in no less than 11 rooms - including gaming stations, sliding monitors, touch screens, artwalls, lightboxes, videos and video projections, digital avatars, drone footage and sensor technologies - narrates the archaeology, history and territory of Accadia, promoting the Fossi district and exploring every natural, historical and human facet of the municipal territory[4].

Ecological sustainability has emerged as another crucial challenge. Many museums are investing in green technologies and environmentally sustainable practices to reduce the environmental impact of their activities. From the reduction of energy consumption to the use of recycled materials for exhibitions, these efforts demonstrate how the museum sector can actively contribute to environmental protection while strengthening its educational role. Contemporary museums are also places of social experimentation, where complex issues such as the inclusion of marginalised communities, the representation of cultural identities and collective memory are addressed. Exhibitions co-created with local communities or minority groups are an effective model for promoting intercultural dialogue and stimulating critical reflection.

The ability to adapt quickly to change has emerged as a determining factor, especially in light of recent global challenges such as the COVID-19 pandemic. During this period, many museums developed virtual and interactive content to maintain audience engagement, demonstrating remarkable resilience. However, the digital transition has also highlighted inequalities in access to technology, highlighting the need for policies aimed at bridging the digital divide. Museum education, therefore, is in a moment of great transformation, where alongside the challenges to be faced and overcome, related to equity and education, the potential and opportunities offered by immersive technologies and participatory technological approaches are enormous.

## 3. The confluence of Virtual Reality, Artificial Intelligence and museum education: state of the art and future implications

From a strictly technological perspective, we are witnessing increasingly substantial investments, both in terms of time and financial resources, in the development of Generative Artificial Intelligence systems, particularly those based on Large Language Models (LLMs). Since October 2022, when OpenAI released ChatGPT 3.5, a chatbot capable of generating coherent and contextually relevant text, the field of AI has experienced exponential growth. The potential of these models, further refined

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[4] For further information visit the website: https://ettsolutions.com/progetti/moa-museo-origini-accadia.

in subsequent versions like GPT-4, lies in their ability to understand and process natural language, enabling advanced applications such as automatic text generation, real-time translation, and the creation of increasingly sophisticated conversational agents. The impact of LLMs on museum education could be significant: for instance, it could allow the creation of virtual guides capable of interacting with visitors in a natural and personalized way, answering their questions, and providing in-depth information on the exhibited works (Pietroni, 2019).

The potential of Artificial Intelligence, however, extends far beyond mere text generation. Novel transformer-based and diffusion-based models have achieved unprecedented results in converting text to images and, more recently, to video. Their architecture, based on neural networks capable of learning complex patterns from large datasets, allows for the creation of highly realistic and detailed visual content. Examples include DALL-E 2 and Imagen 3 for image generation, and Sora and Runway Gen-3 for video generation. Even more transformative is the recently announced Google model Genie 2, that is reported to be capable of generating entire explorable, virtual worlds from simple text prompts (Holder et al., 2024). These technologies could revolutionize the way museum content is created, enabling the generation of customized visual experiences based on the interests and preferences of individual visitors.

There exists significant potential in the possibility of interconnecting various Artificial Intelligence technologies and in linking them with other cutting-edge technologies, such as Virtual Reality (VR). Defined as a computer-generated simulation of a three-dimensional environment that can be interacted with in a seemingly real or physical way by a person using special electronic equipment, such as a helmet with a screen inside or gloves fitted with sensors (Burdea et al., 1996), VR offers an unparalleled level of immersion and engagement. The integration of AI, particularly Generative AI, with VR can enhance the realism, interactivity, and personalization of virtual experiences (Suh & Prophet, 2018).

It is evident how the mass generation of realistic, high-quality, and highly customized videos can be leveraged in the VR domain. Potential applications include the creation of virtual environments that dynamically adapt to user interactions, the generation of virtual characters capable of natural and believable interactions, and the creation of personalized educational experiences based on the user's learning style and interests. The combination of VR and AI can, therefore, transform museums into even more dynamic and interactive learning spaces, offering visitors a unique and engaging way to interact with cultural heritage (Bekele et al., 2018).

Museum education represents one of the fields where VR has already found flourishing applications for several years: the possibility to immersively view and virtually interact with artifacts, distant historical realities, and reconstructed scenarios effectively lends itself to such technology. For instance, the British Museum has used VR to allow visitors to experience a Bronze Age roundhouse, while the Louvre Museum has partnered with HTC Vive Arts to offer a VR experience that lets users interact with the Mona Lisa (Puig et al., 2020).

In this context, it becomes apparent how Artificial Intelligence can elevate this entire paradigm to an even more advanced level. AI could analyze user behavior within the virtual environment to adapt the experience in real-time, offering content and interactions tailored to individual preferences. For example, AI-powered virtual assistants could guide visitors through a virtual museum, providing detailed information about the exhibits and answering questions in real-time (Duguleană et al., 2020). Imagine a virtual tour of an ancient Roman city, where an AI-powered virtual guide accompanies the visitor, explaining the history and significance of the various buildings, and adapting the narration based on the visitor's interests and questions. Such an experience would not only be highly engaging but also profoundly educational. As Bekele et al. (2018) suggest, the integration of AR, VR, and Mixed Reality (MR) can greatly enhance the preservation and interpretation of cultural heritage by offering new avenues for education and engagement.

Naturally, certain practical considerations still constrain the development and widespread adoption of such systems. These include the high computational cost of generating high-quality videos, the need for large datasets to train AI models, and ethical considerations related to the use of personal data for experience customization. Furthermore, issues of accessibility and digital divide must be addressed to ensure that these technologies can benefit all potential users, regardless of their socio-economic background or technological literacy (Shehade & Stylianou-Lambert, 2020).

To fully harness the potential of the convergence of VR and AI, future research should focus on exploring the long-term impact of these technologies on learning outcomes and visitor engagement, as well as developing best practices for their ethical and inclusive implementation in diverse museum settings. It is hoped that ongoing research and development efforts, combined with a focus on ethical considerations and accessibility, will pave the way for a new era of museum education, where technology and human creativity work hand in hand to create enriching and transformative experiences.

## 4. Digital Innovation and Artificial Intelligence in Museum Education

Museum education serves as a privileged domain for fostering motivation, creativity, and skill development among visitors, particularly students. Through interactive and immersive experiences, museums facilitate active learning that engages emotions and curiosity—essential components of the educational process. Direct and personal engagement with artworks, historical artifacts, and reconstructed environments provides a multidimensional approach to knowledge, stimulating critical thinking and reflection. This mode of interaction enriches participants' cultural heritage while promoting the development of transferable skills such as problem-solving, collaboration, and effective communication. Furthermore, creativity is significantly enhanced through the application of innovative technologies like augmented reality (AR) and virtual reality (VR), which allow for unique reinterpretations of cultural heritage. Consequently, museum education transcends mere knowledge transmission, functioning as a catalyst for holistic and inclusive learning, preparing individuals to confront the challenges of the contemporary world (Sani & Trombini, 2003).
Numerous empirical studies validate the efficacy of museum education in promoting motivation, creativity, and skill acquisition. For instance, Falk and Dierking (2016) demonstrated that museum experiences can enhance students' interest and motivation toward academic subjects, illustrating how informal learning in museums often proves more engaging than traditional classroom instruction. Similarly, Hooper-Greenhill (2000) explored the impact of interactive activities, revealing that visitors involved in hands-on workshops develop greater critical and creative thinking abilities. Kisiel (2014) examined the ways in which school visits to museums can bolster transferable skills such as teamwork and communication, showing significant improvements in students' collaborative and presentation capabilities. Packer and Ballantyne (2002) found that museum experiences, particularly when integrated with guided tours and workshops, positively influence long-term learning, fostering a deeper understanding of the subjects addressed.

## 5. Virtual Reality and Psychological Implications of Museum Education

Recent advancements in technology and the proliferation of artificial intelligence (AI) have transformed the museum landscape, significantly impacting educational and creative processes. The integration of interactive systems, digital games, augmented reality, and virtual reality has revolutionized the visitor experience, creating more engaging and personalized learning environments (Ovallos-Gazabon et al., 2020). Gamification and interactive experiences enhance intrinsic motivation, stimulating curiosity and interest in exhibited content, while AI facilitates the adaptation of educational activities to individual needs, thereby improving emotional connections with cultural heritage (Coppola & Zanazzi, 2020). Such personalized experiences facilitate the assimilation and retention of information, rendering learning more meaningful.
Moreover, modern museum education encourages exploration and discovery, which are crucial for cognitive development. Through interactive environments, visitors can exercise critical thinking and creativity while addressing complex problems in real-world contexts. However, the introduction of digital technologies and AI presents challenges, including the need for training museum staff and managing ethical considerations related to transparency and bias in AI-driven decision-making

processes (Castillo et al., 2023). Despite these challenges, technological innovation offers remarkable opportunities to transform museums into dynamic centers of learning and personal growth.

The integration of gamification within educational frameworks, both in school and museum contexts, represents an effective strategy for enhancing engagement and facilitating learning. By leveraging playful elements, the educational experience can be transformed into an active and engaging process, wherein students and visitors are not merely passive recipients but active participants. This methodology stimulates curiosity and discovery, promoting collaborative learning that fosters the exchange of ideas and the construction of shared knowledge. In particular, in museums, the application of games and interactive activities not only enhances content accessibility but also cultivates an inclusive environment in which each participant can explore and deepen their understanding at their own pace. Thus, gamification emerges as a potent tool for modernizing educational experiences, addressing the needs of an increasingly digital and interactive society (Ragni et al., 2023).

In particular, virtual reality (VR) has demonstrated a significant impact on the emotional and cognitive experiences of visitors. A study conducted in 2011 investigated how gamification can influence engagement and learning outcomes among students. The authors provided empirical evidence demonstrating that gaming techniques can effectively enhance student motivation, making learning more engaging and interactive (Lee & Hammer, 2011). Another noteworthy study by Hamari et al. (2014) conducted a meta-analysis that aggregated data from various previous studies, highlighting a positive impact of gamification on learning outcomes. The results point to mostly positive results, for instance, in terms of increased motivation and engagement in learning activities as well as enjoyment of them, providing valuable insights for educators and instructional designers. However, at the same time, studies have indicated negative results to which attention needs to be paid, such as the effects of increased competition, difficulties in evaluating activities and design features. These studies offer a clear and compelling overview of the effectiveness of gamification in both educational and museum contexts, underscoring how VR not only enriches the educational experience but also fosters meaningful connections between visitors and cultural heritage.

## 6. Conclusions

The museum today therefore emerges as an interdisciplinary laboratory, where past, present and future intertwine to generate transformative educational experiences. The possibility of combining advanced technological approaches with participatory and inclusive methodologies represents an unprecedented opportunity to democratise access to cultural heritage. This model, however, requires a solid collaborative research infrastructure involving experts in cognitive science, educational technology, cultural psychology and museum studies.

For such innovations to have a significant impact, it is essential to develop a theoretical and methodological framework to guide the integration of immersive technologies in museum contexts. This framework should include the systematic evaluation of the effects of virtual experiences on different user groups, with particular attention to the dimensions of cultural diversity, cognitive abilities, and accessibility conditions.

Thus, the convergence of museum education and immersive technologies represents a promising frontier for cultural and science education, but requires an evidence-based approach, interdisciplinary collaboration and constant monitoring of long-term effects. Only through a conscious and critical integration of these tools will it be possible to realise museums capable of educating, inspiring and transforming, contributing to a more inclusive society aware of its cultural heritage.

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# Investigating the Relationships between In-service Teachers' Technology Pedagogy Content Knowledge and Virtual Learning Environment Success

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## Abstract

Teachers' Technology Pedagogy Content Knowledge (TPACK) skills and virtual learning environments (VLE) outcomes register an increasing interest from various stakeholders. Using a quantitative research design, the article aims to investigate the relationship between TPACK and VLE success. Following an informed consent, data was collected from 107 teachers who answered an online questionnaire. The statistical analyses revealed a strong positive correlation between TPACK components and VLE success, teachers with higher TPACK levels achieving greater success in the VLE. The findings underscore the importance of enhancing TPACK skills through teacher training programs and policy reforms to improve VLE outcomes. Future research should explore longitudinal impacts and mixed-method approaches.

**Keywords:** TPACK; VLE; teacher training; digital pedagogy; pre-university teachers.

## 1. Introduction

Nowadays, the integration of technology in education has a great contribution in transforming teaching practices, offering new opportunities that enhance students' learning and engagement (Mishra & Koehler, 2006; Selwyn, 2011). The Technological, Pedagogical, and Content Knowledge (TPACK) framework provides a comprehensive model for understanding how technology can be integrated effectively into teaching practice by considering the interplay between pedagogy, content, and technology (Mishra & Koehler, 2006). As Koehler and colleagues (2013) has shown teachers are able to create more engaging and effective learning experiences for their students if they manage to influence the synergy between technological tools, pedagogical strategies, and content knowledge in a meaningful and contextually adapted manner.

With the growing prevalence of Virtual Learning Environments (VLEs), which facilitate remote and blended learning through digital platforms, teachers must adapt their practices to leverage these technologies effectively (Bates, 2019; Picciano, 2017). VLEs offer different kinds of tools and functionalities that support teaching and learning, yet their successful implementation requires a deeper understanding of how technology, pedagogy, and the domain-specific content intersect (Aydin & Gumus, 2016).

Although there are some previous studies that have highlighted the importance of the TPACK framework in the effectiveness of integrating technology (Chai et al., 2013; Koehler & Mishra, 2009), limited research has examined its specific impact on teachers' perceived success in what concerns VLEs usage in their classroom practice. Therefore, the present study aims to cover this gap by investigating the way in which in-service pre-university teachers' TPACK level influences their perceived success in using VLEs in teaching highlighting the importance of understanding the integration of technology, pedagogy, and content knowledge in modern educational contexts.

## 2. Theoretical background

The Virtual Environment Learning Success, as defined by Awang and collaborators (2018), is a construct comprising the information quality, system quality, service quality, intention to use, use, user satisfaction and the net benefits perceived by the teachers. These dimensions reflect the overall success or satisfaction of a VLE from the user's perspective, namely the pre-university in-service teachers, encompassing both technological and pedagogical aspects. Recent studies have shown that teachers' satisfaction and perceived benefits from using VLEs are strongly associated with their ability to effectively integrate technology, pedagogy, and content knowledge in their teaching practices (Caprara, & Caprara, 2022). Previous studies have shown that teachers define VLE as successful when they are able to use the VLE to enhance their teaching and their students' learning experiences in meaningful ways (Lawless & Pellegrino, 2007; Liu, 2012; Orlando, 2013). Moreover, research has shown that virtual environments such as platforms that simulate professional work experiences are an excellent source for teachers' TPACK development. For instance, through virtual internships, namely epistemic games which put professionals in a situation (Oner, 2020).

The TPACK framework facilitates the integration of technology into teaching, relating it with content knowledge and pedagogical knowledge, understanding the relationship between TPACK and teaching success in virtual environments is crucial for enhancing educational outcomes in digital settings, recent research highlighting a positive impact of TPACK on virtual teaching readiness and effectiveness. According to Thohir et al. (2023) TPACK positively influences pre-service teachers' readiness and ability to integrate virtual reality (VR) into science education, enhancing their perceived usefulness and ease of use of VR tools. Moreover, using the TPACK model in university development training leads to improvements in teaching abilities, effectiveness and in course design for online instruction (Brinkley-Etzkorn, 2018).

Teachers' first-hand experience with virtual technologies in education settings provides critical insights for TPACK growth. For instance, virtual exchange programs support the development of TPACK competencies, though the degree of growth may differ across participants. Prior TPACK proficiency can also shape the acquisition of other skills, such as foreign language abilities (Rets et

al., 2020; Rienties et al., 2020). Another manner of increasing teachers' TPACK level is by learning to create technology-enriched lesson plans on virtual platforms, this being proven to substantially boosts teachers' self-confidence in their TPACK and their capacity to integrate educational technology into their classroom practice (Kapici, & Akcay, 2020).

# 3. The present study

The paper aims to provide a comprehensive overview of teachers' practice regarding the integration of TPACK in the teaching process, presenting the relationships between TPACK and the success in the virtual learning environment as perceived by pre-university teachers.

## 3.1 Research questions
This study seeks to investigate the following research questions:

1. What are the differences between teachers' TPACK usage in terms of age, teaching environment, academic background, subject they teach and position status?
2. What is the relationship between in-service teachers' TPACK and their perceived success in implementing VLE in their teaching practice?
3. Is teachers' TPACK level a predictor for VLE success?

# 4. Methodology

## 4.1 Participants and sampling
The study included 107 pre-university teachers from the public school system who voluntarily participated to the study. A convenience sampling method was employed, and data collection was conducted through an online questionnaire distributed on Google Forms platform.
The majority of participants were comprised in the 30 to 39 years old range (38.3%) and in the 40- 49 years range (32.7%). Younger teachers (under 25 and 25-29) accounted for 8.4% and 11.2% of the sample, respectively, while older participants (50-59 and over 60) comprised 8.4% and 0.9%. Also, the most part of the participants worked in urban environments (66.4%), while 33.6% were based in rural areas.
In what concerns the academic background of the teachers, nearly all participants held higher education qualifications. The majority had earned a bachelor's degree (52.3%), followed by master's degree holders (43%). A small proportion reported having a Ph.D. (1.9%), while 2.8% declared high school as their highest level of education.
The largest proportion of participants were primary education teachers (43.9%), followed by vocational educators (18.7%), language teachers (15.9%), social sciences teachers (10.3%), sciences teachers (8.4%), and mathematics teachers (2.8%). Moreover, in terms of the position status, the majority of participants (61.7%) have indicated to held a temporary position, while 38.3% indicated their position as a permanent one.

## 4.2 Instruments
The Virtual Learning Environment Success (VLES) Scale developed by Awang and collaborators (2018) was used to assess in-service teachers' satisfaction regarding the use of VLE in their teaching practice. The VLES scale comprises 45 items grouped in 7 dimensions, namely the information quality, system quality, service quality, intention to use, use, user satisfaction and the net benefits perceived by the teachers. The scale has an alpha Cronbach value for this sample of .967, indicating an excellent level of reliability.
The TPACK questionnaire (Liu et al., 2015) was employed for measuring teachers' TPACK as it is a well-known and validated instrument. This questionnaire consists of 29 items organized in 7 dimensions: Content Knowledge (CK), Pedagogical Knowledge (PK), Technological Knowledge (TK), Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical

Knowledge (TPK), Technological Pedagogical Content Knowledge (TPACK). The TPACK questionnaire showed a Cronbach's alpha of .944.

### 4.3 Procedure

The participants to the study are pre-university in-service teachers. They were informed about the purpose of the study through an informed consent form. The participation was voluntary, ensuring that the teachers could withdraw at any stage without providing a reason. The questionnaire was filled-in by accessing Google Forms platform.

## 5. Results

The investigation of the results started with a normality test of the VLE success and TPACK scores. The results indicated that while VLE success scores were approximately normally distributed (Kolmogorov-Smirnov statistic = 0.056, p = 0.200; Shapiro-Wilk statistic = 0.979, p = 0.094), TPACK scores deviated from normality (Kolmogorov-Smirnov statistic = 0.117, p = 0.001; Shapiro-Wilk statistic = 0.975, p = 0.042).

Based on these findings, we proceeded to verify the validity of the following research hypothesis:

**H1:** There are significant differences in the level of TPACK integration among teachers based on their age, teaching environment, academic background, subject they teach and position status.

In order to determine if there were differences in the level of TPACK integration based on teachers' age a Kruskal-Wallis test was conducted. The results showed no statistically significant difference between the level of TPACK integration perceived by teachers when teaching in the virtual environment according to the age group they belong to, $\chi^2(5) = 5.738$, p = .333.

The Mann-Whitney U test was performed in order to compare the level of TPACK integration between teachers based in rural and urban environments. The results showed no significant difference between these two groups, U = 1101.0, p = .243.

To assess the relationship between the academic background and the level of TPACK integration a Kruskal-Wallis test was conducted, the results revealing no significant differences, $\chi^2(3) = 1.870$, (p = .393).

The Kruskal-Wallis test was performed in order to check for the differences concerning the level of TPACK integration across the different subject specializations (Mathematics, Science, Social Sciences, Languages, Primary Education, Vocational Education). The results showed no significant differences, $\chi^2(5) = 1.623$, p = .898.

For assessing whether the position status (permanent or temporary) has an impact on the level of TPACK integration a Mann-Whitney U test was carried out. With a U = 1273.5 and a p = .610, it has been found that there is no significant difference between the temporary and permanent position holders. Therefore, we fail to reject the null hypothesis.

**H2:** There is a significant relationship between the level of integration of technological pedagogical content knowledge and the success in using the virtual learning environment, the TPACK level of the teachers predicting the success of the VLE.

A linear regression analysis was performed to investigate the relationship between TPACK and VLE success among pre-university teachers. The results showed that teachers' TPACK level significantly predicts the VLE success ($\beta = 0.486$, p < .001), explaining 23.6% of the variance in VLE success as $R^2 = 0.236$, and with a F(1,105) = 32.391, (p < .001). The unstandardized regression coefficient (B = 0.595) indicates that for each unit increase in TPACK, VLE success increases by 0.595 units.

| ANOVA[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 7.091 | 1 | 7.091 | 32.391 | .000[b] |
| | Residual | 22.988 | 105 | .219 | | |
| | Total | 30.079 | 106 | | | |

*Table 1: Dependent Variable: VLE Success Overall; Predictors: (Constant), TPACK Overall*

For the purpose of assesing the relationship between teachers' TPACK level and VLE succes a non-parametric alternative was used due to the fact that the distribution of the TPACK variable is not normal. The Spearman's rho coefficient ($r_s$= .515, *p* < .001, *N* = 107) has confirmed a strong positive correlation between the two variables of the study, namely teachers' technological pedagogical and content knowledge integration level and the success they perceived concerning the virtual learning environment usage in their classroom practice. These results confirm the robustness of the relationship identified by the parametric test.

| | | | TPACK Overall | VLE Success Overall |
|---|---|---|---|---|
| Spearman's rho | TPACK Overall | Correlation Coefficient | 1.000 | .515** |
| | | Sig. (2-tailed) | . | .000 |
| | | N | 107 | 107 |
| | VLE Success Overall | Correlation Coefficient | .515** | 1.000 |
| | | Sig. (2-tailed) | .000 | . |
| | | N | 107 | 107 |

**. Correlation is significant at the 0.01 level (2-tailed).

*Table 2: Correlations.*

As may be seen in the table below, we have addressed not only the relationship between the overall TPACK and VLE Success scores, but also deeper insights into the relationships between the components of the TPACK framework and the components of the VLES scale. Therefore, the Spearman's rho coefficients were computed in order to assess these relationships, the results indicating several significant associations.

| VLE Success components | TPACK components | | | | | | |
|---|---|---|---|---|---|---|---|
| | CK | PK | TK | PCK | TCK | TPK | TPACK |
| Information Quality | 0.127 | 0.337** | 0.315** | 0.292** | 0.332** | 0.303** | 0.310** |
| System Quality | 0.183 | 0.358** | 0.278** | 0.318** | 0.263** | 0.322** | 0.293** |
| Service Quality | 0.307** | 0.486** | 0.284** | 0.224* | 0.223* | 0.376** | 0.280** |
| Intention to Use | 0.203* | 0.404** | 0.462** | 0.291** | 0.455** | 0.453** | 0.490** |
| Use | 0.202* | 0.418** | 0.375** | 0.175 | 0.326** | 0.303** | 0.333** |
| User Satisfaction | 0.279** | 0.507** | 0.328** | 0.273** | 0.428** | 0.395** | 0.370** |
| Net Benefits | 0.204* | 0.439** | 0.245** | 0.127 | 0.230** | 0.254** | 0.312** |

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

*Table 3: VLE Components.*

As clearly illustrated by the table above PK, TK, PCK, TCK, TPK and TPACK components have registered moderate positive significant correlations with the Information Quality and the System Quality of the VLE, with correlation coefficients ranging between $r_s$= 0.263 and $r_s$= 0.358, with a p< 0.01, highlighting the contribution of these integrative knowledge forms to information and system quality perceived as offered by the VLE.

Significant moderate correlations were also found across the majority of components in terms of Service Quality, operationalized as responsiveness, assurance, empathy and tangibility. In this case, stronger associations were observed for PK ($r_s$= 0.486, p<0.01) and TK ($r_s$= 0.284, p< 0.01), but also CK has shown to have a significant association ($r_s$= 0.307, p< 0.01). These findings empower us to imply that both pedagogical and technological expertise enhance teachers' satisfaction with VLE services. Teachers' Intention to Use VLE was observed to correlate stronger with TK ($r_s$= 0.462, p< 0.01) and TPACK ($r_s$ = 0.490, p< 0.01), this suggesting the fact that technological and integrative TPACK knowledge significantly impact their intention to use VLEs. Nevertheless, in what concerns the VLE usage, understood as frequency and nature of usage (testing students, gathering educational information, accessing resources or communicating to students and colleagues), PK and all the technology-related dimensions demonstrated strong correlations, particularly TK ($r_s$= 0.462, p< 0.01)

and TPACK ($r_s$= 0.490, p< 0.01). Whereas VLE success is concerned, the critical roles are played by PK ($r_s$= 0.507, p<0.01) and TPK ($r_s$= 0.395, p< 0.01) in enhancing teachers' satisfaction.

When it comes to VLE's Net benefits, namely perceiving VLE as being time-saving or improving teachers' productivity and contributing to their personal development, significant positive correlations were found specially with PK ($r_s$= 0.439, p< 0.01) and the TPACK dimension ($r_s$= 0.312, p< 0.01).

As it has been shown, the current results indicate that the integrated components of TPACK, particularly TPACK, TPK, and PK, reliably show moderate to strong positive correlations with the dimensions of VLE success, particularly with Intention to Use, User Satisfaction, and Net Benefits. This suggests that teachers' ability to synthesize technological, pedagogical, and content knowledge significantly influences their effective use and perceptions of virtual learning environments.

The findings of the present study highlight the critical role played by the integration of the TPACK components in driving the success of the VLE. To sum up, we may advocate that teacher training programs should focus on fostering a holistic integration of technology, pedagogy, and content knowledge in order to maximize the effectiveness and the benefits of the virtual learning environments perceived by in-service pre-university teachers.

## 6. Conclusions and discussion

The main concern of the paper was to analyse the relationship between in-service teachers' perceived TPACK integration in their teaching practice and the success level registered through the usage of the virtual learning environment. To our knowledge, this is the first Romanian study to examine the link between the two educational constructs. We have also considered the consequences of some demographic factors that may have an implication in integrating the TPACK framework in the educational process.

Summing up the results of the study, it can be concluded that teachers' TPACK level plays a significant role in the success of virtual learning environments perceived by the teachers. However, no significant differences were observed when considering the demographic factors such as teachers' age, environment, academic background, specialization or position status. Furthermore, the linear regression analysis revealed that TPACK significantly predicts VLE success, a finding reinforced by the Spearman's correlation analysis conducted due to the non-normality of the TPACK scores. These results highlight the need for focused professional development programs that enhance TPACK competencies for virtual teaching success no matter the demographic variables. Therefore, an important implication of these findings resides in the fact that enhancing TPACK skills could lead to more effective use of digital tools, fostering better outcomes in terms of virtual learning environments usage.

The paper clearly has shown that higher levels of TPACK are associated with higher levels of success in the virtual learning environment. Therefore, enhancing teachers' ability to integrate technology with pedagogy and content can lead to better outcomes in virtual teaching environments. Moreover, the results are of direct practical relevance, consequently we may state that in order to improve teachers' TPACK skills and also the effectiveness of their teaching practice in the virtual environment some of the following measures may be implemented:

- integrating TPACK into initial and continuing training programs;
- promoting the exchange of good practices;
- updating educational policies.

One of the first limitations that should be acknowledged involves of the use of a convenience sampling which may have restricted the generalizability of this study's findings. Additionally, the reliance on self-reported measures may present the possibility of a response bias. With a view to overcoming the limitations of this investigation mixed-methods research appears to be needed for a better understanding of the relationship between teachers' TPACK levels and VLE outcomes in different educational contexts. Nevertheless, future research could explore longitudinal impacts of TPACK training on VLE outcomes and investigate the contextual factors that affect its application in different learning environments.

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# Touch in small hands. Responding to the challenges of technology in childhood 0-6[1]

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## Abstract

Recent studies indicate an increase in the spread and use of digital devices among children aged 0 to 6 years. This phenomenon presents both significant risks and new opportunities for early childhood education. Internationally, reports such as Common Sense Media (2019) have raised concerns. In Italy, the Italian Society of Pediatrics (2018) published research revealing a very concerning statistic: 30% of parents rely on devices to "calm" their children as early as the first year of life. Based on this research evidence, this contribution aims to identify innovative educational approaches in contemporary pedagogical literature that foster conscious and responsible use of technology from early childhood**.**

**Keywords:** childhood 0-6; technologies; educational risks and opportunities; pedagogical rethinking.

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[1] This article is a joint and synergistic effort of the authors. For the sole purpose of recognizing personal contributions where required, it is clarified that paragraphs 2 and 3 are attributed to Francesca De Vitis and paragraphs 1 and 4 to Marcello Tempesta.

## 1. Use of Technology in the 0-6 age range: a brief look at the Italian, European, and international context

The use of technology in the 0-6 age group is attracting increasing attention, not only among education professionals. Recent research, including in the pedagogical field, highlights significant socio-geographical differences in attitudes towards technology in early childhood: some countries promote the integration of technology into educational frameworks, while others emphasize the risks associated with early exposure.

In Italy as well, the use of technology among children aged 0-6 is a rapidly growing phenomenon. According to research by the Italian Society of Pediatrics (2018), a shocking statistic emerges: 30% of parents report using digital devices to calm their children as early as the first year of life. Moreover, nearly half of children aged 2 to 6 access devices such as tablets and smartphones daily.

Research evidence shows, on the one hand, a growing tendency to integrate technology into everyday life, and on the other, reflects uncertainties and criticalities regarding adults' use of technology with respect to childhood.

The absence of clear educational models regarding the relationship between technology and early childhood often creates confusion within families, resulting in an educational loneliness that makes it difficult to navigate the opportunities and risks associated with digital use.

While several European countries are investing in targeted digital educational strategies, in Italy, technology in early childhood is frequently limited to a simple entertainment function.

This situation reflects a "pedagogical fracture" between the educational potential of technology and its use in daily practice. The lack of structured pathways risks turning a potentially formative tool into an element of passivity, which does not contribute to the full development of the child's cognitive, social, and emotional skills.

Aware of these criticalities, some initiatives in Italy are seeking to promote a more balanced and conscious approach to the use of technology in early childhood:

- in the school context, the National Guidelines and New Scenarios for the Nursery School Curriculum (2018), while prioritizing play, direct experiences, and manipulative activities, integrate technology in mediated, innovative, and well-designed contexts (an example is the promotion of the educational methodology Coding Unplugged);
- in the social context, awareness campaigns such as "Guadagnare Salute" (2023) by the Ministry of Health emphasize the importance of reducing early exposure to screens, instead encouraging activities that directly involve children in social, creative, and physical experiences.

In Europe, the landscape of technology use in the 0-6 age group varies greatly between countries. In Nordic countries, such as Sweden and Finland, technology is integrated into educational pathways from nursery school onwards, representing advanced models of digital integration. Here, the approach is not limited to the use of tools, but is based on a pedagogical vision that places the child at the center of an innovative educational process aimed at developing 21st-century skills. Sweden, with a long tradition of investment in education, already introduced a national strategy for digital literacy in the 1990s, recognizing technology as a key element for exploration and creative learning, even in early childhood. However, the country is currently reviewing its digital approach, favoring a return to traditional methods based on paper and pen to counteract the decline in basic skills.

Finland, known for the excellence of its education system, has integrated technology into educational contexts since the 2000s and, with the 2014 reform, made the teaching of computational thinking and digital skills compulsory from preschool, promoting a balanced and creative use of digital tools as support for learning and play.[2]

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[2] Finland was the first country in Europe to introduce the Coding Unplugged methodology, which involves applying robotics principles from early childhood, with games that stimulate computational thinking (e.g., Bee-Bot and Scratch Jr.). Of socio-educational interest is also the "Phenomenon-Based Learning" Project, which integrates technology and interdisciplinary themes, such as sustainability and the environment, promoting exploration and collaboration (in www.routledge.com; www.phenomenonbasedlearning.com; www.oecd.org).

The approach of Northern European countries stands out not only for promoting creative and collaborative use of technologies, but also for adopting a participatory perspective that actively involves families.

By contrast, the approach adopted in Mediterranean countries (Italy, Spain, and Greece) is different, where the introduction of technology in educational contexts is less structured and the focus is often on the risks associated with improper or excessive use.

This diversity of approaches has led the European Union to develop guidelines (Redecker, 2017) aimed at promoting digital skills in both children and education professionals (educators, teachers, and parents), emphasizing that, in the 0-6 age group, technology should be used as a complement to analog experiences, never replacing spontaneous play and direct contact with peers.

Internationally, numerous studies analyze the impact of digital devices on the development of children aged 0-6. Among the most relevant are those by Common Sense Media, which since 2013 has recorded and attested that the use of digital media among young children is increasing, with significant implications for their development, and the report *The Future of Child Development in the AI Era. Cross-Disciplinary Perspectives Between AI and Child Development Experts* (2024), which explores the implications of integrating artificial intelligence into children's environments, highlighting both opportunities and challenges for their cognitive, socio-emotional, and relational development.

In light of what has been illustrated, it can be said that the three contexts-Italian, European, and international-recognize, albeit with different approaches, the complexity of introducing technology in the 0-6 age group.

Italy, together with other Mediterranean countries, adopts a more traditional and cautious approach, while Northern European countries and the international context agree on the importance of moderate and supervised use of technology in the early years of life, balancing the potential educational benefits with the risks associated with excessive exposure.

All share the goal of promoting conscious use of technology that supports the harmonious development of children, while also emphasizing the fundamental need for collaboration between school, family, and society to design, implement, and support effective educational actions aimed at the well-being of the youngest in the digital age.

## 2. New research challenges for early childhood pedagogy 0-6

The scientific literature on the relationship between technology, media education, and the 0-6 age group is rapidly evolving and addresses complex challenges that require a profound pedagogical rethinking centered on the well-being of the child. As already highlighted by Neil Postman in his essay *The Disappearance of Childhood* (1982), childhood is a phase of intrinsic vulnerability, exposed to the risk of early exposure to digital content and tools not suited to the specific developmental characteristics of this age. Digital overstimulation, often lacking adult mediation, can compromise the child's harmonious development, causing a forced acceleration of growth that Postman describes as a true dissolution of childhood itself.

In this fragile educational context, Bers (2018) warns against an excessively critical attitude towards technology, which risks limiting the ability to generate innovative and constructive ideas. Instead, she proposes orienting towards active care of digital environments, conceiving them as reliable and stimulating spaces where children can explore, learn, and collaborate through creative experiences, thus configuring a true "digital playground."

Bers calls for a different approach, aimed at identifying the real "added value" that technology and media education can offer in the 0-6 age group, without neglecting the crucial role of adult mediation. The conscious presence of educators and parents is indeed fundamental to transform technology into a tool for balanced growth, capable of supporting children's cognitive, emotional, and social development.

The most recent studies confirm that early and unmediated exposure to digital devices can entail significant risks, such as delays in the development of language and social skills, difficulties with

attention and concentration, alterations in executive functions, and an increase in impulsive behaviors or symptoms associated with disorders such as ADHD. Moreover, digital overstimulation can interfere with emotional regulation and sleep, compromising the balanced and multidimensional brain growth typical of childhood (De Marchi, 2023; Italian Society of Pediatrics, 2018).

For these reasons, it is essential to promote thoughtful and mediated use of technology, integrating it with free play activities, direct social interaction, and multisensory experiences-fundamental elements for healthy and harmonious development. Only through a shared educational pact between families, schools, and communities will it be possible to enhance the potential offered by digital technology, while safeguarding the fragility and specific developmental characteristics of childhood. The resulting educational commitment is therefore complex and requires a continuous search for balance between digital and analog experiences, between physical and virtual learning modes, and between direct relationships and those mediated by screens. Ensuring this balance means promoting a conscious and mediated use of technology, integrating it with moments of free play, face-to-face social interaction, and multisensory activities, which are essential for the harmonious and complete development of the child.

## 3. Starting from children: Education Technology and Screen Education

Starting from the interests and questions of children means reconsidering Piaget's idea of the "child as researcher," who, by exploring, experimenting, and interpreting the world through actions and feedback, becomes an active builder of their own learning. According to Jean Piaget, cognitive development takes place through processes of assimilation and accommodation, in which the child actively constructs knowledge by interacting with the environment (1967). From this perspective, innate curiosity, exploratory ability, careful observation, and a natural tendency toward problem solving make children "extraordinary suggesters" of educational innovation. In the current context, characterized by the pervasive presence of digital technologies, the adult's role remains to guide and facilitate varied learning experiences, starting from the technological "oddities" that spark the interest of the youngest. In fact, the adult should not merely transmit content, but co-construct with the child educational pathways that enhance their agency and their ability to actively explore the digital world. Refocusing on children in the 0–6 age group also implies the need to seek, in contemporary literature, educational models that respond to the challenges posed by the integration of technologies and media education in childhood. Among the most significant models are Educational Technology (EdTech) and Screen Education, which propose innovative pedagogical approaches aimed at integrating technology as a tool for learning and development, without neglecting the fundamental role of adult mediation and concrete experience.

Educational Technology (EdTech), according to Selwyn (2016), is not just a set of tools, but an educational paradigm that redefines the relationship between teachers, students, content, and educational experiences. In this sense, using interactive platforms (e.g., Google Classroom), EdTech not only offers opportunities for personalized learning but also facilitates engagement and collaborative learning (Roschelle et al., 2000), fostering the development of skills such as critical thinking and creativity-essential abilities in the complexity of contemporary society.

Screen Education is considered an educational response to the increasingly pervasive use of digital screens in childhood and adolescence. This approach, inspired by the theories of N. Postman, aims to develop creativity and critical skills through the promotion of:

- conscious use of devices;
- construction of participatory digital environments;
- restoring the "proper distance" in the relationship between childhood and adulthood.

The educational proposal is based on two scientifically supported pillars. On the one hand, it responds to the recommendations of the World Health Organization (WHO), which suggests avoiding screen exposure in children under 2 years old and limiting use to a maximum of 30–60 minutes per day for

the 2–6 age group, to prevent negative effects on neurocognitive, socio-emotional, and physical development. On the other hand, it values the crucial role of the active involvement of adult reference figures-families, teachers, educators-in transforming the digital experience into a meaningful educational opportunity.

A symbolic example is interactive digital reading, which integrates sounds and images to enrich emotional language, stimulate visual education, and foster the development of listening and storytelling abilities. These digital activities do not replace traditional playful-educational experiences but rather expand them, as Tisseron (2018) emphasizes in his 3-6-9-12 model, which frames Screen Education as a set of media educations differentiated by age and usage methods.

The 3-6-9-12 pedagogical model highlights the central role of family and school in accompanying childhood, promoting a constant balance between the need for protection and the goal of preparing children for a conscious, critical, and safe use of technology. Refocusing on children means valuing their very first experiences with touchscreen devices to build true "alliances of educational-digital co-responsibility." These alliances involve school, family, and society in defining and implementing educational strategies aimed at creating a "secure digital base" which allows the youngest to "inhabit the digital world with care" and to achieve a state of "digital well-being".

In this way, an integrated and multidisciplinary approach is promoted, recognizing the importance of a mediated and protected digital environment, capable of supporting the balanced development, emotional security, and cognitive growth of children in contemporary society.


## 4. Conclusions

To refocus on children, it is essential to recognize that technological experience and media education today take the form of *onlife* experiences (Floridi, 2015), that is immersed in a hyperconnected reality where the distinction between online and offline loses its meaning: from early childhood the digital dimension is deeply intertwined with every day, social, and relational life. In this scenario, the growth of the youngest occurs within an informational ecosystem characterized by an overabundance of content, the blurring of real and virtual, and continuous interaction among people, machines, and digital environments. In an increasingly complex society, protecting the fragility of childhood and enhancing its potential thus requires a systematic and multidisciplinary reflection on the relationship between childhood, adulthood, and technology. It is necessary to promote media education that, on one hand, protects children from the risks of early and unmediated digitalization, and on the other, accompanies them in discovering the opportunities offered by digital technology, preserving the fundamental value of play, relationships, and discovery typical of this life stage.

In this context, pedagogy, aware of the complexity characterizing the relationship between childhood and technology, is oriented toward seeking educational practices founded on solid theoretical and methodological premises. Education, by its transformative nature, supports the growth process through an action that does not merely prescribe predefined paths but commits to co-constructing them together with children, starting from the digital experiences they live in the present. Technology can be considered one of the "one hundred languages" (Malaguzzi, 1993) through which children express ideas, emotions, develop critical thinking, and interpret the surrounding reality, thus contributing to richer, multidimensional, and meaningful learning. From this perspective, the pedagogical challenge broadens it is not only about promoting digital competence (what technology can do *for* children) but also about fostering digital well-being (what technology can do *with* children), valuing the experiential and relational dimension of learning mediated by digital tools.

At the same time, it is fundamental to invest in the training of adults-educators, teachers, and parents-so that they can reinvent the relationship between technology and childhood, taking on an active and conscious role in educational mediation. Recent research confirms that the so-called "touch generation" no longer includes only preadolescents and adolescents (10–18 years) but also preschool children who enter the 0–6 educational system bringing both the enthusiasm of discovery and the uncertainty typical of growth processes. However, digital overstimulation, especially if not

mediated by competent adult figures, risks compromising these processes, causing phenomena of forced acceleration of development or, conversely, inhibition of natural evolutionary stages.

Putting early childhood (0–6 years) back at the center is necessary both to naturally and openly face the complexity of the digital world and to reaffirm that, as in every other domain of human culture, education represents the most powerful "technology" developed by humans to acquire, transmit, and improve their knowledge (Marangi, 2023). In this light, the active and conscious presence of adults in children's digital journey becomes essential to transform technology into an environment of growth, discovery, and relationship, thus promoting meaningful and inclusive learning from early childhood. Considering this evidence, the educational challenge consists in promoting a balance between protection and enhancement, between innovation and respect for childhood rhythms, so that technology truly becomes a tool for growth, well-being, and inclusion.

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# Programming errors and the attribution of intentionality to educational robots

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## Abstract

This paper explores, from a philosophical perspective, the connection between students' mental models of robots and their programming errors in educational robotics (ER). Pea (1986) identified the "superbug", a type of programming errors flowing from a misguided attribution of intentionality to computers. We substantiate, and illustrate with examples, the claim that a connection exists between students' mental models of robots and their programming errors, exploring the underlying assumptions. We then refine Pea's thesis arguing that the superbug does not result from the attribution of mental states to the system 'per se', but rather from the attribution of '*incorrect*' ones. These reflections suggest possible connections between research on the attribution of mental states to robots, ER and computational thinking and provide insights for the design of teacher training.

**Keywords:** mental state attribution to robots; psychology of computer programming; educational robotics; mental models; programming errors.

# 1. Introduction

The use of robots as mediators of learning in education is well established (Bano et al., 2024; Uslu et al., 2022; Anwar et al., 2019; Benitti, 2012). They can be used to facilitate teaching and learning in STEAM - Science, Technology, Engineering, Art, and Mathematics (Sapounidis et al., 2024; González et al., 2020), to stimulate scientific thinking (Datteri & Zecca, 2016; 2017), to support the acquisition of a second language (Mubin et al., 2013). They can be used to foster the acquisition of cross-disciplinary social-relational and emotional skills and to develop and enhance cognitive skills, such as those related to problem solving and computational thinking (Ching & Hsu, 2024; Zhang et al., 2021). Typically, educational robotics (ER) activities involve the use of robots as programming platforms. In this context, students are invited to program robots so that they display certain behaviors or exhibit certain capacities. To effectively guide these activities, assess their outcomes and understand their dynamics, it is essential to analyze the nature and causes of the programming errors made by students.

Building on the tradition of the psychology of computer programming (Weinberg, 1971; Sheil, 1981), this paper presents a philosophical reflection on the relationship between students' programming errors and their understanding of robots. Following the insight that computer programming activities should be studied from a psychological perspective, programming errors have been conceptualized in literature as the result of "faulty mental models" - to this respect see, for example, the literature review by McCauley and colleagues (2008) on learning and teaching debugging - a perspective that has been revisited and developed in more recent work, such as that of O'Dell (2017).

In this framework, we start from the consideration that programming errors may be caused by students' conceptions, or mental models, of robots and computer systems: 'poor' mental models of a system can lead to errors that result in system malfunctions. Pea (1986) introduced the concept of "superbug", a category of programming errors arising from a misguided attribution of intentionality to computers. This attribution causes programmers to assume that a machine can go "beyond the information given" in the code. He identified three forms of superbug that can be often observed among novice programmers: the "parallelism bug", the "intentionality bug" and the "egocentrism bug", and argued that all these three forms of superbug arise because programmers unconsciously assume the presence of "a hidden mind" within the programming language, endowing the computer with intelligent interpretive capabilities it does not possess (Pea, 1986).

This paper has two goals. The first one is to substantiate, and illustrate with examples, the claim that a connection exists between students' mental models of robots and their programming errors, consistent with Pea's thesis. In doing so, we introduce and discuss three assumptions possibly underlying the superbug: the global view assumption, the rationality assumption, and the mind-reading assumption. The second goal is to challenge Pea's claim that the attribution of intentionality to robots necessarily causes the superbug. Instead, we propose that the superbug arises from the attribution of *incorrect* mental states and capacities to computers, not from the attribution 'per se'.

Addressing these goals, this paper aims to suggest that Pea's insight can shed light on the cause of programming errors and foster a connection between the emerging research on the attribution of mental states to artificial systems (Thellman et al., 2022) and the research on computational thinking (CT) (Denning & Tedre, 2019) and ER. More specifically, the reflection proposed aims to contribute to the development of theoretical frameworks that can inform the empirical study of programming errors made by novice programmers in CT and ER activities. A deeper understanding of the relationship between individuals' conceptualization of robots and AI technologies and their programming errors may offer valuable insights into how this dimension can be integrated in teaching and learning models and how teacher education programs should be designed to address it.

The paper is structured as follows. In Section 2 we discuss how people model robots, focusing on mentalistic modeling and the attribution of mental states to the system. In Section 3 we address the first goal, discussing the relationship between the attribution of mind to robots and programming errors, and examining three assumptions that may be underlying the "superbug". In Section 4 we address the second goal, arguing, in accordance with Dennett (1971, 1987) that the 'hidden mind assumption' is not necessarily an obstacle to learning how to program. In Section 5 we draw some conclusions, provide considerations on the possible connection between research on mental state

attribution to robots and research on ER and CT, and outline potential implications for the design of teacher training programs.

## 2. The attribution of mind to robots

Research in human-robot interaction suggests that individuals may adopt different modeling strategies when interacting with robots, ranging from taking non-mentalistic to mentalistic stances. Taking a non-mentalistic stance towards a robot implies the adoption of an explanatory and predictive strategy which does not refer to the system's mind, often relying on the theoretical vocabularies of physics or electronics (e.g., "the system is malfunctioning because the battery is low"). In contrast, taking a mentalistic stance entails the attribution of mental states and mental capacities to the system.

Thellman and colleagues (2022) provide a review on the attribution of mental states to robots exploring how the phenomenon has been investigated through various angles. One of these is based on the concept of Theory of Mind (ToM) (for a general discussion, see Carruthers & Smith, 1996; Premack & Woodruff, 1978). The possession of a ToM implies the ability to represent oneself and others as entities with mental states, characterized by Griffin and Baron-Cohen (2002) as intentional, content-bearing and representational. Mental states, in this perspective, are typically expressed in the form of propositional attitudes, such as "believing that p" or "knowing that q". Several studies have investigated whether humans develop a ToM towards robots and other artificial agents (e.g., Banks, 2020; Zhang, 2019).

Another fundamental perspective orienting empirical research on the attribution of mental states to robots is Dennett's intentional systems theory (1971; 1987). Dennett identifies three possible stances that individuals can adopt to explain and predict the behavior of a system: the physical stance, where explanations and predictions are based on the laws of physics, the design stance, which refers to the system's design and the intentional stance. Taking the intentional stance towards a system consists in adopting an explanatory and predictive strategy that attributes to the system beliefs, desires, and other propositional attitudes, assuming it will act in the most rational way given its current beliefs and desires. A wide number of studies have explored whether people adopt an intentional stance towards robots of various types, and under what conditions this phenomenon occurs (Perez-Osorio & Wykowska, 2020).

Empirical research on the attribution of mental states to robots shows that the phenomenon can be influenced by both human factors and robot related factors. Among human factors there are age, motivation, cultural and socioeconomic background, interaction history; robot related factors are typically related to the robot's behavior and appearance (Thellman et al., 2022).

## 3. Mind attribution to robots and programming errors

### 3.1 The psychology of computer programming

Gerald M. Weinberg's book "The Psychology of Computer Programming," first published in 1971, explored the psychological, social and organizational aspects of programming by analyzing not only the technical processes involved in writing code, but also the interpersonal and cognitive dynamics that influence the work of programmers. The message was that the very activity of computer programming should be studied from a psychological perspective, envisioning "computer programming as a human activity" as a new field of study (Weinberg, 1971). Sheil's review on "The Psychological Study of Programming" (1981), summarized and evaluated the psychological research on programming available up to that time, offering a basis for the study of programming from a psychological perspective.

More recent studies approach the topic from various perspectives, through a variety of methods. For example, Lin and colleagues (2015) study students' cognitive processes during program debugging using an eye tracker. Storjak and colleagues (2022) explore the mental models that primary school

children develop in relation to robots and programming. According to O'Dell (2017), programmers rely on approximations of the system's behavior (i.e., mental models of the system) to guide the development. Mental models help programmers in reasoning about the system's behavior, however, as approximations, they can sometimes be incorrect, leading to software failures.

A central idea, in the framework of the psychology of computer programming, is that mental models formed by programmers about the system, as well as about the programming language - for example the attribution to the system of beliefs, desires, intentions, in case a mentalistic modeling strategy is adopted - may influence the cognitive mechanisms triggered during the programming process. The resulting program may be impacted by the assumptions on the system made by the programmer and '*wrong*' mental models may produce programming errors. Understanding programmers' mental model is therefore essential to make sense of their programming errors.

### *3.2 The superbug and the underlying assumptions*

In ER activities, programming errors may be caused by students' conceptions, or mental models of the robot or of the complex system represented by the syntax and semantics of the programming language. Students, programming robots, may adopt either mentalistic or non-mentalistic strategies to model the system. In the following, we explore the idea that the adoption of a mentalistic modeling strategy may lead to programming errors in novice programmers. This idea has been initially voiced by Pea (1986). Pea (1986) identified the "superbug": a type of programming error flowing from a misguided attribution of intentionality to computers.

> «The 'superbug' may be described as the idea that there is a hidden mind somewhere in the programming language that has intelligent, interpretive powers. It knows what has happened or will happen in lines of the program other than the line being executed; it can benevolently go beyond the information given to help the student achieve her goals in writing the program. This "hidden mind superbug" interpretation provides a deep explanation of the various misconceptions that plague the novice programmer. » (Pea, 1986, pp. 32-33).

In line with Pea's thesis, we present some examples (derived from real student programs) that suggest the existence of a connection between students' mentalistic modeling of robots or programming languages and the programming errors they make. Programmers' mental models of a system include a set of assumptions about the system, reference to which can be used to explain and predict its behavior. Some of these assumptions may underlie the "superbug" (i.e. the idea that there is a hidden mind in the system). Consider a Braitenberg vehicle (Braitenberg, 1986) equipped with two lateral light sensors (Figure 1: sensor 1 is mounted on the left, and sensor 2 on the right) and programmable. Students are tasked with the following request: "Program the robot to exhibit the following behavior: the robot must move forward, avoiding the lights."
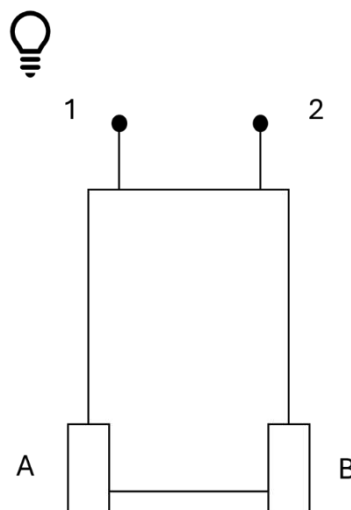


*Figure 1: Braitenberg vehicle equipped with two lateral light sensors.*

```
FOREVER {
    IF (left-sensor == light) THEN turn right
    IF (right-sensor == light) THEN turn left
    IF ((left-sensor == light) and (right-sensor == light)) THEN
        go backwards
    go forward
}
```

*Figure 2: A student provides the following program (pseudocode).*

This implementation presents two major issues. First, it results in an unconditional forward movement: the robot moves forward regardless of whether it detects light or not. Second, there are sequential execution limitations: the sequence of <<if - then>> conditions may not function as intended in dynamically changing environments. The first instruction executed is the test of the <light on the left> condition. If, for example, a light source is near the right sensor (Figure 2), the first <<if>> condition might fail to detect it (resulting in no avoidance). The <light on the right> condition is tested when the second <<if>> condition is executed, sequentially after the first one. However, when the second <<if>> condition is executed, the light might, in the meantime, have shifted position (Figure 3), causing the left sensor to fail to detect it as well, again resulting in no avoidance.
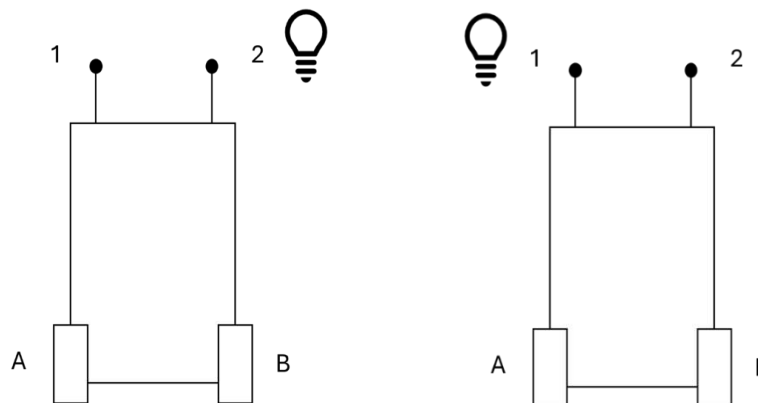


*Figure 3 and 4*

At the basis of this programming strategy there might be the idea that all instructions are 'considered' simultaneously, without taking into account that they are executed sequentially according to how the program is written, what we call the global view assumption. The programmer attributes to the system (or to the programming language) the ability to 'choose' the 'right' instruction to execute, assuming its knowledge of its internal state and external conditions. What would the 'right' instruction be? Linked to the global view assumption there is the rationality assumption: the programmer assumes that the robot (or the programming language) is able to autonomously select the most rational <<if - then>> structure based on the given circumstances and its implicit goals. The programmer attributes a goal to the system (not explicitly defined in the code) that guides its choice of the most appropriate action. Attributing rationality to the system is tantamount to taking the intentional stance. In Dennett's framework (Dennett, 1971, 1987), adopting the intentional stance towards a system consists in adopting an explanatory and predictive strategy that attributes beliefs, desires, other intentional states to it, and assuming that the system will consistently act in the most rational way based on its current beliefs and desires. To address the above issues, the student proposes the following program.

```
FOREVER {

    IF (left-sensor == light) THEN turn right; OTHERWISE

        IF (right-sensor == light) THEN turn left; OTHERWISE

            IF ((left-sensor == light) and

                (right-sensor == light)) THEN go backwards

}
```

*Figure 5: the student proposes the following program to address the above issues.*

This revised implementation introduces what might be called the mind-reading assumption. Here, the system lacks an explicit "move forward" command. Instead, the student assumes that the robot (or the programming language) has an implicit understanding of the goal of the programmer - avoiding light - and acts accordingly, beyond the explicit instructions provided. The programmer attributes to the system the possession of a theory of the programmer's mind (a second order mental state), where the programmer ascribes to the system the capability to think to what the programmer themselves is thinking (i.e., what is their goal in developing the program).

The examples discussed above[1] aim to illustrate that a possible connection between students' mentalistic modeling of robots or programming languages and their programming errors may exist. The global view assumption, the rationality assumption, and the mind-reading assumption offer potential explanations for the observed programming choices; however, further systematic studies, such as those employing think-aloud protocols, student interviews, or analyses of debugging practices, would be necessary to determine whether these programming decisions are genuinely influenced by the assumptions discussed or arise from other factors.

## 4. Robots can be usefully modeled as mental agents

We try now to refine Pea's thesis by developing the idea that the superbug is not the attribution of mental states and capacities to the robot or to the programming language per se, but rather the attribution of the wrong mental states and capacities to it.

On the one hand, as we discussed in the previous section, the attribution of intentionality and rationality to robots and programming languages could result in systematic programming errors (superbugs). On the other hand, however, the tendency to mentalize may prove to be a useful strategy, especially in the early stages of programming learning. Attributing goals, intentions or beliefs to the robot can help students to effectively predict the behavior of the system. As Dennett (1971, 1987) points out, the intentional stance can be predictively useful, and in some circumstances offers significant advantages over other ways of conceptualizing the system. According to Dennett, the tactic of adopting the intentional stance is likely to be effective when there is reason to believe that the assumption of optimal design is justified, and when predicting behavior from the design or physical stance is impractical. The intentional stance (which involves treating a system as an 'intentional agent', assuming that it possesses beliefs, desires, and intentions) works because it provides a pragmatic and effective approach to explaining and predicting the behavior of complex entities, whether they are humans, animals, or artificial systems (Dennett, 1971; 1987).

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[1] It is possible to identify a link between the three assumptions described, the *global view assumption*, the *rationality assumption* and the *mind-reading assumption*, with the three types of 'superbug' identified by Pea (1986), respectively the "parallelism bug", i.e. the mistaken belief that sequentially ordered lines of code can execute simultaneously, the "intentionality bug" which consists in attributing the ability to go "beyond the information given" to the computer or program itself, taking an intentional stance towards the system (Dennett, 1971), and the "egocentrism bug", based on the assumption that the programming language is able to understand the programmer's goals without those goals being explicitly represented in the code.

The key to avoiding the programming errors that Pea refers to is for the programmer to attribute to the system goals (beliefs, desires, intentions) that the system actually has; the superbug arises when the mental model of the system's mind is, in some sense to be clarified, wrong'.

For example, suppose the programmer is faced with a Python function that implements a bubblesort algorithm designed to operate on arrays of integers. There is a clear sense in which the programmer can bypass the computational language and attribute to the function the goal of ordering integers. If the programmer calls this function on an array of integers, no programming error is made. Now suppose the programmer mistakenly assumes that the program has a theory of their mind and is therefore able to 'understand', beyond the information given, what types of values the programmer wants to order. They will call the Python function on, say, an array of characters, causing an execution error. Following Pea's intuition, we could argue that, in novice programmers, this decision could be caused by misattributing mental and interpretive capabilities to the program. The point here is that this attribution would not be mistaken because it attributes mental capacities to the system, but because it attributes to it the 'wrong' mental capacities. There is nothing wrong in reconstructing a program in mentalistic terms, provided that the reconstruction is 'right' in some sense of the term, for example it is explanatory, predictively adequate and mirroring the algorithmic structure of the program.

## 5. Conclusions

We argued that a connection exists between students' mental models of robots (and programming languages) and their programming errors, in line with Pea's thesis, and explored the assumptions that may underlie the emergence of the superbug. Moreover, we argued that attributing intentionality to robots need not necessarily cause the superbug. Instead, the superbug arises from the attribution of incorrect mental states and capabilities to the system. The key to avoiding the superbug is for programmers to attribute to the system goals (beliefs, desires, intentions) that the system actually possesses. To sum up, mentalizing can be useful, provided that mental models are accurate.

The discussion presented in this paper highlights a possible intersection of two distinct, yet interrelated research domains: the research on the attribution of mental states to robots and the study of ER and CT. On the one hand, insights from research on ER and CT could enhance the understanding of mental state attribution to robots addressing critical questions such as: what cognitive abilities do programmers attribute to computers? How are these attributions influenced by their background and prior experience? On the other hand, research on the attribution of mental states to robots may offer new perspectives on learning and teaching processes in ER and CT. For example, it can inform the research on learning and teaching of programming and debugging and provide insights on how teacher education programs should be designed to integrate the dimension of mental state attribution to machines.

Understanding how novice programmers conceptualize robots (and programming languages), and whether and how these conceptualizations could lead to systematic programming errors, has direct implications for teacher education. If teachers and educators are to effectively support students in ER and CT activities, they need to be able to recognize the cognitive assumptions and mental models that may underlie students' programming errors. This implies developing diagnostic pedagogical skills that allow educators to identify whether a student's programming error may stem, for instance, from a 'global view' or 'mind-reading' or 'rationality' assumption, or, more broadly, from a misguided attribution of intentionality to the robot (or the programming language). Teacher training programs should therefore include training that familiarizes teachers and educators with possible mentalistic modeling strategies of robots (and programming languages). Moreover, integrating knowledge and reflections on the mentalization of machines into teacher education may help teachers and educators to understand how and when the attribution of mental states to machines can be either an effective strategy in ER and CT activities or become misleading.

In conclusion, the reflections proposed suggest that the integration of perspectives from research in human-robot interaction could foster valuable insights for contemporary studies on ER and CT.

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*Let me introduce open education...*
*Facilitating prospective teachers' understanding of open education*
*through an ai-based tool*

# Let me introduce open education... Facilitating prospective teachers' understanding of open education through an ai-based tool

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## Abstract

Open Educational Resources (OERs) are key to promoting access and inclusion. Despite the EU recognizing their importance for educational innovation, OER adoption remains limited. This study explores ENCORE, a tool for undergraduate and prospective teachers to foster open education by enhancing pedagogical knowledge and values. Combining AI-driven tools to retrieve relevant OERs, ENCORE supports course design addressing challenges like digitalization, climate change, and post-COVID economic recovery. Two project-based workshops on ENCORE (N=64) showed significant pre-post gains in OER knowledge and practices (p<.001). Moreover, the UTAUT scale findings highlight performance expectation and behavioral intention as key factors, confirming ENCORE's validity for teacher training to embrace an open educational perspective.

**Keywords:** open education; AI-driven tools; initial teachers' training; UTAUT; OER Knowledge.

# 1. Introduction

The increasingly dynamic, open, digital, and AI-mediated reality has over time radically altered the professional footprint, especially of educators (Tosato & Raffaghelli, 2011; Díez-Gutiérrez & Díaz-Nafría, 2018; Ranieri, 2019).

Today there is a growing abundance of resources also accelerated by generative artificial intelligence (GenAI), which has dramatically expanded the range of possibilities increasingly "at the fingertips" of students and educators (Williamson et al., 2020). The ongoing evolution has heightened the need for both adaptive and forward-looking approaches, which include the integration of AI-based tools (Tlili et al., 2023). While GenAI technologies unlock new opportunities, they also call for a critical examination of their implications on both human and educational levels. In this context, educators are urged to revisit their practices and core priorities in order to design interventions that are technologically innovative, environmentally sustainable, and socially resilient (REF). In parallel, the evolving digital landscape reinforces the relevance of openness as a guiding principle.We are immersed in an "open" reality ("The Open Definition," 2024), characterized by the freedom to access, use, modify and share knowledge without restriction. This is an important consideration especially when discussing scientific processes in which knowledge is produced through data collection, analysis, publication, critique and reuse (Molloy, 2011). The theme of openness especially of education, in terms of a knowledge-sharing process based on advances in educational technologies, was foreseen as early as a decade ago as an opportunity to make better use of existing educational resources, to develop more inclusive educational models, and to facilitate lifelong learning. In the ensuing decades, government attention on open education has remained steadfast and focused as crucial to modernizing educational provision, reducing barriers to accessing quality education, and bridging the gap between nonformal and formal education (European Commission, 9th January 2025).

Central for the concept of open education are the OER, or Open Educational Resources. OERs are educational materials made freely available online under Creative Commons (CC) licenses, enabling users to retain, reuse, revise, remix, and redistribute these resources (Wiley & Hilton, 2018). This concept, established during UNESCO's 2002 Forum on Open Courseware, aims to democratize access to knowledge and empower learners globally (UNESCO, 2002, 2011). In recent years, the rise of archives of learning objects has provided teachers with a vast wealth of information and the ability to personalize interactions with students, without losing sight of the demands of an ever-changing technological landscape (Inamorato Dos Santos et al., 2016). Initially seen as tools for broader accessibility, OERs go beyond materials by evolving to embody the philosophy of Open Education. They move from resource sharing to the integration of open educational practices (OEPs) that modernize and democratize learning environments (Ossiannilsson et al., 2020). However, this transition to OEPs remains a process that requires careful consideration and reflection (Ossianilsson, 2020).

## 1.1 ENCORE  Promoting AI-human Collaboration in Education

Despite these challenges, the role of teachers remains crucial for the quality of education and student learning (Darling-Hammond et al., 2005, 2017). The need to improve the quality of teacher training, both initial and in-service, is internationally recognized as a priority in educational policies (OECD, 2005, 2019) and European strategies (European Council, 2009, 2014, 2017, 2020).

In this context, teachers' skills must be continuously updated, particularly in a rapidly changing context. This is especially relevant in terms of accessing available materials, selecting and adopting high-quality resources. From this perspective, the ENCORE (ENriching Circular use of OeR for Education) Project emerges (https://project-encore.eu/). This Project was funded by the European Union and launched in 2022 by the University of Pisa as Project Coordinator. ENCORE undertakes to offer itself as a support for finding high-quality Open Educational Resources (OERs), classified according to the ESCO taxonomy (European Skills, Competences, Qualifications, and Occupations), providing clear references for educational planning.

ENCORE aligns with three key competency frameworks to address the challenges of digitalization, the green transition, and an inclusive society:

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- Digital Competencies (DigComp): Fostering the skills needed to thrive in a technologically advanced society, addressing emerging themes such as AI, virtual reality, and sustainability;
- Entrepreneurial Competencies (EntreComp): Promoting entrepreneurial value creation and inclusive learning through formal and informal contexts;
- Green Competencies (GreenComp): Integrating sustainability education to develop systemic and ethical thinkers, in line with the EU's climate neutrality goals.

Through this combination, the ENCORE project aims to guide students, prospective educators, educators, teachers and trainers in designing courses/paths that connect learning objectives with the skills needed to tackle global challenges such as digitalization, climate change, and post-pandemic economic recovery (Raffaghelli et al., 2023).

The ENCORE system envisions being embedded into educators' practices and institutional life as a tool to be experimented with, commented on, and critiqued through cycles of reflection and meaning-making. This approach resonates with the concept of "design for learning" (Conole, 2013; Raffaghelli, 2014), which starts from ill-defined solutions and fosters the exploration and situated adoption of technologies.

The approach arises from the need for a situated and negotiated adoption of technologies, focusing on solving problems detected by the users themselves rather than imposed from outside.

## 2. Methods

### 2.1 Research Questions

The study aims to investigate whether the intervention with ENCORE changed in any way 1) the level of knowledge and awareness about OERs and 2) whether, by interacting with a real technology-mediated educational situation, changes were perceived at the level of technology acceptance and perceived effectiveness.

These objectives were translated into the following research questions (RQs):

RQ1. To what extent did the level of knowledge of OERs increase following an ENCORE-based course?

RQ2. To what extent can you describe an improvement in perceived acceptance and effectiveness of the intervention with ENCORE?

### 2.2 Research Design

The project adopted a Design-Based Research (DBR) approach (Wang & Hannafin, 2005), implemented in two iterative cycles to collect data and refine the ENCORE approach based on the feedback obtained. The first cycle consisted of 11 preliminary sessions to explore ENCORE and design scenarios. The second cycle involved the implementation of 8 internal pilot projects, which allowed testing and improving the ENCORE platform in authentic educational contexts. Overall, the two phases engaged a total of 457 participants. The approach adopted was that of a case study, in which the activity and experience with technologies were relevant, in this case with the ENCORE platform.

To address RQ1 – the impact of exposure to the ENCORE approach on participants' knowledge and use of OERs – two questionnaires were administered before and after each event: "How Open I Am" (ex-ante) and "How Open Can I Be" (ex-post). These instruments (Appendix 1), based on the self-assessment descriptors of DigCompEdu (Redecker, 2017) and extended using the Open Digital Framework (Inamorato Dos Santos, 2016), explored participants' awareness of OERs, licensing, open practices, and Open Science (OS) principles.

To investigate the impact of exposure on professional learning and educators' and students' acceptance of the ENCORE system, the "Your Opinion of the Session" survey was designed (Appendix 2). It was inspired by the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh et al., 2003; Kurelovic, 2020; Raffaghelli et al., 2022) and adapted from the OER Acceptance Study (Kurelovic, 2020; Raffaghelli et al., 2022). This model is widely used to analyze human behavior regarding technology acceptance, usage intention, and actual usage. Below, are the five main dimensions that determine user behavior:

- Performance Expectancy: The extent to which an individual believes that using the system will enhance him or her job performance.
- Effort Expectancy: The perceived ease of using the system.
- Social Influence: The extent to which an individual perceives that those close to him or her think he or she should use the new system.
- Facilitating Conditions: The extent to which an individual believes that organizational and technical support exists to facilitate the use of the system.
- Behavioral Intention: The intent to use the system in the future.

The model is particularly relevant in educational settings, where technology adoption depends not only on their perceived effectiveness but also on educators' ability to integrate them into complex teaching practices.

Based on these data, two moments of data analysis were prepared. Regarding the investigation of OERs, pre-post test results were subjected to descriptive analysis and t-test to investigate:

- Knowledge of OER;
- Using OER;
- Adoption of OER and OE by;
- Knowledge of OS;
- University support for OS;
- and Contributing to OS.

Instead, the data collected with the UTAUT were subjected to descriptive analysis, ANOVA repeated measures and linear regression analyses to investigate the effectiveness of the intervention on the precise dimensions investigated:

- Performance Expectancy (PE);
- Expected Effort (EE);
- Social Influence (SI);
- Facilitating Conditions (FC);
- Behavioural Intentions (BI).

For clarity, all information on the codebook, procedures and tools adopted is available in the open data shared on Zenodo (Raffaghelli et al., 2024).

### *2.3 Participants*
The focus of this actual contribution is located in one of the second loop meetings conducted in December 2023 with 64 student educators in initial training (secondary education), from the University of Padua.

## 3. Results

### *3.1 OER Knowledge*
RQ1. To what extent did the level of knowledge of OERs increase following an ENCORE-based course? To assess the reliability of the scale in measuring the constructs of interest and to verify that the items included in each variable were consistent with one another and provided reliable results, Cronbach's $\alpha$ and McDonald's Omega ($\omega$) coefficients were calculated. The analyses showed generally moderate values, with some differences between the pre-test and post-test. In the pre-test, $\alpha$ values ranged from 0.52 to 0.76, indicating low to moderate internal consistency. In the post-test, $\alpha$ values were similar, with some scales slightly worsening (e.g., $\alpha = 0.22$ for the "Adoption of OER and OE by teachers" dimension), while others remained stable or marginally improved.

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By combining descriptive analysis data (Table 1), the boxplots in Figure 1 and the results of the Wilcoxon signed rank test with continuity correction, some key points emerged, which will be reported based on the analyzed dimensions.

| Dimension | N. | Descriptives_Pre | | | Descriptives_Post | | |
|---|---|---|---|---|---|---|---|
| | | Mean | Median | Std. Dev | Mean | Median | Std. Dev |
| Knowledge of OER | 64 | 0.92 | 0.916 | 0.27 | 1.25 | 1.18 | 0.19 |
| Using OER | 64 | 0.80 | 0.79 | 0.28 | 1.06 | 1.10 | 0.23 |
| Adoption of OER and OE by teachers | 64 | 0.98 | 1.05 | 0.26 | 1.05 | 1.05 | 0.21 |
| Knowledge of Open Science | 64 | 0.93 | 0.92 | 0.29 | 1.19 | 1.18 | 0.22 |
| University support for OS | 64 | 1.10 | 1.18 | 0.28 | 1.21 | 1.18 | 0.29 |
| Contributing to OS | 64 | 0.96 | 0.92 | 0.24 | 1.10 | 1.05 | 0.24 |

*Table 1 - Descriptive Analysis of OER Knowledge Test*
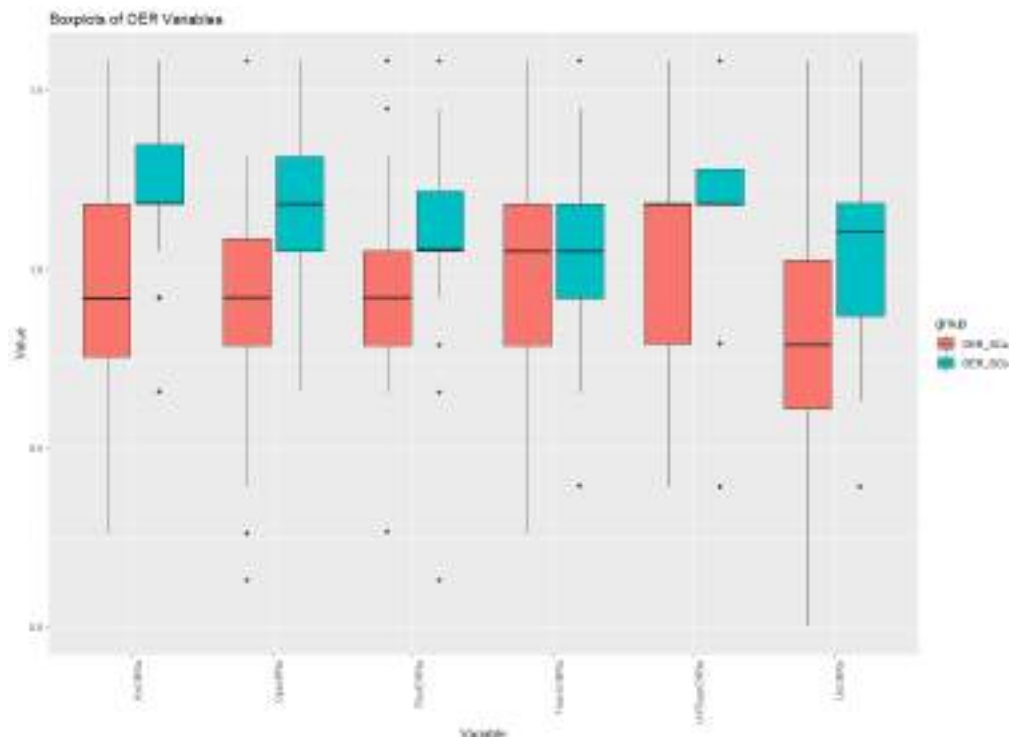


*Figure 1: Boxplot about OER Knowledge Pre and Post Test.*

Regarding the "Knowledge of OER" dimension, the test is highly significant ($p < 0.001$) with a very strong effect ($r = 0.7796$), suggesting a significant difference between pre- and post-measurements in OER knowledge. Similarly, for "Using OER," the test is highly significant ($p < 0.001$) with a strong effect ($r = 0.8086$), indicating a significant change in the use of OER between pre- and post-measurements.

Regarding "Adoption of OER and OE," although the effect is moderate ($r = 0.2355$), the p-value is slightly above the significance threshold of 0.05 ($p = 0.05955$).

For "Knowledge of Open Science," significant improvements were observed ($V = 163.5$, $p < .001$) with a strong effect ($r = 0.7021$). Regarding "University Support for Open Science," the result for this dimension is significant ($p < 0.05$), though the effect is weaker ($r = 0.2584$).

Finally, in the "Contributing to Open Science" dimension, the result is highly significant (p < 0.001) with a moderate effect (r = 0.4438). Overall, these results suggest a positive impact of the program/training on participants' knowledge and use of OER and the principles of Open Science.

### 3.2 UTAUT results

RQ2. To what extent can you describe an improvement in perceived acceptance and effectiveness of the intervention with ENCORE?

Even in this case, to assess the reliability of the scale, Cronbach's $\alpha$ and McDonald's Omega ($\omega$) coefficients were calculated. The reliability analysis results, expressed through the Cronbach's $\alpha$ and McDonald's $\omega$ coefficients, showed: good internal consistency for PE ($\alpha$ = 0.76; $\omega$ = 0.76); very high reliability for EE ($\alpha$ = 0.85; $\omega$ = 0.86); good reliability also for SI ($\alpha$ = 0.79; $\omega$ = 0.79); and excellent reliability for BI ($\alpha$ = 0.91; $\omega$ = 0.91). The only value where a problem with internal consistency was found was FI ($\alpha$ = 0.04; $\omega$ = 0.51).

Proceeding with the data collected through the UTAUT questionnaire (Table 2) and the boxplots in Figure 2, which evaluate the different dimensions of the scale, interesting results have emerged.

| Variable | Item | N. | Mean | Std. Dev | Median |
|---|---|---|---|---|---|
| **UTAUT Test** | | | | | |
| PE | 1–4 | 56 | 3.85 | 0.56 | 3.75 |
| EE | 5–8 | 56 | 3.08 | 0.84 | 3.25 |
| SI | 9–12 | 56 | 2.26 | 0.80 | 3.25 |
| FC | 13–16 | 56 | 3.08 | 0.59 | 3.00 |
| BI | 17–20 | 56 | 3.77 | 0.90 | 3.75 |

*Table 2 –Descriptive Analysis of UTAUT Test*
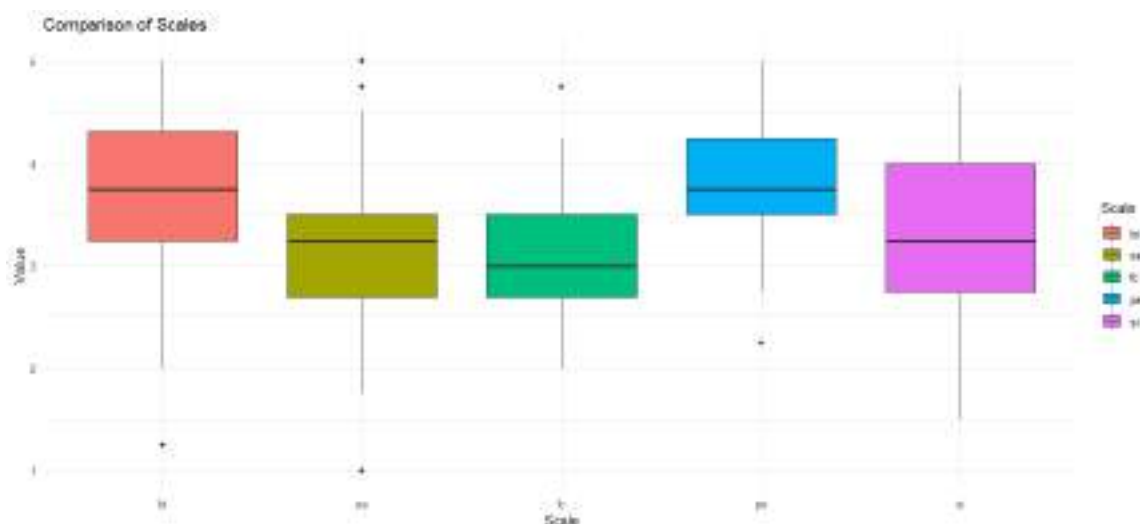


*Figure 2: Boxplot about UTAUT Scales comparison.*

From the initial data, it emerged that: about PE, that refers to the degree to which users believe that using ENCORE will enhance their learning experience with OER, respondents perceive ENCORE as highly useful for their learning (M= 3.85). The relatively low standard deviation (0.56) suggests that responses were fairly consistent across the sample. About EE, which measures the perceived ease of use of ENCORE, respondents moderately agree that ENCORE is easy to use (M=3.08) but the higher standard deviation (0.84) suggests more variation in the responses.

La dimensione delle SI, which reflects how important others (e.g., peers, professors) affect the individual's decision to use ENCORE, a mean score of 13 indicates a moderately high perception that significant others influence the use of ENCORE. The standard deviation of 0.80 suggests that while

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there is general agreement on the importance of social influences, there are differences in how much students feel influenced by others in their academic environment. About FC, which assesses whether the necessary resources and support are available to use ENCORE effectively, students are moderately confident that ENCORE can be used with the available resources and support (M= 3.08). However, the relatively low median score (Me=3.00) compared to PE and BI may indicate some limitations in the perceived availability of support or resources for ENCORE usage, which could be an area to focus on for future improvements.

Finally, about BI, which reflects the student's future intent to use ENCORE, a strong intention to continue using the system was detected (M=3.77). The higher standard deviation (0.90) implies that while most students intend to use ENCORE in the future, some may be less certain. The median score (Me=3.75) suggests that the majority of students have positive intentions regarding ENCORE's future use.

A repeated measures ANOVA was conducted to examine differences among the UTAUT model variables in relation to students' perceptions. The analysis revealed a significant effect of the variables (F = 19.6, p < .001). Mauchly's test of sphericity was not satisfied (W = 0.673, p = 0.012), and therefore, the Greenhouse-Geisser correction was applied.

Post-hoc results indicated that PE and BI were rated significantly higher than EE, SI, and FC. Specifically, PE stood out with higher mean scores compared to EE (mean difference = 3.107, p < .001) and SI (mean difference = 2.375, p < .001). Similarly, BI scored significantly higher than EE, SI, and FC. Subsequently, a linear regression model was applied to explore how the predictive dimensions (PE, EE, SI, and FC) influenced BI, that is, the intentional behavior towards usage. The analysis of the variables revealed, in particular, that SI is the strongest and most significant predictor (p < 0.001), suggesting that the perception of social influence is strongly associated with the intention to use the technology. Secondly, EE, although having a positive effect, is marginally significant (p < 0.1), indicating a potentially important relationship that does not reach conventional significance levels.

The other variables, PE (p = 0.132) and FX (p = 0.667), do not have a significant impact on behavioral intentions. The model as a whole is significant, with an F-statistic of 15.23 (p < 0.001), and explains a moderate percentage of the variability in BI (R² = 0.5442). This indicates a good degree of prediction, although there is still some unexplained variability by these factors.

## 4. Discussion and Conclusion

This study sought to evaluate the impact of the ENCORE intervention on educators' knowledge of Open Educational Resources (OERs) and their acceptance and perceived effectiveness of the platform. The results of the analyses provide valuable initial insights into how exposure to the ENCORE approach can influence both the understanding of open educational practices and the acceptance of technology-mediated tools in education. The following sections will discuss the implications of these findings in more detail.

The findings from the analysis of the subscales "OER knowledge," "Using OER," and "Understanding and contribution to Open Knowledge" indicate statistically significant results, with cut-off levels at <.001 (df = 63, t = 9.43, 9.83, and 7.22, respectively). Interestingly, lower levels of experience were associated with higher effect sizes, suggesting that less experienced participants may show more pronounced results. However, it is crucial to acknowledge that these findings might vary when considering more experienced educators, as the data may reflect different interactions with OER and AI tools.

About the UTAUT model application, overall, the results suggest that students generally have a positive perception of ENCORE across most of the UTAUT dimensions, particularly in terms of Performance Expectancy and Behavioral Intentions, which are both high. This indicates that students believe ENCORE enhances their learning and are likely to use it in the future. However, the variability in Effort Expectancy and Facilitating Conditions indicates potential areas for improvement. Specifically, the ease of use (EE) could be improved, as some students may find it challenging to use ENCORE. Similarly, Facilitating Conditions may require further attention to ensure that all students feel they have adequate support and resources for using the system effectively.

The application of the UTAUT model further highlighted that, for participants, the use of ENCORE in adopting an open educational perspective is impactful, with 54% of the variance in Behavioral Intention significantly predicted by the model. Notably, the results show that the Social Influence factor plays a significant role in shaping behavioral intentions, while the expected effort appears to have a minimal effect. Social Influence in this context is primarily driven by the importance of the project and the novelty of gaining access to these open educational resources, as indicated by qualitative feedback from participants.

Future research will focus on analyzing the differences in responses between senior educators and exploring the extent to which AI might function as a "dopaminergic" factor, potentially diminishing its impact as exposure to AI technologies increases. This aligns with the disconfirmation effect (Venkatesh et al., 2011), previously studied in AI-powered tools in higher education (Raffaghelli et al., 2022), which suggests that increased engagement and familiarity with AI leads to a reduction in frustration over initial expectations.

Looking ahead, further investigation is necessary to explore how the integration of OER and AI-powered tools can enhance teachers' professional learning and facilitate greater technology uptake in educational settings. This research will be vital in shaping strategies for more effective and sustainable technology adoption within the teaching profession.

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## Appendix

## Appendix 1 – OER Knowledge questionnaire

| Core dimension | Variable | Item |
|---|---|---|
| Knowledge of OER | Identify open licences | 1. I can identify the license of an educational resource. |
| | Tagging OER | 2. I can tag OER properly to increase the possibilities of others to re-use/find them. |
| | OER knowledge | 3. I know what an Open Educational Resource (OER) is. |
| Using OER | OER sharing | 4. I have shared and created OERs adapted from others. |
| | Referencing OER | 5. I appropriately reference the OER I use (whether I adapt the resource or not). |
| | Supporting Institutional Strategies on OER | 6. I support my institution in the implementation of OER as an open education practice. |
| | Use open licences | 7. I openly license the OERs I produced. |
| | Personalisation Process | 11. I use OER to study through a personalised approach of the learning process. |
| Adoption of OER and OE by teachers | Apply OER | 8. I know that my teachers have used Open Educational Resources for my learning. |
| | OER in Teaching | 9. I have seen the principles of open education in practice by teachers, e.g. using and sharing OER, using MOOCs and free and open online courses as support material or reference. |
| | Accessible materials | 10. Besides applying the principles of OER in their teaching, I have seen my teachers to take into account the access and accessibility of the teaching materials that I produce, in order to cater for those learners with special needs. |
| | Different OERs | 12. Generally in my experience, the teachers adopt different OER in my teaching and support the institution to be more open to the learners. |
| Knowledge of Open Science | OS concept | 13. I am familiar with the concept of Open Science. |
| | OS basic concepts | 14. I understand basic concepts of open science and have consulted research shared openly. |
| | Open data | 16. I have seen open data and I can explain what it is. |
| University support for OS | Open Access Journals | 15. The university where I study supports the teachers/researchers to publish openly, so we (students) can have access to the materials. |

| | | |
|---|---|---|
| | Open Science Community | 17. I am an active contributor to open research projects and I am involved in communities that contribute to citizen science. |
| | Institution's policies | 18. I support my institution in their effort to promote open research, by engaging in my teachers' research projects or through the association of my thesis/project work to research activity. |
| Contributing to OS | Open research promotion | 19. I believe open research and collaboration is extremely relevant, whenever appropriate and feasible. |

## Appendix 2 – "Your Opinion on the Session" test (inspired by UTAUT model)

| Some general questions! | |
|---|---|
| Below, questions are separated by different aspect, investigating some general aspects of your reflections and perceptions about your experience with the ENCORE platform. | |
| 1 | Your Age |
| 2 | Gender |
| 3 | Degree Course |
| 4 | Degree Course Name |
| 5 | Course Year |
| 6 | Which was the topic/activity in this session that you liked the most? Please indicate it below. |
| 7 | What advantages can the use of ENCORE bring a) to teachers and b) to students? |
| 8 | What disadvantages can the use of ENCORE bring a) to teachers and b) to students? |
| 9 | What features of the system do you most appreciate from a training-learning perspective and why? |
| 10 | Overall, do you think the ENCORE system could be interesting for a student? Please indicate your level of agreement using a value from 1 (Not interesting at all) to 5 (Extremely interesting). |

| Some specific questions! |
|---|
| Below, let's explore some specific reflections and perceptions about your experience with the ENCORE platform. We introduced ENCORE as a relevant support to adopt OER. In evaluating your engagement with ENCORE, please always consider its utility in relation to the future use of OER. |
| Please indicate your level of agreement with the following statements, using a value from 1 to 5, where: |
| 1 = Full disagreement; |
| 2 = Disagreement; |
| 3 = Neither agreement nor disagreement; |
| 4 = Agreement; |
| 5 = Full agreement |

| Questions | Items | Variable |
|---|---|---|
| 11 | PE1: I find ENCORE useful in my learning about OERs. | Performance |

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| 12 | PE2: Using ENCORE could enable me to accomplish training activities with OER more quickly. | Expectancy |
| 13 | PE3: Using ENCORE increases my learning productivity with OER. | |
| 14 | PE4: If I use OER supported by ENCORE, I will increase my chances of getting a better rendering of my work in the courses. | |
| 15 | EE1: My interaction with ENCORE is clear and understandable. | |
| 16 | EE2: I am skilled at using ENCORE. | |
| 17 | EE3: Learning to use ENCORE is easy for me. | |
| 18 | EE4: I find it easy to get ENCORE to do what I want it to do. | Effort Expectancy |
| 19 | SI1: People who are important to me think that I should use OER and ENCORE. | |
| 20 | SI2: People who influence my behaviour think that using OER and ENCORE can be a learning opportunity for me. | |
| 21 | SI3: Professors and staff at my institution are helpful in the use of ENCORE. | |
| 22 | SI4: In general, my university supported the use of OER and using ENCORE could be considered. | Social Influences |
| 23 | FC1: I have the resources necessary to use ENCORE. | |
| 24 | FC2: I have the knowledge necessary to use ENCORE. | |
| 25 | FC3: ENCORE is compatible with other systems I use. | |
| 26 | FC4: A specific person (or group) is available for assistance with ENCORE difficulties. | Facilitating Conditions |
| 27 | IU1: I intend to use ENCORE in the future. | |
| 28 | IU2: I predict I would use ENCORE in the future. | |
| 29 | IU3: I plan to use ENCORE in the future. | |
| 30 | IU4: I would recommend ENCORE to my peers. | Behavioural Intentions |
| 31 | Please share any though about this session and the future of technologies in learning and teaching! | |

# Digital technologies and collaborative activities for science teaching in the upper secondary school: a qualitative study on teacher's perspective

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## Abstract

Currently science teaching is facing a challenging moment, in which the main literature evidence claims the need for student-centered approaches, giving more emphasis on the active role of students in knowledge co-construction and on experience with real life problems. This qualitative research describes the design and implementation of the educational scenario on chemistry learning in a secondary upper school, analysing the perception of teachers reported in the reflective diary and in the interview. The results reported positive perception of teachers of educational activities carried out that produce benefits on students learning and teacher's competence. The approach presented seems to have potential for improving science learning and further studies are needed to understand its effect in different contexts and with different science topics.

**Keywords:** science learning; technology; simulation; collaborative learning; secondary school.

## 1. Introduction

Currently science teaching is facing a challenging moment, in which the main literature evidence claims the need for student-centered approaches, giving more emphasis on the active role of students in knowledge co-construction and on experience with real life problems (Al-Balushi, et al. 2023). As underlined by Fiorentini (2018), one of the aspects that contribute to the crisis of science teaching is related to the contrast between the mainly transmissive strategy used in class with the laboratory and problems based teaching able to involve students and promote learning and scientific skills (Fiorentini, 2018; Jeong, et al., 2019). The switch towards a more student centered approach is not easy to implement and represents a critical issue for teachers of secondary school, in terms of their readiness to perform such a change, since how to teach science turns out to be one of the major training needs (Eurydice, 2022). Regarding the resources to sustain this student-centered strategy, the digital tools provided several advantages in science teaching (Hillmayr et al., 2020, Correia et al., 2019, Landriscina, 2013; Kim and Jin 2022): the simulation-based learning can lead to several benefits and can improve students understanding of concepts, especially the more abstract ones (Correia et al., 2019). Furthermore, the meta analysis of Hillary and collaborators (2020) underlined that a larger effect size on learning outcomes was obtained using dynamic tools for mathematics and for intelligent tutoring systems, together with simulations programs (as software for geometry), while medium effect on learning outcomes was reported for the simulations of virtual laboratories. An interesting aspect is the greater effect on learning gain detected when students collaboratively worked in pairs with digital tools (Hillmayr et al., 2020). In the constructivist perspective, the digital technologies are cognitive tools, that can (i) support cognitive processes, especially those of lower level, thus lightening the cognitive load, (ii) involved students in cognitive activities that cannot be implemented otherwise and (iii) sustain the performance of problem-solving activities, thus allowing students to generate and test hypotheses (Lajoie, 2000).

Based on these premises, the approach adopted in this research foresaw the design of collaborative activities for science learning in the context of upper secondary school. The students experienced the social co-construction of knowledge (Vygotskij, 1978) with the use of digital, intended as a "cognitive tool", supporting students' cognitive processes (Lajoie, 2000; Ranieri, 2011). This study documented the perception of the teacher on the designing and implementation of the educational scenario based on collaborative activities supported by technology for science learning, focusing on the positive and critical aspects emerged during the activities that impacted both students' learning and the teacher's competences.

The Research Questions (RQs) that guided the study are the following:

RQ1: If and to what extent a collaborative methodological approach supported by technology can promote students' learning?

RQ2: If and to what extent a collaborative methodological approach supported by technology can promote further beneficial impacts on students and the teacher?

## 2. Methodology

### 2.1 The co-design of educational scenario

In 2023, the teacher and researcher co-designed the educational scenario, using a digital game, supporting the conceptualization phase of the design (Ceregini, et al. 2019). It was then implemented in one class of the 4th-level of an upper secondary school of the Liguria region (Italy) during February - May 2023 (n° students 11, 2 females and 9 males, mean age= 17,82). The co-design process was divided into three steps:

- The first step involved theoretical training for teachers, held by the researcher, on the topics of LD and the planning of collaborative activities supported by digital technologies. Furthermore, the tools to support the design were presented, also providing practical activities for their use, to make the teacher confident in their use;

- The second step aimed to define the learning objectives, the content of the teaching activity and choose the best pedagogical strategy, also considering the different contextual constraints. This phase is defined in the literature as "conceptualization" (Pozzi, et al. 2016). For this phase, a digital game was used, the 4Ts game. This game supported the teacher in the definition of the 4 dimensions of the model: Task (activities to be completed), Time (the timeline of the activities), Team (the size of the group) and Technology (the technological resources necessary to complete the activity);
- The third step involved further in-depth design level, using a specially structured template, to explain in detail the structure of the modules, their duration, the related phases, specifying what the teacher does and what the student does in each teaching sequence.

The educational scenario designed in this phase dealt with the chemical theme of Acids and Bases and it was structured in three Modules as described below:

- In Module 1, the students are involved in the proposal of a laboratory procedure aimed at recognizing which is a strong electrolyte and a weak electrolyte, also executing this procedure in the laboratory. The teaching strategy is the collaborative peer review, in which students are divided in groups to develop the procedure and then each group revise the procedure of another group;
- In Module 2, the students are engaged in participatory lectures and practical laboratory tests on the main chemistry theories on Acid and Bases topic (as, Arrhenius, Bronsted and Lowry, Lewis), and on the main concepts related to pH (as definition, calculation of the pH of strong/weak acids and bases). The teaching strategy is the heuristic lessons;
- In Module 3, students are encouraged to transfer the knowledge acquired into the real context, through the collaborative production of a report on buffer solutions in the human body. This activity foresees a first step of searching for information online, followed by the discussion on their relevance and the final production of a report. Similarly to Module 1, the teaching strategy adopted was the collaborative peer review.

In this scenario, digital technologies are used to support the following processes: (i) The development of a laboratory procedure to recognize strong electrolyte from weak one (Simulative technology, Phet Simulation, to support the concept understanding); (ii) The identification of the key concepts of a topic (Interactive presentation, Mentimeter, to support the process of discussion); (iii) The concepts synthesis (Collaborative board, Padlet).

### *2.2 Tool for data collection*
The qualitative tools used for data collection were the reflective diary and the semi-structured interview.
The reflective diary was a tool for the documentation *in itinere* of the implementation phase of Acids and Bases scenario, guiding the teacher in the reflection about three moments of scenarios implementation:

- Before activities implementation: focusing on resources preparation, underlining the usefulness of them and the eventual further needs;
- During activities implementation: focusing on the following aspects, significant learning situations happened during the scenarios, students' participation, and technological support;
- After implementation: focusing on suggestions for future implementation.

The semi-structured interview was performed at the end of the scenario implementation in order to go deeper into the teacher's perception of the methodology used to design and conduct the educational scenario, the effects on the students as well as further positive aspects or critical issues emerged in the reflective diary. The interview was carried out on Zoom platform following the stimulus questions:

1. In general, how do you think the implementation of the educational scenario went?
2. What were the positive/critical aspects? Any learning situations to report?
3. What was the reaction of the students?
4. In your opinion, was the course effective in terms of learning science?
5. Can the approach used, i.e. collaborative activities integrated with technologies, also be effective for other science topics you teach?
6. Has your approach to design collaborative activities changed compared to before, and if so in what aspects in particular?
7. How did the integration of digital technologies go during the activities?
8. Were they helpful or did they hinder learning?
9. Would you propose this route again next year? If so, what would you change?
10. Is there anything else you would like to add?

### 2.3 Data analysis

Qualitative data analysis of the reflective diary and semi-structured interview was carried out with the web app QCAmap. From a methodological point of view, these qualitative data were analysed following the procedures for thematic analysis by Braun and Clarke (2006).

Regarding the reflective diary, an inductive analysis was conducted based on a data-driven coding procedure with themes resulting from the data (Braun & Clarke, 2006). As for the semi-structured interview, the analysis followed a deductive approach: the categories identified in the analysis of the reflective diary were used for the analysis of the interview (Braun & Clarke, 2006). The interview indeed went deeper into the elements that emerged from the reflective diary. As well-known, the approach of deductive analysis is driven by the researcher's theoretical or analytical interests in the area (analyst-driven) (Braun & Clarke, 2006).

## 3. Results

### 3.1 RQ1: If and to what extent is a collaborative methodological approach supported by technology able to promote students' learning?

To answer RQ1, the categories "Impact of collaborative activities", "Support of technologies and critical issues" and "Challenges faced by the teacher and suggestions" derived from the analysis of reflective diary and interview were considered.

Regarding the category "Impact of collaborative activities", teacher explained that the collaborative activities supported by technologies had positive impact on students learning outcomes, demonstrating by the high grades reached by them in the final test with only 3 students that did not reached the minimum learning objectives and the others obtained good results (From the interview "*I did a test and it went well, I practically only had 3 failures and I got one 10, even though she/he is already very good, some 9, some 8 and then three students that reached the minimum objectives*"). Another important positive moment occurred when students developed the laboratory procedure in group, that led to the correct interpretation of the experimental results with a theoretical model (From the diary "*Almost all of the students managed to interpret the experimental data with a conceptual model, thus making the connection between macro and micro which is one of the cornerstones of the study of chemistry*").

Moving to the category "Support of technologies and critical issues", the teacher reported that digital technologies were very helpful for students, both as a support for the learning process and as a means to keep the attention high: the simulative platform used (Phet Colorado) helped them in understanding the microscopic level of the phenomena, while the use of interactive presentation (Mentimeter) permitted to focus much more on the key concepts of the Acids and Bases topic (From the diary "*The use of simulation programs is certainly of great help in visualizing and understanding the microscopic aspect of the phenomena. One of the most notable difficulties in the study of chemistry is in fact the capacity for abstraction and correlation between macro and micro*"). The interview confirmed this aspect, underlining also that technology makes chemistry learning easier.

Finally, considering the category "Challenges faced by teacher and suggestions", the teacher documented that during the implementation of educational scenario, the main critical issue faced was to follow the frailer students in the process of deductive reasoning, and this was done offering a proper scaffolding (From the diary "*The main challenge was to lead the most vulnerable students to deductive reasoning and was addressed by guiding the students step by step*"). Another difficulty was having to deal with some shortcomings in multidisciplinary skills, as mathematical skills applied in a different context. Thus, the teacher had to guide these students to the solution, addressing also these mathematical difficulties.

### 3.2 RQ2: If and to what extent does a collaborative methodological approach supported by technology promote further beneficial impacts on students and the teacher?

To answer RQ2, the categories "Impact of collaborative activities", "Further Aspects", "Management of educational activities" derived from the analysis of reflective diary and interview were considered. Regarding the category "Impact of collaborative activities", the teacher reported that the collaborative activities had a positive impact on students, permitting the expression of shyer students (From the interview "*For example, I noticed some guys who managed to get unstuck. I am referring in particular to two students who are shy, who are really afraid to say things, in this way I have seen them grow*"). In the category "Further Aspects", it was reported that in general the educational scenario led to active participation of students, even though in the final phases of the it decreased due to the tiredness of students in the last period of school year (From the diary "*Although the class is generally active during lessons, a certain tiredness and difficulty in concentrating was noted. However, this is normal considering that, at the end of the year, the workload inevitably increases*"). Accordingly, some difficulties were faced by the teacher during the educational scenario, and they were related to a group of students that didn't work with a proper commitment (From the diary "Only one group worked superficially and was recalled several times").

Considering the positive impact on the teacher herself, she perceived an improvement in her design competence, indicating a greater understanding than before of how to design and implement a collaborative activity (From the interview "*So I would say that it went well, the positive aspects let's say that it was above all for me that I learned to better structure what could be a teaching unit*").

Finally, the category "Management of educational activities" described the dynamic of educational activities, highlighting the deviation with respect to the initial design and the subsequent adaptation of the educational scenario according to the needs. So, these elements contribute to identifying the positive dynamics and the hurdles faced in favour of the future designs and conduction of educational activities. In the first module, not all laboratory procedures entered in the peer review process, since many students were absent during that activity. For this, the teacher added an hour to update these students on the previous step, otherwise they cannot be able to carry out the subsequent activities. In the third module, it was not possible to carry out all the foreseen activities, due to the few hours available and to the tiredness of students at the end of the school year, reported both in the reflective diary and in the interview. However, the teacher provided students with a list of references to use for completing the report on buffer solutions in the human body.

| Category | Description | Anchor Sample of Reflective Diary | Anchor Sample of Semi-structured Interview |
|---|---|---|---|
| **Management of educational activities** (RD: 16; I: 4) | In this category are coded all the phrase or clause referring to the modality of teachers of managing the educational activities | *The groups were decided by the teacher trying to put together students with the same level of ability. No specific figures were identified. In the first part the students worked in their places. For collaborative activities the class was organized into islands by joining the desks.* | *(…) the part of acids and bases in the human body, we had expected them to do the research online, but since we arrived a little too close to the end of school, my colleague gave some ideas, (…) and we made a padlet with all the references they looked for* |
| **Impact of collaborative activities** (RD: 15; I: 6) | In this category are coded all the phrase or clause referring to the impact of collaborative activities on students, in terms of learning, engagement and interest | *The group work was certainly fruitful, and I believe that some managed to unlock their reasoning skills.* | *Precisely related to this fact, there were two guys who were really passionate about this thing and so when I showed the group's work, I saw that some of them were really engaged.* |
| **Support of technologies and critical issues** (RD: 5; I: 6) | In this category are coded all the phrase or clause referring to the use of technologies during the educational activities, highlighting benefits and drawbacks | *Technologies are also welcome tools that allow us to keep our attention alive.* | *In general, we were already using them, because maybe they used videos, simulations so the kids are quite used to it, it's certainly their language.* |
| **Challenges faced by the teacher and suggestions** (RD: 6; I: 2) | In this category are coded all the phrase or clause referring to the challenges faced by teacher and the suggestions for future improvements | *The main challenge was to lead the most vulnerable students to deductive reasoning and was addressed by guiding the students step by step.* | *Unfortunately, the only thing that happened in my opinion is that since we did it a little late in the year and the students were tired and therefore I had a little difficulty keeping their attention alive* |
| **Further aspects** (RD: 0; I: 2) | This category is foreseen only for the Semi-structured Interview to collect all the elements of the text that not fit the other categories | - | *Let's say that until now planning was done on topics. And therefore, without going into such detail about the things to do. But I recognized that planning done this way, which takes a lot of time, is certainly more effective.* |

*Table 1: Category emerged from the inductive analysis of the Reflective Diary (RD) of teachers used also for the deductive analysis of the Semi-structured Interview (I). Numbers in brackets refer to the frequencies of the coded extracts.*

## 4. Discussion and conclusion

The results of the current study documented positive results for students and teachers. Considering the learning dimension of the RQ1, the teacher perceived an improvement of students' learning demonstrated by the high value reached by the overall students in the final test, and by the important results in the understanding dimension, connecting the experimental results with the theoretical model. This latter was further supported when using digital technologies, particularly referring to the simulation Phet Colorado, that permitted the visualization phenomena not easily explored in the real context. The use of the simulation in science learning was documented in the literature, for the possibility to understand the more abstract concepts. In fact, one of the useful features of digital technologies in supporting scientific learning is related to the possibility to visualize objects, phenomena or reactions otherwise difficult to observe, for promoting learning (Kim & Jin, 2022). Correia and collaborators (2019) described the use of Phet simulations for another chemistry topic, gas behaviour, that makes the understanding of the gas behaviour at microscopic level, through the change of variables and the observation of the relative effects (Correia et al., 2019). In this perspective, for Landriscina (2013) the interactive characteristic of simulation is the discriminating element from other forms of knowledge representation and underlines its potential to create a relation of interpretation and synergy between the human mind and the computer: using a simulation, the students generally interact indirectly with the model through the mediation of the program interface (Landriscina, 2013).

Another aspect that emerged is related to the positive impact of collaboration among students, especially on shyer students, that in this context were able to express themselves. In fact, as reported in the literature, collaborative activities require mediation during their execution (Jeong, et al., 2019; Ranieri, 2022): in this context, the scaffolding provided by teachers for frail students or to support specific reasoning processes may facilitate the collaboration among students. Moreover, the literature highlights numerous benefits of involving students in these student-centered strategies, as the collaborative learning activities (Al-Balushi, et al. 2023; Day and Bryce, 2013; Johnson and Johnston, 2003). In addition to positively impacting learning (Day and Bryce, 2013), they enhance the development of additional skills, such as sharing ideas, active listening, and problem-solving (Johnson and Johnston, 2003).

In conclusion, the present qualitative research described a positive perception of teachers of the approach used for the design and implementation of collaborative activities supported by technology in science learning. The approach involved students that highly participated, also leading to benefits in chemistry concept understanding (especially the comprehension of the relation between microscopic and macroscopic level), and collaboration among peers. According to teachers' perception, in this scenario, the technology offered a valid support to students' cognitive process and facilitated the concept learning. The teacher also perceived a positive impact on their competence both in terms of how to design collaborative activities in science learning and in terms of their conduction in class, supporting students when needed. Some critical aspects also emerged: one of these was supporting the weaker students in the process of deductive reasoning, which was addressed by providing appropriate scaffolding (particularly guiding them step by step in the reasoning process). Another issue was the decline in students' attention toward the end of the educational scenario, although it remains unclear whether this was due to the specific activity or the time of the school year. Despite these shortcomings, the approach seems to have some potential for enhancing science teaching and learning, but further research is needed to evaluate its impact in different contexts and on various science topics.

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# Development of teachers' competencies on Learning Design and on supporting student's Self-Regulated Learning in the lower secondary school

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## Abstract

The Erasmus+ project SuperRED, led by University of Florence, originated from the challenges encountered during the COVID-19 pandemic on the limited digital competences of students and teachers in using digital technologies for teaching and learning. SuperRED's activities focused on augmenting teachers' Learning Design (LD) capabilities to boost students' Self-Regulated Learning (SRL). This approach was implemented in 3 schools (Belgium, Italy, and Catalunya), co-designing and testing 8 educational scenarios promoting students' SRL competence in the lower secondary school. A survey was developed to collect teachers' perceptions of their LD skills and ability to support students' SRL. Results indicated that the SuperRED approach seems to improve teachers' LD skills and students' SRL competences, raising areas for improvement in terms of professional development, as the design of activities, the mediation of student collaboration, and the enhancement of students' self-reflection during learning activities.

**Keywords:** Learning Design; Self-Regulated Learning; digital technology.

# 1. Introduction

The Erasmus+ project "Supporting Self-Regulated Learning in Digital and Remote Education" (SuperRED), led by the University of Florence, emerged in response to the profound challenges faced by educational systems during the COVID-19 pandemic. These challenges underscored the limited digital competences of both students and teachers in leveraging digital technologies for effective teaching and learning (Carretero-Gomez et al., 2021; Ranieri, Gaggioli, Borges, 2020). SuperRED's core objective was to enhance teachers' Learning Design (LD) capabilities to foster students' Self-Regulated Learning (SRL) skills, as conceptualized by Zimmerman's SRL phases (Zimmerman, 2008). In this context, the notion of competence refers to the integrated set of knowledge, skills, and attitudes that enable teachers to design, implement, and reflect on effective learning experiences (Redecker, 2017). On the other hand, Self-Regulated Learning competence in students involves the capacity to independently manage cognitive, motivational, and behavioral aspects of learning, across the phases of forethought, performance, and self-reflection (Zimmerman, 2008).

The initiative employed innovative tools such as the 4Ts game for macro-design of collaborative activities (Pozzi, Ceregini, Persico, 2015), supported by digital technologies to advance SRL.

The pandemic's abrupt cessation of in-person teaching catalyzed a rapid digital transformation of education (Bond, 2020; Nurhas et al., 2022). However, it also exacerbated pre-existing issues within educational systems, particularly concerning digital readiness and the capacity for effective remote instruction (Carretero-Gomez et al., 2021). This sudden transition, termed Emergency Remote Education (ERE), revealed significant gaps in digital preparedness among educators and learners, as extensively documented in studies from the COVID-19 period (e.g., Carretero-Gomez et al., 2021; Giovannella, Passarelli & Persico, 2020; INDIRE, 2020; Ranieri, Gaggioli & Kaschny Borges, 2020).

In response, SuperRED developed a comprehensive framework for inclusive and effective digital education. This framework aimed not only to address immediate challenges but also to build resilience for the medium and long term. These tools and strategies supported teachers in creating collaborative educational scenarios that align with pedagogical goals while enhancing students' SRL skills.

The SuperRED approach was developed through a consortium of researchers and teachers from 4 countries (Belgium, Italy, The Netherlands, and Catalonia), working collaboratively to design theoretical and practical tools for educational innovation. Central to this approach was a theoretical framework that provided guidelines for the design and implementation of collaborative activities, emphasizing the support of students' SRL. The 4Ts game—focused on defining dimensions such as Task, Team, Technology, and Time—was a pivotal tool for macro-designing scenarios. Additionally, a final template, specifically developed within the SuperRED project, enabled educators to transition from macro to micro-level design, ensuring coherence and adaptability to contextual constraints.

A central focus of the project was the professional development of teachers, many of whom felt unprepared to transition traditional classroom practices to digital environments. This challenge was particularly pronounced in countries like Italy and Spain, where replicating face-to-face dynamics in online settings often led to decreased student engagement and mixed outcomes (Carretero-Gomez et al., 2021). Similar issues arose in Belgium, where educators faced low digital skill levels and increased workloads.

For students, the pivot to remote learning highlighted a pressing need for enhanced self-management and autonomy. The lack of immediate feedback and diminished peer interaction frequently led to heightened stress and reduced motivation (Donnelly & Patrinos, 2022). SuperRED's interventions prioritized the promotion of SRL and collaborative learning through digital tools, mitigating risks such as disengagement and learning loss. By emphasizing asynchronous and collaborative learning models, the project aimed to address barriers posed by limited internet access and the isolating nature of remote education.

Thus, the main aim of this research was to test the SuperRED approach in a real life context, the lower secondary school, investigating the perceptions of teachers on the improvement of their LD skills and their capacity to promote the students' SRL. According to this objective the Research Questions (RQ) that guided the research were the following:

RQ1: Has the SuperRED approach (i.e., co-design of educational scenarios through the use of LD tools and grounding on the SuperRED framework) been effective and relevant in promoting teachers' LD skills in terms of professional development?

RQ2: Has the educational scenario based on the SuperRED approach (i.e. co-design of educational scenarios through the use of LD tools and grounding on the SuperRED framework) been effective in promoting students' SRL skills, particularly referring to forethought, performance and self-reflection phases of SRL?

## 2. Methodology

The research followed a mixed-methods approach, integrating both quantitative and qualitative data. This methodology was selected to capture the multifaceted nature of the interventions and their effects on both teachers and students. The design consisted of a quasi-experimental model with pre- and post-intervention data collections, particularly focused on teachers' perceptions and reported student outcomes. While quantitative data were primarily gathered through structured surveys using Likert scales, qualitative insights were obtained from open-ended survey questions and teacher narratives. The combination of methods allowed for triangulation, strengthening the validity of the findings.

### *2.1 The context and the SuperRED approach*
The study was conducted within the framework of the SuperRED project, which aimed to enhance teachers' LD skills and their capacity to support students' SRL. Building on the comprehensive approach described in the introduction, the methodology focused on testing the tools (the framework, 4Ts game and the template for micro-design) developed through SuperRED in real educational settings.

These tools permitted the design of 8 collaborative educational scenarios on different topics (Informatics, Media Education, Science, Mathematics, Arts, Civic Education) that were implemented in lower secondary schools of 3 countries of the SuperRED consortium (Belgium, Italy, and Catalonia), in March – May 2023,

### *2.2 The tool for data collection*
A survey was developed to collect teachers' perceptions of their LD competences and ability to support students' SRL, including both closed and open questions. It was structured in 3 sections:

1. General Information, collecting information about Age, Gender, Professional qualification, Teaching experience;
2. The LD section for collecting teachers' perceptions about their LD skills. In particular, it was asking teachers their perceptions of LD skills in the following phases: Conceptualisation of the design idea (defining learning objectives, identifying content area/s to be addressed and choosing the most appropriate pedagogical strategies), Planning and authoring (including association of the educational resources and tools that learners are to use), Implementation of the resulting design and enactment with learners (providing differentiated activities and ensuring that the design features have potential for developing students Self-Regulated Learning skills);
3. The SRL section for investigating what SRL skills the teachers supported during the implementation of the educational scenarios, particularly referring to the dimensions of Zimmermann (2008), Forethought (focusing on task analysis and self-motivation beliefs), Performance (focusing on self-control and self-observation), and Self-Reflection (focusing on self-judgement and self-reactions) (Zimmerman, 2008).

In the closed questions teachers indicated their perceptions through a 5-point Likert scale from "*Not at all*" (1 point) to "*A great deal*" (5 point), for quantifying the improvement perceived, and "*Strongly disagree*" (1 point) to "*Strongly agree*" (5 point), for expressing the level of agreement on a statement.

### *2.3 The sample*

The sample of this research was the teachers implementing the 8 educational scenarios. Ten teachers completed the survey: 3 from Belgium, 2 from Catalunya and 5 from Italy, further characteristics are summarized in the table below:

| | |
|---|---|
| **Number of teachers** | 10 |
| **Age** | 7/10 between 45-54 years, 1/10 between 25-34 years, 1/10 between 35-44 years, 1/10 lower than 25 years |
| **Gender** | 6 females, 4 males |
| **Nationality** | 3 from Belgium, 2 from Catalunya and 5 from Italy |
| **Educational Background** | 6/10 bachelor's degree, 3/10 master's degree and 1/10 a PhD |
| **Teaching Experience** | 6/10 more than 10 years of experience, 2/10 about 20 years (2/10), 2/10 more than 5 years, and 1/10 less than 5 years of experience |

*Table 1: Sample characteristics*

## 3. Results

### *3.1 RQ1: Has the SuperRED approach (i.e., co-design of educational scenarios through the use of LD tools and grounding on the SuperRED framework) been effective and relevant in promoting teachers' LD skills in terms of professional development?*

To evaluate the efficacy of the SuperRED approach in advancing teachers' LD capabilities, a comprehensive analysis of data collected through post-surveys was undertaken. The survey, administered following the testing phase, targeted 3 pivotal dimensions of LD: conceptualization of pedagogical design, planning and authoring of educational activities, and implementation and enactment of the developed scenarios with learners.

Participants consistently reported marked improvements across all examined dimensions of LD. On a 5-point Likert scale, where 1 corresponded to "Not at all" and 5 to "A great deal," teachers' responses yielded mean scores of 3.4 for both the conceptualization and planning phases, and 3.3 for the implementation phase. These values signify a notable enhancement situated between "A moderate amount" and "A lot," underscoring the SuperRED approach's capacity to scaffold educators' proficiency in constructing effective, collaborative learning designs. Of particular note, the conceptualization phase enabled participants to align learning objectives with pedagogical strategies systematically. In parallel, the planning and authoring phase facilitated meticulous selection of resources and tools, ensuring coherence with contextual constraints and learning objectives.

Central to the SuperRED framework, the 4Ts game emerged as an instrumental tool in fostering professional growth. Teachers rated the game highly in terms of engagement (M=4.0), motivation (M=4.2), and utility (M=4.1) in facilitating the macro-design of collaborative activities. These scores, averaging between "A lot" and "A great deal," reflect the game's effectiveness in promoting creative and structured pedagogical planning. Teachers elaborated that the game's predefined yet adaptable structure encouraged innovative thinking while maintaining clarity in instructional design. Furthermore, the 4Ts game was credited with enhancing participants' ability to construct collaborative activities (M=3.8), reinforcing its role as a catalyst for professional development.

| Playing with the game was engaging | Playing with the game motivated me to adopt the 4Ts | Using the game is useful to design effective collaborative activities | Playing with the game did influence how I design and implement collaborative activities |
|---|---|---|---|
| 4 | 4,2 | 4,1 | 3,8 |

Not at all (1)   A little (2)   A moderate amount (3)   A lot (4)   A great deal (5)
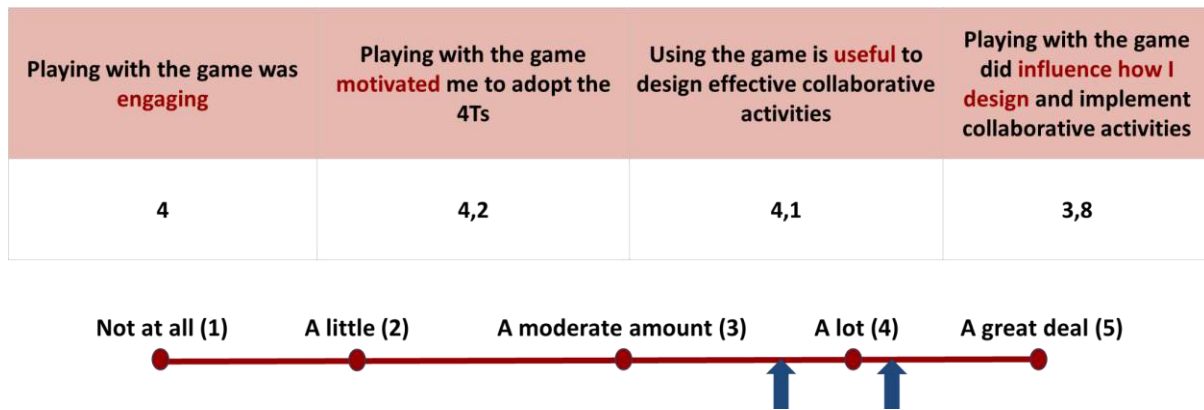
*Figure 1: Synthesis of the answers of the second question on LD (n=10 teachers). It has been reported the mean value for each characteristic of the 4Ts game. The answer's options foreseen a likert 5-point scale from "Not at all" (1) to "A great deal" (5). The blue arrows indicate the position of the teachers' answers.*

Despite the overwhelmingly positive feedback, the implementation of learning scenarios revealed critical challenges:

- Time Constraints: Limited availability of instructional and preparatory time emerged as a predominant barrier. Teachers frequently struggled to reconcile the demands of the scenarios with their existing curricular obligations, as exemplified by comments such as "Problems with timing and the few hours available per week";
- Collaborative Dynamics: Managing the intricacies of student collaboration posed difficulties. Teachers observed variability in engagement levels, with some students exhibiting reluctance to participate fully, thereby disrupting group cohesion;
- Design Adjustments: Disparities between planned and actual task durations necessitated real-time modifications. Additionally, several participants identified a need for more explicit strategies to optimize group composition and integrate prompts aimed at fostering self-regulation;
- Tool-Related Issues: Four teachers identified obstacles associated with the 4Ts game. These included insufficient time for familiarization, inadequate instructional support, and limited digital competencies, emphasizing the necessity of robust preparatory resources.

Among the identified obstacles, the "Task" dimension of the 4Ts game was particularly problematic. Three of the four teachers who encountered difficulties attributed these to inadequate digital proficiency (2/4) or unfamiliarity with the game's content (1/4). While issues related to "Time" and "Technology" were less pronounced, they nevertheless underscored the importance of comprehensive training and contextualized examples to facilitate effective utilization of the game. Participants suggested that augmented guidance materials, including detailed case studies, could bridge these gaps and support more effective task integration.

### 3.2 RQ2: Has the educational scenarios based on the SuperRED approach (i.e. co-design of educational scenarios through the use of LD tools and grounding on the SuperRED framework) been effective in promoting students' SRL skills, particularly referring to forethought, performance and self-reflection phases of SRL?

To evaluate the impact of the SuperRED approach on fostering students' SRL skills, a robust and multidimensional analysis was undertaken. This investigation encompassed data from pre- and post-surveys of students, as well as post-surveys from teachers, targeting three fundamental SRL phases defined by Zimmerman (2008): forethought, performance, and self-reflection. These phases represent critical facets of self-regulation, focusing on students' capacity to strategically plan, effectively execute, and critically evaluate their learning activities.

Post-surveys administered to teachers revealed highly positive evaluations of the SuperRED approach's efficacy in fostering SRL skills among students. A majority of respondents recognized the

learning scenarios as instrumental in supporting all three SRL phases. The performance phase received the highest mean rating (M=3.74), reflecting the significant impact of the approach on students' ability to apply learning strategies and complete tasks successfully. The self-reflection phase, which involves students critically evaluating their outcomes and refining strategies, followed closely with a mean rating of M=3.57. The forethought phase, while slightly less emphasized (M=3.42), still garnered positive feedback, underscoring its role in facilitating initial goal-setting and task analysis. Teachers frequently emphasized that the structured and interactive components of the SuperRED framework were pivotal in fostering deep engagement and systematic skill development during these phases.

The qualitative data provided by teachers offered nuanced perspectives that enriched the quantitative findings. Teachers highlighted several benefits of the SuperRED approach:

- Increased Student Motivation: A significant number of teachers observed heightened levels of student engagement and enthusiasm. This was often attributed to the interactive and collaborative elements embedded in the learning scenarios.
- Enhanced Awareness of Learning Strategies: Both teachers and students reported a greater understanding of effective learning strategies, particularly during the performance phase, where students were actively applying these techniques.
- Improved Reflective Practices: Students demonstrated an increased capacity to assess their progress, recognize areas for improvement, and refine their strategies, aligning with the objectives of the self-reflection phase.

Nevertheless, some challenges emerged, particularly in the forethought and self-reflection phases. Teachers noted difficulties in guiding students through task analysis and goal-setting, with several students displaying limited self-motivation or struggling to conceptualize actionable plans. In the self-reflection phase, some students found it challenging to critically evaluate their learning outcomes, particularly in identifying specific areas for improvement or connecting outcomes to their initial goals. Teachers observed that while students could describe their experiences, many struggled to articulate concrete lessons learned or to apply feedback effectively to future tasks. These observations highlight the importance of scaffolding reflective activities with clear prompts and structured feedback mechanisms. Teachers reported that while students could describe their experiences, many of them struggled to articulate concrete lessons learned or to effectively apply feedback to future tasks. These observations highlight the importance of scaffolding reflective activities with clear prompts and structured feedback mechanisms.

Overall, the project findings establish that the SuperRED approach contributes meaningfully to both teacher and student development. However, the challenges encountered during the implementation phase—particularly concerning the scaffolding of SRL—call for a more thorough reflective analysis. The following discussion elaborates on these results, connecting them with existing literature and highlighting implications for future practice and research.
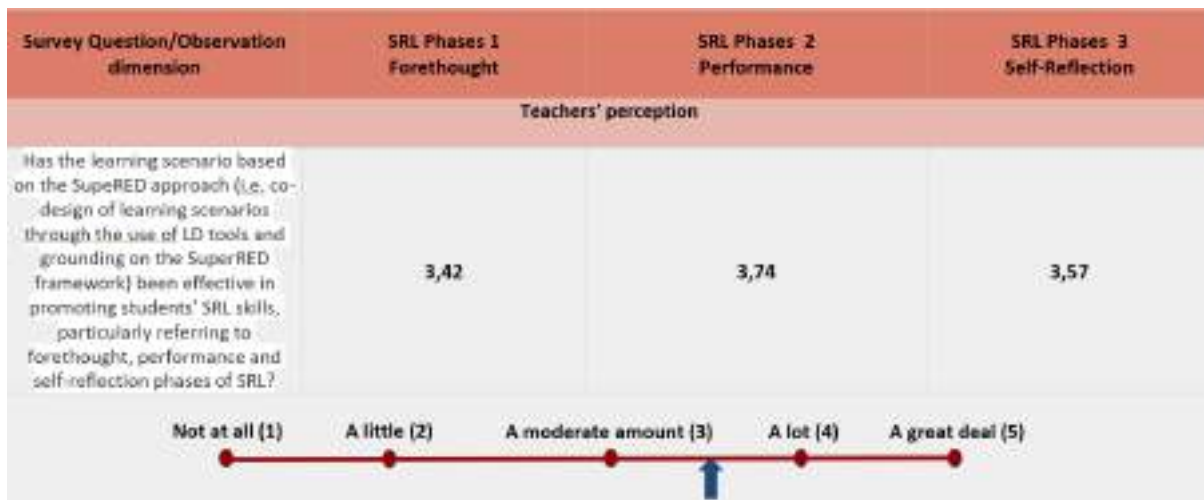
*Figure 2: Teachers's perception about the 3 SRL phases.*

## 4. Discussion

The findings of this study underscore the important role of structured and interactive frameworks, such as the SuperRED approach, in cultivating teachers' Learning Design and students' Self-Regulated Learning skills. This research aligns with prior investigations that emphasize both the challenges and transformative potential of digital education, particularly accelerated by the COVID-19 pandemic. As Carretero-Gomez et al. (2021) and Ranieri, Gaggioli, and Borges (2020) highlighted, the abrupt shift to remote learning exposed substantial gaps in digital literacy among both students and educators, demanding innovative and adaptive solutions to reimagine pedagogical practices and outcomes.

The SuperRED approach addressed these challenges by providing educators with targeted tools such as the 4Ts game and templates guiding the micro-design process. These instruments significantly enhanced teachers' abilities to conceptualize, plan, and implement effective educational scenarios. Consistent with findings from Giovannella, Passarelli, and Persico (2020), this study underscores the importance of structured support mechanisms to navigate the complexities of hybrid and remote learning environments. Teachers' reports of improved professional competencies reflect the efficacy of the SuperRED framework in bridging theoretical concepts with practical application, enabling educators to design collaborative and meaningful learning experiences.

In terms of SRL, teachers' perception highlighted improvements in students' performance and self-reflection capabilities. Students demonstrated enhanced proficiency in executing learning strategies and critically evaluating their outcomes, reinforcing the validity of Zimmerman's (2008) SRL model, which interlinks forethought, performance, and self-reflection phases. However, the forethought phase presented notable challenges, with students struggling to effectively analyze tasks and set actionable goals. This mirrors observations by Donnelly and Patrinos (2022), who emphasize the necessity of providing scaffolding during the preparatory stages to foster student autonomy and intrinsic motivation.

Further analysis revealed persistent difficulties in the self-reflection phase. Many students encountered obstacles in deriving actionable insights from their learning experiences or connecting results to their original objectives. These challenges underscore the importance of integrating structured frameworks and feedback mechanisms into the reflective process. Such strategies align with recommendations by Nurhas et al. (2022), advocating for the incorporation of digital tools and collaborative methods to enrich reflective learning. Teachers noted that while students exhibited a general awareness of their progress, the ability to translate observations into tangible improvements remained inconsistent, highlighting an area for targeted intervention.

Qualitative feedback from teachers highlighted the motivational benefits of the SuperRED approach. The emphasis on collaboration and interactive learning was consistently cited as a key factor in sustaining engagement. These findings resonate with Bond's (2020) observations regarding the value of peer interaction in counteracting the isolation associated with remote learning. Teachers reported increased student enthusiasm and active participation related to a sense of community and shared purpose, since the SuperRED approach bridged the divide between digital tools and meaningful learning outcomes.

Nonetheless, the study highlighted areas requiring further development. The relatively weaker outcomes in the forethought and self-reflection phases perceived by the teachers suggest a need for more robust scaffolding and support mechanisms. Future iterations of the SuperRED framework should prioritize the integration of enhanced planning tools, such as visual organizers and goal-setting templates, to bolster students' preparatory skills. Additionally, real-time feedback systems could be leveraged to provide immediate guidance during the performance phase, sustaining motivation and self-monitoring. Structured reflection activities, such as guided journaling and peer evaluations, would also help students deepen their analytical skills and connect their learning processes to measurable improvements.

Adaptive digital technologies represent another promising avenue for refining the SuperRED approach. Personalized learning platforms could offer tailored feedback and adaptive resources, ensuring that both teachers and students receive the support needed to address their unique challenges. By aligning technological innovation with pedagogical principles, the framework could achieve greater scalability and impact across diverse educational contexts.

In conclusion, the SuperRED approach emerges as a potential tool for enhancing teachers' LD skills and their ability to promote students' SRL, offering a scalable and effective methodology for modern education. By addressing both its successes and areas for improvement, educators and researchers can refine the approach to meet the evolving demands of digital and hybrid learning environments. This study aligns with broader goals articulated by Carretero-Gomez et al. (2021) to foster resilience and adaptability within educational systems, ensuring that educators and learners are equipped to thrive in an increasingly dynamic and digital world. The SuperRED framework not only bridges current gaps but also lays the groundwork for sustainable and equitable learning practices, reinforcing its potential as a cornerstone of 21st-century education.

## 5. Conclusion

The outcomes of this study underscore the transformative potential of the SuperRED approach in addressing the complexities of digital and hybrid education. By providing educators with structured tools and methodologies, the approach not only bridges existing gaps in professional competencies but also fosters students' SRL skills across critical phases of learning. The improvements perceived by the teachers in students' performance and self-reflection highlight the framework's effectiveness in promoting meaningful engagement and deeper learning.

However, this study also reveals areas for refinement. Persistent challenges in the forethought and self-reflection phases emphasize the need for enhanced scaffolding, structured reflection opportunities, and tailored feedback systems. Addressing these aspects through iterative improvements can significantly augment the impact of the approach, ensuring that it equips learners with the autonomy and adaptability required in a dynamic educational landscape.

Furthermore, the integration of adaptive digital technologies holds promise for personalizing learning experiences, providing real-time support, and scaling the framework across diverse educational contexts. Such innovations can amplify the benefits of the SuperRED approach, making it a cornerstone for fostering resilience and equity in education.

In conclusion, the SuperRED approach seems to be a forward-looking model for modern education, offering practical solutions to the challenges of fostering SRL in digital and hybrid environments. By continuing to refine and expand its applications, educators and researchers can contribute to creating more inclusive, sustainable, and effective learning experiences for all students.

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# Teacher education and motivation culture

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## Abstract

Initial training processes can foster the paradigmatic transformation of the novices' imagery of teaching, with the overcoming of the idea of the teacher as a mere devotee of a discipline. This training season can help to develop an awareness of the fact that school learning is not an exclusively intellectual phenomenon: it cannot be understood by ignoring the affective-motivational dimensions and not considering the person as a whole. Among the professional referentials of teaching action must necessarily be the ability to establish appropriate relationship systems with pupils and the ability to promote their motivation and participation, ensuring the gradual progression of meaningful learning.

**Keywords:** motivation; teacher education; knowledge; affectivity; educational relationship.

# 1. The contemporary school and motivation to learn

The relationship between school motivation and teacher training is a key issue for education systems in the near future. Indeed, many social analysts point to the growing disaffection of young people (at least in Western countries) towards the school practices inherited from the 20th century, and the growing fatigue of the adult world in taking on the task of helping those born in the new millennium to discover for themselves why it is worthwhile to embark on the path of knowledge proposed by educational institutions.

> «Teachers are perfectly aware of this; in fact, only those who have direct experience with the school world know that the main topic discussed in class councils, in planning meetings, in informal discussions, in contacts with parents, is the motivation to learn. Pupils who are strongly interested, eager to learn and guided by a lively personal curiosity for things in the classroom are rare; on the other hand, students who show a marked lack of interest in the teaching-learning processes, apathetic pupils, with little desire to do, physically present in the classroom but mentally absent, are on the increase» (D'Alonzo, 2017, p. 5).

Such considerations invite us to point out a paradox and a profound educational emergency: in the so-called 'knowledge society' (characterised by an enormous availability of knowledge and by an unprecedented ease of access to it) there is often a widespread poverty of school life and a profound reduction of its dimensions of meaning, with inevitable repercussions on the experiences and performances of the younger generations (Tempesta, 2008). Growing problems mark the everyday life of many pupils (disaffection, failure, mechanicism, uncriticalness) but also of many teachers (fatalistic and minimalist attitudes, tendency to burn out, anxious search for stratagems to promote gratification and results in disciplinary learning and transversal educations).

It is, of course, a complex, multifactorial and 'patchy' phenomenon, rooted in the broader socio-cultural context and the transactions that characterise it. But this evident 'school sickness' (Imarisio, 2007), in addition to reasons of a general nature, has reasons that directly concern the school institution (its overall didactic-educational approach, the dynamics and experiences that characterise it), and among these some concern even more specifically the motivational dimension (on which we will focus in these pages): an entitative and non-incremental conception of motivation (as a factor fatalistically present or absent in the growing subject, and therefore not educable); the conviction, tacit and implicit but widespread, that the care of motivation is the responsibility of the student and his family, but not of the teacher (already too busy with the onerous task of 'informing' in an exhaustive manner about the discipline to deal with similar 'formative' issues); the widespread recourse to extrinsic motivation or messianic faith in teaching techniques and technological tools that can solve the problem, without the full and conscious participation of those personally involved.

If we want to address these issues by trying to identify the fundamental educational problems and the strategic lines of an effective training proposal, it becomes decisive, in our opinion, to resemantise the pedagogical issue of school motivation by making a double emphasis: the centrality of the culture of the educational relationship and of school motivation in the multiform professionalism of the contemporary teacher (with the consequent need for a conscious and instrumental training in this sense in the Teacher Education paths, both initial and in-service); the centrality of the work on intrinsic motivation for school knowledge (with the consequent need to avoid rhetorical or moralistic approaches, in favour of paths based on epistemic curiosity and on the subject's need for growth in its relationship with the world) (Leyva-Rodríguez, 2022; Reeve, 2022).

Only a generation of teachers who are not afraid to challenge themselves even on these issues (which inevitably call into question the educational and social responsibility of the teacher and his constant work on his own motivation, before that of his pupils) can hope to show the youngest the beauty and fascination of cognitive work, combating the tendencies towards depersonalisation and gregariousness that are not lacking in the generalised daze of the communication society.

In this sense, the (terminological, logical and phenomenological) opposite of distracted is not attentive, but attracted, because the fundamental dynamic of human experience (rather than in the effort of will to dutifully respond to incomprehensible social obligations) consists in following the trace of the recoil that the richness of reality inevitably arouses, triggering cognitive and affective energy.

We need to be aware that the school is in the midst of a delicate and uncertain transition process. After the season of the elite school and that of the mass school, a courageous rethinking of the meaning and dynamics of schooling appears necessary (integrating top down reform processes and bottom up evolutionary processes): schools today are called upon, first and foremost, to fully embrace the educational needs of each student, to allow personal access to cultural experience, to snatch from passivity, mobilise talents, put into action (rather than simply provide basic literacy and content).

## 2. The professional teacher facing the complexity of knowledge

Like a prism with many faces, the identity of the professional teacher is rich, plural and multifaceted (Cochran-Smith et al., 2008; Tempesta, 2016), and there is now an awareness that it results from the combination and integration of multiple dimensions (Baldacci, 2013; Vinatier, Altet, 2008): cultural, educational and socio-relational, psycho-pedagogical, methodological and didactic, practical-reflexive, organisational. The teaching professionalism can be effectively represented by the model of the hologramatic hexagon (Margiotta, 2006), along whose perimeter are placed the figures of the expert in a domain of knowledge, the technical expert, the social actor, the creative craftsman, the reflective professional. In an architectural function, to connect the whole network of interdependencies that in teaching practice are realised between these dimensions (thus avoiding conceiving them as competences that simply accumulate), the function of the teacher as educational leader arises.

Among the professional referentials of teaching action, understood as descriptors of the teaching profession, there is certainly the ability to establish appropriate systems of relations with pupils (and with families and colleagues) and the ability to promote pupil motivation and participation, ensuring the gradual progression of meaningful learning.

Initial training processes can be the place where the paradigmatic transformation of the novices' imagery of teaching takes place, with the consequent overcoming of the idea of the teacher as a mere devotee of a discipline. It is necessary, therefore, to use this formative season to develop an awareness of the fact that school learning and study are not exclusively intellectual phenomena: one cannot understand them, therefore, by ignoring the affective-motivational dimensions and not considering the person as a whole.

The *affectus*, understood as the inevitable backlash that reality arouses in the subject, is at the origin of the cognitive process of the *intellectus* and accompanies it throughout its development: consequently, affective education is an integral part of knowledge education. A very special place within it is given to understanding demotivation in terms of the anaffectivity of scholastic experiences/non-significance of learning and the work of promoting motivation, a very critical aspect (as we have seen) of study processes today. The fundamental support point for addressing the affective-motivational issues of school knowledge appears to be an educational-didactic relationship capable of building a bridge between knowledge and interest.

Recent pedagogical literature has given ample space to the topic of affective education in schools, especially in relation to the problematic nature of young people's emotional behaviour in the context of a complex and globalised society (Ianes, 2007; Meyor, 2007). It is, however, generally juxtaposed (when not opposed) to school education, increasing uncertainty around the mission of educational institutions and the contradictory nature of social demands on schools. Investigations into the intertwining of affectivity and knowledge within school learning processes are less frequent (Baldacci, 2008; Petracchi, 1993): it appears, therefore, of great interest to analyse school dynamics in order to grasp descriptively and proactively the link (still insufficiently highlighted) between affectivity and learning, emotions and knowledge, passion and reason, motivation and study; to examine the theories of emotions in a pedagogical perspective, the intrinsic relationship between affective adhesion and knowledge, the problems of anaffectivity and demotivation in contemporary school experiences, the aims and methodologies of an affective education oriented towards the promotion of the learning experience (Tempesta, 2008).

Contrary to what a certain neo-enlightenment claims, it is not possible to know anything without an affective involvement with what is known, and intelligence, if it does not want to be reduced to a mere impersonal recording of data without tractive force, is always an affective intelligence.

The subject of motivation and its place in knowledge education is of particular importance in this respect. There is, between motivation and learning, a delicate and complex circular relationship: in order to learn and study, one must be motivated to do so and, on the other hand, effective learning and study have a motivating feedback on the subject, which drives one towards application by enhancing self-esteem, a sense of self-efficacy and gratification. This acknowledged centrality of motivation in learning processes and in educational interventions designed to promote them does not prevent the management of the motivational dimension in training contexts from often appearing characterised by misunderstandings and inadequate or even counterproductive solicitations.

Such can be considered approaches that interpret motivation in an innatistic or voluntaristic sense, those that idealise school learning and study, those that invite knowledge by relying on more or less overt forms of emotional blackmail, pride or competitiveness, avoidance of social reprobation or conformity to ideals/objectives shared by the prevailing public opinion.

All these types of motivation, which we can summarise as extrinsic, appear partial: they are not entirely ineffective, but their effectiveness is not deep and lasting. Taken together, they constitute a kind of 'short route' of motivation to knowledge, but on closer inspection they prove to have short breath and a limited and superficial mobilising capacity. One must realistically take them into account, and indeed try not to exclude them from motivation support interventions: if properly targeted, they can manifest a relative value.


## 3. Training teachers in the motivational dimension

The horizon of a teacher education adequate to the contemporary educational challenge is certainly that of a generative teaching, which has in the educational relationship its archimedean point. There is, in fact, a profound connection between the quality of the educative-didactic relationship and the quality of knowledge. Knowledge is, in fact, eminently a matter of education. It flourishes within a relationship that introduces one to the world, in which a process of intentional promotion takes place that is capable of arousing: meaningful and collaborative educational-didactic interactions; clear and intrinsic motivations; the exercise of a rationality open to reality and experience; the development of methodological skills of a strategic and metacognitive type.

Training courses, using both the resources of pedagogical research and those of educational practice, can be an opportunity for novice teachers to delve into the nature, role, dynamics and promotional strategies of school motivation. It concerns the reasons and experiences we propose to the younger generations when we invite them to engage their energy in the cognitive task ('why study?', in general and with reference to the individual discipline).

A reorientation is needed, starting with young teachers, to innovate a school still too dominated by demands for exhaustiveness (the primacy of the object) but inattentive to learning needs (the agentivity of the subject).

Scientific study and professional practice, therefore, as an opportunity to discover the intrinsic motivation of school learning: a chance to satisfy epistemic curiosity (Berlyne, 1971), a chance to discover reality and to enhance experience (Dewey, 1949), a place for building competence, autonomy, personal leadership, self-efficacy (Harter, 1978; Bandura, 1996).

Studying the construct of motivation can help to grasp the centrality of the motivational dimension for the well-being of learners and their educational success (Weiner, 2010). Motivation is the 'fuel' of all human activity: it implies the experience of a need, the representation of a goal and the anticipation of a series of connecting paths (Nuttin, 1983). From this perspective, it may be useful to analyse situational models, person-centred models and interactionist models; motivation as a state and motivation as a trait, and thus the whole of the conative process (which includes the motivational aspect in the strict sense and the volitional aspect, the initiation of the cognitive process and the ability to persist in commitment); the distinction, still relevant today, between extrinsic and intrinsic motivation and the more recent view of a continuum of motivation (Deci, Ryan, 1985), which extends from complete de-motivation to full motivational self-regulation, presenting all the intermediate stages.

Working in situations to promote motivation for school knowledge can help to realise its concrete educability, to overcome fatalistic or voluntaristic interpretations, to move from a static to a dynamic

vision, to discover the value of teachers' action in this field: in short, to verify in practice how the ability to support the development of intrinsic, drawing and lasting motivation is a constitutive part of the multifaceted professionalism of the contemporary teacher.

In this perspective, it may be useful to be aware of the intervention proposals developed in recent years by educational research and the relevant experiences made: motivational projects focusing on needs, reinforcements, cognitive control, interests, study methods, the use of teaching strategies and new technologies, relational aspects and the classroom climate, and dimensions peculiar to individual disciplines (Ricchiardi, 2005).

To summarise, we can say that the concrete realisation of motivational virtualities is significantly linked to an intentional action carried out by teachers through cognitive, affective-relational and methodological interventions: these correspond to the main factors of motivation that scientific investigation proposes to us, warning us to always consider them inextricably and dynamically connected.

In the first place, interventions concerning the cognitive area should be considered: special attention should be paid to a didactic approach aiming at focusing and developing interest (starting from spontaneous interests and then attempting a 'shift' towards discovered and acquired interests, increasing their range and horizon), without being excessively determined, at least in the initial phase, by concerns related to the necessary professional duties (completeness and 'internal' exhaustiveness of the didactic proposal, adequacy to pre-established quantitative and qualitative standards, and so on). It should be borne in mind that motivation, with reference to school learning, has progressive levels of concretisation: motivation to knowledge is one thing, active readiness to participate in school life and to learn through study is another, and the tension to study a specific subject, at a precise moment, in a particular context is another. Motivation for knowledge cannot be extrapolated from the student's overall experience, and must reckon with the co-presence of a myriad of conflicting motivational drives: the ability to mobilise interest, that is the attraction that the subject feels with respect to a specific object, therefore becomes decisive.

This practically translates into an attempt to foster the increase of intrinsic motivation (to know, to understand, to enrich one's cultural background, to explore reality), through a didactics that focuses on significant themes, attentive to differentiation and open to the possibility of deepening particular topics. It appears important to constantly keep alive the credible indication of the reasons for knowledge, but also the suggestion of suitable learning steps: a motivating action is carried out by the teacher who, together with each pupil, establishes short-term individualised objectives (goal setting) on which to conduct a formative assessment, proposes activities and assigns tasks of proportionate difficulty, supports the identification of personal cognitive styles, of the strategies most appropriate to the task and to the subject's own learning methods.

Here we can see the link with the second area involved in the intervention on motivation to scholastic knowledge, the methodological one: the focus should be aimed at progressively handing over to the subject the mastery of his/her own learning and study process, providing precise indications on the positive aspects to be strengthened and on the deficient ones to be integrated, on the mistakes made and on the paths to be followed to remedy them. As for knowledge, also for competence there are intrinsic motivations that the teacher is called upon to help discover: to become capable, skilled, experts in knowing how to perform certain operations and in mastering disciplines, aspects of reality, subjects, practices.

Progressive mastery of the study processes tends to reduce motivational fickleness, to increase continuous and permanent motivation to learn, to cultivate it by responsibly internalising the needs it entails. Attention to the methodological dimension develops motivation because it accentuates internal causal attribution and expectations of success, enhancing self-determination and self-awareness as the protagonist of one's own study: a subject gradually capable of autonomously choosing the ends and means of learning, of managing difficulties and failures, of self-evaluating one's own study, of growing by opening up to experience, of looking at oneself with an attitude of positivity.

This brings into play the third dimension of motivation that educational intervention must seek to promote: the affective-relational one. This intention is realised within a 'school-community' marked by a positive and committed classroom climate, attentive to people and collaborative. Teachers are called upon to seek out a type of relationship with pupils that fosters the development of self-esteem and a sense of self-efficacy: this happens when the relationship is capable of authentic acceptance and enhancement

of individual characteristics, personal history, talents and difficulties, and at the same time is capable of proper authority.

Within a relationship of this kind, other motivational dimensions find fertile ground than those that drive towards knowledge and competence: we could call them existential, because they concern the need to be recognised and valued, and at the same time to grow, to realise one's own life project in interaction with the educational and cultural proposal of the school.

The effective teacher boosts motivation by supporting the level of aspiration and stimulating its gradual elevation: he, in cooperation with the family, positively intervenes in the constitution of the ideal self, manifesting a positive openness to the pupil's chances of success and providing concrete suggestions on how to reach the goals (Robinson, 2022).

Very relevant, for the promotion of motivation, is the ability to manage error, a phenomenon that not only triggers cognitive dynamics, but also affective ones, with considerable consequences on self-esteem: the fear and reiteration of failure tend to generate fear of disapproval and avoidance strategies, which block the dynamics of knowledge.

Decisive, finally, is the student's clear perception of the adult's own motivation: one does not educate so much by what one says but eminently by what one is, which is why only those who are adequately motivated, or rather those who do not stop searching for food to nourish their motivation, can effectively motivate to the cognitive and educational adventure.

The work on learner motivation therefore, like a sort of boomerang, inexorably sheds light on the quality of teachers' educational-professional motivation (or its degeneration) and the need to continually cultivate and reawaken it in the course of the life cycles and different seasons that characterise professional life. In this perspective, the teacher as a motivated motivator, constantly committed to developing his professionalism and still curious with respect to the questions he tries to arouse in his pupils, appears to be the main factor in promoting a quality school, capable of launching the young generations of the liquid, plural and hyper-technological society of the third millennium into the adventure of knowledge.

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# Comparative Analysis of Inclusive Education Practices in Italy and Bulgaria: Reflections from the Erasmus Plus ASuMIE Project

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## Abstract

School systems in the European territory, while sharing guidelines and based on ideological, practical, and methodological beliefs found in the main European documents on inclusion, maintain traits and procedures in line with the singularities of different territories both from a cultural and welfare systems point of view. Trying to compare historically, culturally, and politically different territories is not only complex but in some ways it might be fruitless. This paper does not aim to create a ranking of the most inclusive country but wants to share reflections and similarities between good inclusive practices in Italy and Bulgaria. The analysis, qualitative and quantitative, is the result of an extrapolation of data on the two countries, collected within the Erasmus Plus ASuMIE (Additional Support and Mediated Learning in Inclusive Education) project through a questionnaire. In this specific analysis, 100 questionnaires per country were collected and analyzed.
ASuMIE is part of a larger European Union project aimed at keeping the focus on inclusive education in and out of school that involved 7 partner countries: Belgium, Bulgaria, Czech Republic, Italy, Norway, Slovenia, and Portugal. The data and reflections in this paper will be linked to a comparison only between Italy and Bulgaria for the homogeneity of the data and the significance of the reflections that emerged in comparing the responses of the two countries. The questionnaire interrogates the key-players in inclusive processes (schools, principals, families, practitioners, and rehabilitation therapists) about what really works in Inclusive Education (approaches, methodologies) and, at the same time, tries to trace emerging needs, and areas on which there is still room for improvement, and which turns out to be an emergency to work on. The intentions behind these analyses and reflections are the Well-being and Quality of Life of SEN students, their families, teachers, and therapists. Inclusion is never an individual project; inclusion is always a team effort that affects everyone, no one excluded.

**Keywords:** inclusive education; equity; best practices.

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# 1. Introduction

Inclusive education is a global movement aimed at providing equitable learning opportunities for all students, regardless of their background, learning needs, or abilities (Unesco, 2020). Over the last few decades, there has been a significant shift from exclusionary practices to more inclusive approaches in schools across Europe and beyond. This movement is underpinned by international policies and conventions, such as the United Nations Convention on the Rights of Persons with Disabilities (CRPD), which underscores the importance of inclusive education for all children and emphasizes the need for accessible and flexible educational environments.

Despite the shared framework of principles, European countries implement inclusive education in diverse ways, influenced by their unique historical, social, political, and cultural contexts (Simón & Medina, 2019). Countries like Italy and Bulgaria, for instance, while both aligned with broader European Union (EU) objectives on disability rights and inclusive education, have evolved different educational practices. This paper seeks to explore these differences, focusing on the similarities and contrasting elements that define the inclusive education systems in Italy and Bulgaria.

The research is primarily based on data collected through the Erasmus Plus ASuMIE (Additional Support and Mediated Learning in Inclusive Education) project. This project aimed to investigate the key players in inclusive education, including schools, families, professionals, and rehabilitation therapists, to understand what practices are most effective in fostering inclusion and where further improvements are needed (Cairo, Carruba, 2023). The ASuMIE questionnaire, administered to educational stakeholders in both Italy and Bulgaria, serves as the primary data source for this comparative analysis.

# 2. Pedagogy and special education: the evolution of inclusive practices

To better understand the current state of inclusive education in Italy and Bulgaria, it is important to review the historical evolution of special education and its shift toward inclusive practices. Traditionally, children with disabilities were segregated from mainstream education, either through specialized institutions or separate educational settings within schools. The predominant educational approach was rooted in the medical model of disability, which viewed disability as a deficit or abnormality that needed to be "cured" or "treated."

The shift toward inclusive education, however, can be traced back to the mid-20th century, when global movements for human rights and social justice began to influence educational policies. This shift was solidified with the adoption of the social model of disability, which argued that it is not the disability itself but rather societal barriers—physical, attitudinal, and structural—that prevent individuals from fully participating in society. This framework advocates for an educational system that removes these barriers, ensuring that students with disabilities can participate in the same classroom settings as their peers.

Inclusive education, therefore, is not merely about the physical presence of students with disabilities in mainstream schools; it involves creating a supportive environment where these students can learn alongside their peers, participate in activities, and achieve academic and social success. Teachers and practitioners play a pivotal role in shaping inclusive practices, through differentiated teaching methods, collaborative planning, and ongoing professional development.

In European countries like Italy and Bulgaria, the implementation of inclusive education has been influenced by both international policies and national legislation. The Salamanca Statement (1994) and the subsequent EU Disability Strategy have provided the blueprint for inclusive education in Europe, while national laws and regulations have guided the practical application of these principles.

### 2.1. Italy's Approach to Inclusive Education

Italy has demonstrated a long-standing commitment to inclusive education, with Law 517/1977 representing a pivotal turning point in the country's educational landscape. This legislation mandated the integration of students with disabilities into mainstream schools and resulted in the abolition of *differential classes*—separate sections within schools designated for students with disabilities.

Importantly, however, the law did not explicitly ban the existence of special schools, and a small number of such institutions continue to operate in Italy today. Nonetheless, Law 517/1977 marked a paradigm shift from segregated to inclusive educational practices, laying the foundation for a rights-based, equity-oriented approach aligned with the emerging social model of disability (Oliver, 1990).

In the decades following its enactment, Italy has progressively developed a comprehensive support framework for students with special educational needs (SEN). Central to this system is the integration of *docenti di sostegno* (special education support teachers), rehabilitation professionals, and various assistive technologies within general education settings. A defining feature of the Italian model is its collaborative ethos: mainstream teachers, support teachers, and external specialists engage in joint planning and implementation of individualized education plans (IEPs), which are tailored to the specific needs and goals of each student.

Despite these advances, several persistent challenges continue to affect the consistency and equity of inclusive practices. Chief among these is the disparity between urban and rural school contexts. While schools in urban areas typically have better access to specialized personnel and support services, those in rural or underserved regions often face significant limitations in terms of human, financial, and infrastructural resources. These regional imbalances are well-documented in the literature (e.g., Ianes et al., 2020) and raise concerns about the universality of inclusive opportunities. Furthermore, there remains a pressing need to enhance both pre-service and in-service teacher education, ensuring that all educators are equipped with the pedagogical and relational competencies required to manage the complexities of diverse, inclusive classrooms.

### *2.2. Bulgaria's Journey Towards Inclusive Education*

In contrast, Bulgaria's journey toward inclusive education has been more recent. The country's transition from a communist regime to a democratic society in the early 1990s led to significant educational reforms, including efforts to integrate children with disabilities into regular classrooms. These reforms were driven, in part, by Bulgaria's desire to align with EU standards and by the pressure from international organizations to adopt inclusive educational practices.

Despite this progress, Bulgaria still faces significant challenges in fully implementing inclusive education. One of the major hurdles is the lack of trained teachers and professionals who can effectively support students with special needs. Additionally, there are deep-rooted cultural attitudes toward disability, which can sometimes hinder the acceptance of inclusive practices in schools and communities. Bulgaria's educational system has also been criticized for its reliance on external support services rather than embedding inclusion directly within mainstream classrooms.

Nevertheless, there are signs of progress. In recent years, Bulgaria has focused on improving teacher training and increasing access to specialized resources for students with disabilities. Urban areas, in particular, have seen improvements in inclusive practices, with some schools developing models of good practice that could serve as examples for other regions.

## 3. Methodology: the asumie project

The ASuMIE project, which forms the empirical foundation of this comparative analysis, was developed within a transnational partnership involving seven European countries: Belgium, Bulgaria, Czech Republic, Italy, Norway, Slovenia, and Portugal. The project was conceived to investigate the current landscape of inclusive education across diverse contexts, with the dual aim of identifying best practices and uncovering systemic challenges and emerging needs. A core feature of the project was its participatory approach: data were gathered from key stakeholders—teachers, school leaders, families, and rehabilitation professionals—whose direct experiences and perceptions provide crucial insight into the realities of inclusion.

To ensure comparability while respecting contextual differences, a shared questionnaire was developed collaboratively by the partner countries. The instrument reflects a negotiated balance between the diverse educational frameworks, terminologies, and inclusion models represented across the consortium. It was informed by an extensive bibliographic review conducted in each

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country and represents an effort to build a common evaluative tool, despite structural and cultural differences.

In this pilot study, the questionnaire was administered to 100 participants in both Italy and Bulgaria. It explored areas such as the implementation of inclusive practices, the availability and perceived adequacy of support systems, interprofessional collaboration, and teacher training needs. The data collected were analyzed using both quantitative methods and qualitative thematic analysis, enabling a nuanced interpretation of the contrasts and convergences between the two national contexts.

### 3.1. Key Findings from the Questionnaires

The analysis of questionnaire responses yielded several important insights into the inclusive education systems in both Italy and Bulgaria. Respondents in both countries expressed strong support for inclusive education, highlighting a widespread commitment to its values among educators and practitioners. However, notable differences emerged in how inclusion is enacted and supported on the ground.

In Italy, inclusive practices are primarily characterized by the implementation of individualized education plans (IEPs), the use of specialized teaching staff, and robust collaboration between general and special education teachers. Most Italian respondents reported feeling well-supported in their inclusion efforts, although many also emphasized the ongoing need for professional development in differentiated instruction and inclusive pedagogy.

In Bulgaria, inclusion tends to be managed through a more centralized and institutionalized framework. While schools often rely on external support services—such as special education teachers and rehabilitation therapists—less emphasis is placed on in-class differentiation and individualized support. Bulgarian respondents consistently noted a lack of adequate training opportunities and classroom resources to meet the needs of students with SEN.

It is important to highlight that the questionnaire used in this study was the result of a collaborative process that sought to balance the varied positions, terminologies, and tools employed by the seven partner countries involved in the ASuMIE project. This tool was developed through negotiated consensus and grounded in a comparative bibliographic review of inclusive education in different national contexts. As such, this is a pilot study with an exploratory intent: not to rank or judge which system is "more inclusive," but to construct a shared evidentiary base and to recognize divergence as a product of differing cultural, legal, environmental, and institutional contexts. These differences are not obstacles but resources—elements of poikilia, or productive diversity—from which to extract and circulate good practices adaptable across systems.

## 4. Comparative analysis: Italy and Bulgaria

Both Italy and Bulgaria have made significant strides in the field of inclusive education, yet their systems reflect distinct historical, social, and political influences. Italy's approach to inclusion can be traced back to the late 1970s, with the passage of Law 517/1977, which mandated the integration of students with disabilities into regular schools. This law was revolutionary at the time and set the stage for a more inclusive educational system in Italy. Over the years, Italy has developed a robust network of support services, including specialized teachers, rehabilitation professionals, and a range of assistive technologies, to support students with SEN in mainstream classrooms.

Bulgaria, on the other hand, has a more recent history of inclusion. Following the collapse of the communist regime in 1989, Bulgaria began transitioning to a more inclusive model of education, influenced by EU accession requirements and international conventions on disability rights. The Bulgarian education system has faced significant challenges, including a lack of trained personnel, inadequate resources, and deep-rooted cultural attitudes toward disability. Despite these obstacles, Bulgaria has made progress in implementing inclusive practices, particularly in urban areas, and has been working to align its policies with European standards.

The ASuMIE project provided valuable data on the inclusive education practices in both countries. The analysis of 100 questionnaires per country revealed several key themes related to the strengths and challenges of inclusive education in Italy and Bulgaria. Both countries reported high levels of support

for inclusive education among teachers and practitioners, but differences emerged in how this support was implemented and in the resources available.

In Italy, there was a strong emphasis on individualized support for students with SEN, with many schools employing specialized staff and using tailored teaching methods. However, challenges were reported in ensuring consistent implementation across all regions, particularly in rural areas where resources were more limited. In Bulgaria, there was a greater reliance on external support services and a more hierarchical approach to inclusion, where decisions were often made at the institutional level rather than by individual educators. This approach was seen as both a strength and a limitation, as it provided centralized oversight but sometimes lacked flexibility.

## 5. Conclusion

The comparative analysis of inclusive education in Italy and Bulgaria demonstrates that both countries have taken important steps to promote equitable and participatory learning environments. However, persistent challenges—particularly in professional development, resource allocation, and stakeholder engagement—highlight the complexity of translating inclusive principles into consistent practice. These challenges are not solely pedagogical, but reflect deeper structural, cultural, and legislative dynamics unique to each national context.

In Italy, inclusive education has a well-established foundation, thanks in part to long-standing legislation and institutional practices that emphasize individualized support and collaborative teaching. The integration of *docenti di sostegno*, the widespread use of individualized education plans (IEPs), and shared responsibility among educators reflect a robust commitment to inclusion. Yet, this commitment is not always matched by uniform implementation. Regional disparities—especially between urban centers and peripheral or rural areas—continue to affect the availability of specialized staff and support services. Additionally, while the infrastructure for inclusion is in place, there remains a pressing need to strengthen both initial teacher education and ongoing professional development for general education teachers, ensuring they are fully prepared to work in diverse classrooms.

Bulgaria, by contrast, has followed a more recent and centralized path toward inclusion, shaped by post-communist reforms and EU accession. Although policies now reflect international standards, inclusive practices within schools are still evolving. A strong reliance on external services and top-down decision-making structures often limits the autonomy and capacity of individual schools to respond adaptively to learners' needs. Teachers report insufficient access to training and limited resources for inclusive instruction, while traditional attitudes toward disability continue to influence school culture. Fostering a more embedded and culturally sensitive approach to inclusion requires systemic investment not only in infrastructure but also in shifting mindsets—through education, awareness campaigns, and inclusive leadership.

Ultimately, inclusive education is not just about academic outcomes for students with disabilities; it is about constructing school environments where every learner feels recognized, supported, and valued. Realizing this vision demands coordinated efforts across sectors and levels—linking teachers, families, school leaders, communities, and policymakers in a shared commitment to inclusion. Rather than seeking a uniform model, this comparative study embraces poikilia—the diversity of national experiences—as a generative force for identifying context-sensitive practices and mutual learning. Inclusion, in this view, is an evolving and relational process, grounded in collaboration and driven by the pursuit of educational justice.

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*Teacher Education as a Game Changer:*
*Non-Traditional Factors of Inequality and the Role of Teachers in*
*Achieving Equity*

# Teacher Education as a Game Changer: Non-Traditional Factors of Inequality and the Role of Teachers in Achieving Equity

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## Abstract

This paper contributes to the discourse on social justice and equity in education by introducing the category of "non-traditional factors of inequality" to analyse how school systems generate disparities among students. A qualitative study conducted in the Italian context explores teachers' roles in ensuring an equitable and quality education, highlighting the potential of teacher education. The findings may benefit school systems facing similar challenges.

**Keywords:** equity; non-traditional factors of inequality; teacher education; middle leadership; Italy.

# 1. Introduction

The need to ensure an equitable and quality education for all is internationally recognised (OECD, 2023; UN, 2015): promoting accountable, inclusive and democratic school systems is both an ethical imperative and a political challenge. Nevertheless, inequalities still strongly affect students' paths (OECD, 2024): education does not compensate for disparities at the starting gate, but rather creates new ones, failing significantly in efficiency and effectiveness.

The issue is central to political and academic debates and calls for an interdisciplinary approach (Bradshaw, 2021); it also represents an epistemological endeavour (Newman, 2020), aimed at developing interpretive frameworks to better understand the dynamics that hinder students' educational trajectories and obstruct the pursuit of a more equitable society.

An important aspect concerns teacher education (Kaur, 2012). It can develop visions and ideals of future teachers regarding the meaning of their profession and spread a culture of equity, supporting their engagement as agents of change in the classroom and as middle leaders (Lipscombe et al., 2023).

This paper investigates the relationship between teacher education and equity by introducing the category of non-traditional factors of inequality, aimed at capturing how schools and education systems actively produce disparities. The Italian case, characterised by entrenched socio-economic, cultural and territorial asymmetries, as well as structural injustices embedded in school culture and organisation, offers a critical lens to explore how institutional and governance dynamics shape equity. While the framework is transferable across systems, the findings are especially pertinent to contexts marked by decentralisation, social reproduction and uneven school autonomy.

# 2. Theoretical Framework

## 2.1 Social Justice and Equity in Education

Education is crucial to achieve greater social justice (Bell, 2007; Gewirtz, 2006). It is an ideal that has never been fully realised (Bauman & Tester, 2001) and requires continuous efforts to include everyone in democratic processes and support self-determination despite the interdependence that binds people (Buettner-Schmidt & Lobo, 2012). Access to knowledge and critical skills is vital for becoming actors in History and fighting against injustice (Hackman, 2005). Thus, equity should serve as a guiding principle for educational practice in order to understand the school as a great equaliser (Bernardi & Ballarino, 2016) and to improve individuals' life paths (Ainscow, 2020).

In developing a theoretical-practical definition of equity that is consistent with the ideal of social justice, the concepts of equality of opportunities, capabilities and social inclusion seem appropriate to guide educational theory and practice towards valuing people, to question school contexts, to better align them with students' educational needs and to overcome counterproductive models based on standards and homogeneity (Ferrero, 2023). It is necessary to guarantee an excellent education for all, aimed at acquiring the skills to exercise citizenship in terms of active participation in political, social, cultural and economic life at the local and global level: diversity must not turn into inequality, but pluralism must be lived as a daily experience and as an opportunity to enhance people's strengths (Espinoza, 2007; Unterhalter, 2009).

## 2.2 Educational Inequalities: The Category of "Non-Traditional Factors of Inequality"

The persistence of inequality within education systems remains a significant obstacle to achieving equity. Children frequently replicate their parents' educational and occupational paths, reflecting entrenched patterns of social reproduction (Farid, 2024). Family socio-economic and cultural capital continues to play a critical role in shaping disparities in access to learning opportunities and academic achievement. However, focusing solely on students' backgrounds risks ignoring the systemic contribution of schools themselves to these inequalities. Educational institutions may inadvertently or structurally reinforce and produce injustice. Rather than mitigating disadvantage, schools often exacerbate it over time, further eroding the foundational promise of equitable and quality education

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for all (Mayabi, 2015; Thompson, 2019). From this perspective, the anthropology of education has long underscored how school culture, organisational structures and bureaucratic routines can act as powerful exclusionary forces (Engels et al., 2008).

The category of non-traditional factors of inequality, first introduced by Ferrer-Esteban (2011) and further expanded by subsequent studies (Ferrero, 2024; Mincu, 2025), provides a compelling lens to understand how disparities are actively generated within school systems. Rather than attributing inequality solely to students' backgrounds, this framework shifts attention to the internal dynamics of schools. It highlights three interrelated levels at which inequality takes shape, i.e., everyday pedagogical practices (micro-level), organisational and leadership structures (meso-level) and national education policies (macro-level). As shown in Figure 1, decisions regarding curriculum, resource distribution, institutional routines and leadership, often perceived as neutral or procedural, can exacerbate disparities and entrench stratification within them, sustaining cycles of advantage and disadvantage that typically go unexamined.
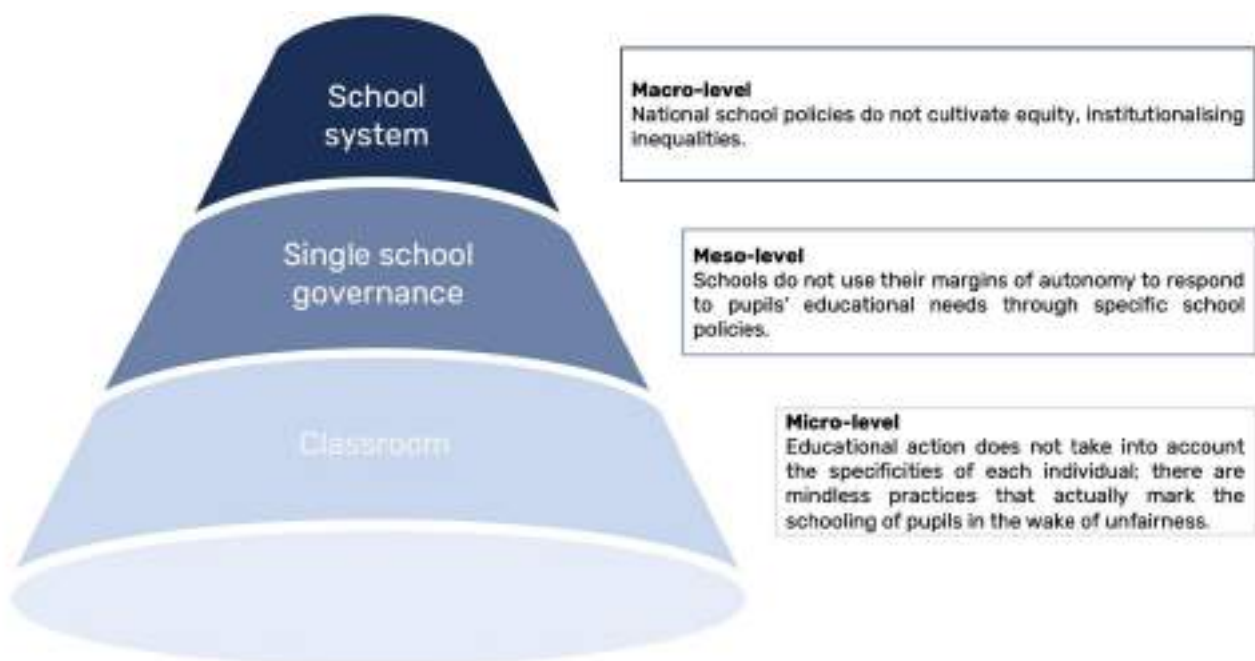


*Figure 1: Non-Traditional Factors of Inequality*

### 2.3 The Role of Teachers and Teacher Education for Equity

Teacher education plays a crucial role in raising awareness of the dynamics of inequality in school systems and in promoting pedagogical practices that counteract it (Cochran-Smith et al., 2016; Verma, 2021). Offering specific training enables teachers to recognise and address non-traditional factors of inequality by developing self-reflexivity (Dervin, 2023). Furthermore, it is crucial to support the construction of a habitus that is open to diversity, enabling teachers to engage in equity-driven practices by valuing pluralism over uniformity (Craft, 2011). Ultimately, teacher education is an essential condition for building a school system that recognises, challenges and transforms structural forms of injustice.

Teacher education should directly influence school governance (Saleh & Khine, 2009): teachers can help shape policies that promote equity by addressing students' real needs. As middle leaders (De Nobile, 2018; Grootenboer et al., 2019), they can transform school culture and tackle organisational inequalities (Lynch, 2021). It requires a professional attitude to critically analyse institutional dynamics and act as a bridge between administration and the school community, framing their role in a politically impactful way (Stone & Stone, 2024).

### 2.4 The Italian School System: An Overview

The legal framework of the Italian school system aligns with principles of equity and social justice (Cartabia & Lupo, 2022), reaffirmed by policies promoting inclusive education and equal opportunities. Nevertheless, deep-rooted inequalities persist (OECD, 2024). These disparities stem from students' backgrounds and internal school mechanisms: they often stem from non-traditional factors that vary across contexts and require targeted responses (Guarini et al., 2018). Moreover, the persistent influence of social reproduction dynamics (Pensiero et al., 2019) continues to reinforce pre-existing advantages and disadvantages, making the enactment of equity-focused policies both necessary and increasingly urgent.

School autonomy, introduced in the late 1990s and early 2000s, aimed to enhance responsiveness to local needs (Bracci, 2009). However, its implementation yielded mixed results. Many schools remain dependent on centralised procedures and struggle to use autonomy meaningfully (Grimaldi & Serpieri, 2014). Italy reflects the Southern European governance model (Ferrera, 1996; Landri, 2021), characterised by a combination of strong autonomy in teaching and weak autonomy in strategic and organisational matters. This asymmetry has significant implications for equity, as it limits schools' ability to intervene effectively in response to structural disparities.

In this landscape, school leadership emerges as a potentially influential lever within governance dynamics, yet often underdeveloped. School leaders play a pivotal role in addressing these challenges: their vision and leadership are essential to align national policies with local needs and use autonomy in order to create equitable opportunities for all students (Mincu, 2022). Therefore, the relationship between autonomy, leadership and equity is neither automatic nor linear, but rather mediated by a series of institutional, cultural and political factors that shape how autonomy is understood and enacted at school level.

Inequality is not merely inherited from the social fabric but is also shaped within schools through concrete decisions and routinised practices (Ferrero, 2023). For instance, they include the criteria used for student grouping, the reliance on parental financial contributions to support school activities, or the uncritical reproduction of established norms and procedures. Such practices, even when not deliberately exclusionary, can contribute to the reproduction of educational disadvantage and reveal the complex ways in which school organisation intersects with broader processes of social stratification.

## 3. Research Design

### 3.1 Research Questions
This study addresses the following research questions:
1. what contribution do teachers make to equity and to the fight against non-traditional factors of inequality, also with regard to their role in governance?
2. what impact does teacher education have?

### 3.2 Method
A qualitative approach (Luttrell, 2010) was used and semi-structured interviews were conducted with teachers, school leaders and family representatives from K-8 schools[1]. The aim was to gather information on visions of equity and institutional commitment to its realisation, non-traditional factors of inequality and teacher education. The interviews were recorded and transcribed with the informed consent of the participants.

### 3.3 Participants
The sample includes ten participants (Figure 2), i.e., five teachers, three school leaders and two family representatives, all from K–8 schools in the Turin metropolitan area (northern Italy). Each participant came from a different school, covering varied socio-economic contexts within the Turin metropolitan area. The selection aimed to ensure variation in institutional settings and governance practices. Although the sample size limits statistical representativeness, triangulating data across roles and

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[1] In Italy, K–8 schools serve children from age 6 to 14, covering primary and lower secondary education.

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school types strengthens the reliability of the findings. Participants were recruited via an open call through institutional channels to ensure a range of perspectives.

| Teachers | T1: 3-year experienced male untenured teacher (primary school) |
| | T2: 5-year experienced female untenured teacher (primary school) |
| | T3: 8-year experienced male tenured teacher (middle school) |
| | T4: 10-year experienced female tenured teacher (kindergarten) |
| | T5: 15-year experienced female tenured teacher (primary school) |
| School Leaders | SL1: 2-year experienced male leader |
| | SL2: 5-year experienced female leader |
| | SL3: 7-year experienced male leader |
| Parents | P1: representative since 2 years |
| | P2: representative since 3 years |

*Figure 2: Coding of interviewees*

### 3.4 Data Analysis

The data collected were thematically analysed (Braun & Clarke, 2021). After becoming thoroughly acquainted with the participants' dialogic interactions, we coded them by extracting the relevant excerpts in relation to the research questions. Then, themes were constructed and defined to summarise the different codes into a central and organising concept that takes on various nuances. Participant feedback was also sought on preliminary interpretations to ensure that their perspectives were accurately represented.

### 3.5 Limitations

The limited number of participants and schools involved restricts the generalisability of the results, which should be interpreted as exploratory findings. Future research with larger and more varied samples is needed to validate the patterns observed.

## 4. Results

### 4.1 Equity as a Criterion for Classroom Action

Teachers typically view equity as a commitment within the classroom, focusing on adopting inclusive pedagogical approaches to support all students' learning. However, the principle of equity is often overshadowed by the emphasis on special educational needs. This perspective is shared by leaders and parents.

«In our school there is a great focus on equity and inclusion. Teachers use diverse methods and strive to personalise and individualise learning paths» (SL2).

«As a teacher, I design my lessons *with my students in mind*. I don't think one-size-fits-all is useful» (T1).

«Teachers are almost all careful to make their lessons inclusive. Only a few remain from the old guard» (P2).

«Equity means that everyone must learn. This is precisely why I try to adopt as many methods as possible, to better address my students' needs» (T4).

This emphasis on special educational needs suggests that broader dimensions of inequality, such as socio-economic background, school culture or systemic governance issues, are often overlooked or absorbed into narrow inclusion discourses. As a result, while teachers may perceive their practices as equitable, their interpretations tend to focus on individual support rather than questioning

structural inequities. This limited framing risks masking deeper institutional dynamics that produce or reinforce disadvantage.

### 4.2 Equity at the Governance Level

The interviewees reveal a bureaucratic view of involvement in school governance. The institutional dimension is often not linked to a commitment to equity, while teachers focus on the classroom action.

> «While some teachers actively engage as middle leaders, few fully grasp the significance of these roles. Most remain focused on classroom work, unaware of the broader impact and importance of their institutional responsibilities» (SL1).

> «I am involved in interculturalism at the institutional level. It is a heavy workload: I understand its purpose, but I would like to be less alone» (T5).

> «I don't see a real institutional commitment to equity. There is no shared vision» (P1).

> «I engage in the classroom... At the institutional level it's just bureaucracy: it's what we do on a daily basis that counts!» (T2).

> «Teachers often think of their own class. They don't feel part of the whole school» (SL3).

### 4.3 Teacher Education, Equity and Middle Leadership

Teacher education does not appear to specifically address the issue of equity, with particular reference to aspects related to governance. Conversely, a focus on middle leadership and teachers' institutional commitment would be necessary.

> «We don't talk much about governance during initial teacher education and apprenticeship... We go into the school and find out about all bureaucratic processes, in which we are involved» (T5).

> «Including more training on middle leadership is essential, especially in the context of school autonomy. Few are willing to take on leadership roles, leaving leaders to shoulder all responsibilities, so that they end up performing purely administrative tasks» (SL3).

> «There is a lack of training and mentoring in institutional aspects» (T1).

> «I wasn't trained to act as a deputy leader. I found myself there. I had to learn a lot. Including these aspects in teacher education would strengthen schools institutionally, otherwise we continue to act as we always have and make school life worse for the students» (T2).

### 4.4 Non-Traditional Factors of Inequality and School Governance

The school organisation creates inequalities between students. The institutional involvement of teachers could be useful to address this dynamic, but it proves insufficient.

> «There are classes with the same teachers for all years and others where every year there is a change... Leaders and teachers should have a broad outlook» (P2).

> «Some issues should be improved: the request for a financial contribution, the division of pupils into classes... Instead, we tend to follow established routines without much critical reflection» (T1).

These comments illustrate how institutional routines (such as classroom composition, resource allocation and time management) are rarely interrogated through an equity lens. Participants acknowledge problematic practices, yet, there is limited evidence of systemic efforts to reform them in pursuit of more just outcomes for all students.

> «We have many complaints about the management of school time. I have tried to start a discussion with the teachers' council, but no one wants to change. Thus, we have "excellence" classes and classes where there is no planning» (SL2).

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## 5. Discussion

Our exploratory study indicates that teachers tend to frame equity mainly as a classroom concern, often through inclusive strategies focused on individual needs. However, their understanding appears fragmented and mostly limited to special education. Broader systemic inequalities, related to governance, resource allocation or institutional norms, are rarely acknowledged. Thus, teachers perceive themselves as acting equitably rather than actively pursuing equity in its full systemic dimension. This tendency reveals a critical gap between pedagogical intentions and awareness of the institutional structures that sustain injustice.

Furthermore, teachers' limited engagement in school-wide decision-making processes is evident: they tend to focus exclusively on classroom teaching, without taking responsibility for institutional management. This withdrawal threatens to undermine internal school cohesion and hinder the implementation of an integrated and shared educational policy.

Teacher education is another critical issue: the professional profile of teachers includes classroom teaching as well as a political role in school governance. Current training often does not provide sufficient tools to address the institutional challenges; therefore, specific in-service teacher education is needed in order to tackle these aspects. Participatory research paths and collaborative learning could help teachers to better understand and more effectively perform their institutional role.

Finally, there are significant difficulties in implementing middle leadership in schools. Middle leaders struggle to understand this role from an educational perspective. Investing in the specific training of this figure and strengthening it is essential to improve school management, promote innovation and ensure greater school resilience.

## 6. Conclusion

Ensuring an equitable and quality education for all is an international urgency that clashes with persistent traditional and emerging inequalities: in addition to social reproduction, education systems and schools give rise to non-traditional factors of inequality arising from national educational policies, organisational choices and pedagogical practices. Our exploratory study shows that the Italian school system is affected by these dynamics and, as a result, fails to promote equity.

Teacher education could play a crucial role in spreading a culture of equity and supporting teachers' commitment not only in teaching but also at institutional level. Indeed, the importance of middle leadership is increasingly proving to be a key factor in building strong school systems and accountable schools that develop equity-oriented policies to address inequalities.

Initial teacher education should include dedicated modules on school governance, institutional functioning and middle leadership. Practical training and mentoring in these areas would prepare teachers for a more active role in shaping equitable school cultures. Furthermore, education policymakers should promote professional development initiatives focused on collaborative decision-making, equity audits and shared leadership practices that empower teachers as institutional agents of change.

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# Beyond Patriarchy:
# Teaching Profession, Gender Issues and Teacher Education in Italy

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## Abstract

This theoretical paper examines the link between patriarchal culture and the low presence of men in teaching. We examine the role of teacher education in reducing stereotypes and prejudices and in promoting creativity and equity in gender relationships. The reflections are accompanied by a focus on the Italian context.

## 1. Introduction

Gender equality and the fight against gender-based stereotypes, prejudices, inequalities and violence are international commitments (UN, 2015). Education has a central role in providing young people with the keys to understand the complexity of the problem and in promoting a problematizing attitude that goes beyond outrage as the only response: they must become aware of the millenary patriarchal culture and of all microaggressions that everyday mark gender inequality and can turn into violence (Applin et al., 2023; Capodilupo, 2010).

Teacher education plays a crucial role: it fosters awareness with respect to patriarchy as the dominant cultural substrate and the resulting gender-based bias and discrimination (Deng et al., 2023; Skelton, 2007). Furthermore, it suggests possible pedagogical approaches to counteract patriarchal culture from the earliest school years and promote gender education paths aimed at building healthy and creative relationships between people as an antidote to violence and overcoming stereotypical views. The issue also concerns the composition of teaching staff: in fact, it often consists of an overwhelming majority of women and only a few men, with a very small proportion in crèches, kindergartens and primary schools (Chaaban et al., 2024; Weaver-Hightower, 2011). This international trend has a strong impact on gender stereotypes and prejudices (Demirkol, 2022; Kollmayer et al., 2018): the idea that education and care are typically female activities and can be equated with motherhood is perpetuated. The dimension of same-gender education is missing (McGinn et al., 2019; Winters et al., 2013): the lack of men in schools has negative consequences on children's growth paths and their protagonism for cultural and social change.

This paper explores the central role of teacher education in promoting awareness of the social and cultural effects of gender variable; it offers some insights into the Italian context. Our reflections aim to highlight the impact of patriarchal culture on the teaching profession and to affirm the need for educational processes in which gender is interpreted creatively and without codified roles[1].

## 2. Teaching and Patriarchal Culture

Patriarchy is a sociocultural system where men primarily hold power in political, social, economic and family spheres (Miller, 2017; Ortner, 2022). It is structured around a gender hierarchy that places males in a dominant position, controlling resources, decisions and authority. In patriarchal societies, gender roles are rigid: men dominate the public sphere, while women are relegated to the domestic realm; therefore, their access to power and independence is limited (Mensah, 2023; McKinley et al., 2021). This system has its roots in historical and cultural traditions, often reinforced by religious ideologies, laws and social norms that perpetuate women's subordination (Gilligan & Snider, 2018).

Patriarchy is criticized and challenged by feminism and other movements which highlight the injustices that it causes (bell hooks, 2004; Bennett, 2006; Biermann & Farias, 2021). They argue that patriarchy not only limits women's rights and freedoms but also harms men by enforcing rigid masculine norms that stifle emotional expression and flexibility in roles (Brooks, 2001; Krishnan et al., 2020). The struggle against patriarchy seeks not only gender equality but also the creation of a more equitable society where rights and opportunities are not determined by gender (Butler et al., 2019; Menon, 2015). Despite progress, patriarchy remains in various forms, requiring continued efforts to dismantle the structures that uphold it and promote broader social and cultural change.

Patriarchal culture also permeates beliefs and ideas about teaching, which is considered a female profession (Kundu & Basu, 2022; Marchesi, 2012). This cultural factor has financial implications (León et al., 2019): male teachers earn less than men with similar qualifications employed in other sectors, while female teachers' salaries are similar or even higher than those of women employed in other fields

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[1] This paper is a preliminary reflection by the two authors, also in relation to the project "POT C.A.R.E. – Costruire Azioni di orientamento e formazione alla professione insegnante nel Rapporto Educativo tra scuola e università: contrasto alle carenze nelle competenze di base" (University of Milan-Bicocca). The text reflects their joint contributions: Anna Granata wrote paragraphs 1, 3.1, and 4, while Valerio Ferrero wrote paragraphs 2, 2.1, and 3.

(OECD, 2024). Furthermore, care and education are considered degrading professions with low social prestige for a man (Magnusson, 2009).

These dynamics extend beyond schools: education and care are often disproportionately shouldered by mothers rather than fathers (Granata, 2023; 2024; Minello, 2022). This gender bias significantly influences students' growth, shaping their imaginaries and limiting their ability to envision futures beyond traditional and patriarchal roles (Gong et al., 2018; Sansone, 2017). Addressing this issue requires cultural interventions, including pedagogical approaches that challenge gender stereotypes from early childhood and efforts to increase male representation in educational settings.

### 2.1 The Italian Teaching Staff: An Overview

Data from the Italian Ministry of Education's database on school staff[2] shows that occupational segregation in the teaching profession is alarming (Figure 1). In the 2022/23 school year[3], the percentage of men among tenured teachers in kindergartens was 0.79%, while in primary school it rose to 3.68%. If we look at untenured staff, we see that the proportion of men in kindergarten is 1.42%, while in primary school it is 9.14%. In middle schools, the percentage of untenured male teachers is 26.6%, while as far as teachers with a tenured position are concerned it is 22.18%. Finally, in high school, 35.5% of male teachers are not permanently employed and 33.5 are permanently employed.
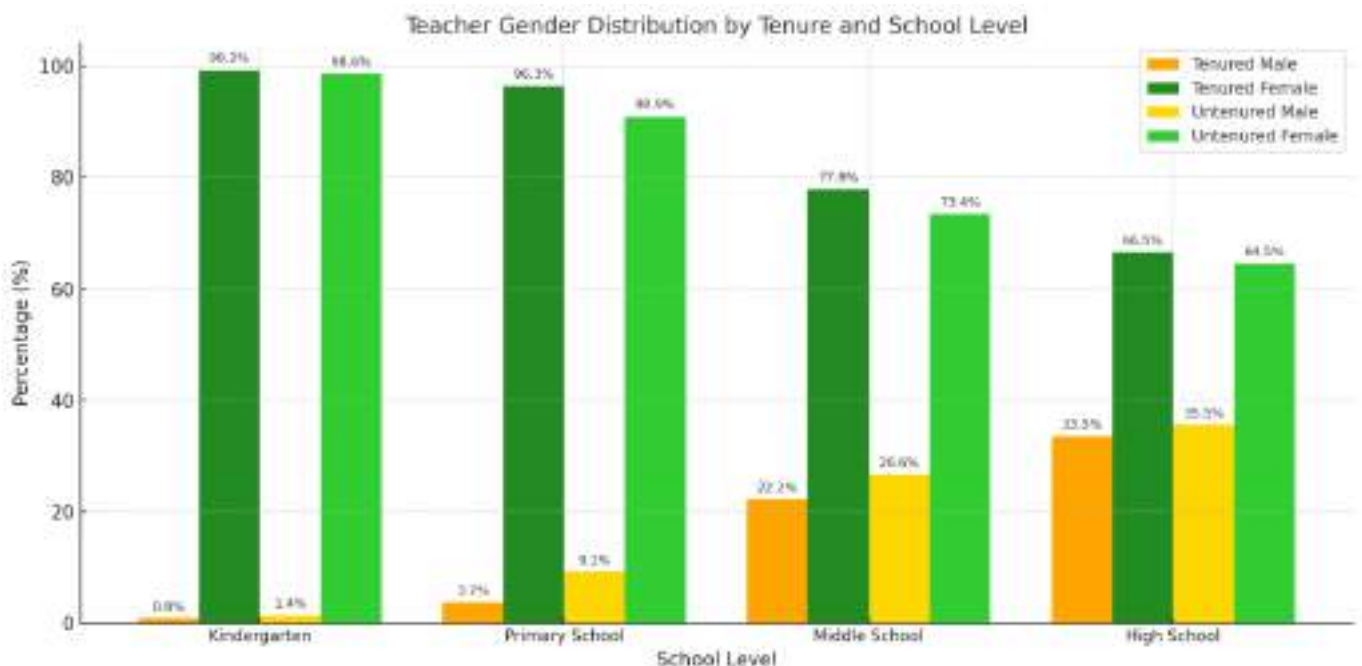


*Figure 1:Italian teaching staff composition by gender*

The higher percentages of untenured male teachers reflect a cultural shift regarding the bias that teaching is a profession more suited for women. However, the numbers, particularly in kindergartens and primary schools, are still insufficient to consider this segregation overcome. Moreover, the proportion of male teachers tends to increase with the school level. In early education, teaching is seen as a more pedagogical and caring profession (Biemmi & Mapelli, 2023; Persico & Ottaviano, 2024): these aspects are culturally viewed as feminine traits, making the job less attractive to men and potentially leading to implicit discrimination (Wilkinson et al., 2024).

This trend, which is particularly pronounced in Italy, is widespread internationally. The idea of giving preference to men in the procedures to become tenured teachers is certainly not the key[4]: in fact, it would be about stabilising those who have graduated to work as teachers and not focusing on the

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[2] The portal can be reached at the following link: https://dati.istruzione.it/opendata/opendata/catalogo/#Scuola.

[3] It is the most recent school year for which data is available.

[4] From 2023, in Italy, male candidates are given preference over female ones in selection procedures for a permanent position as a teacher if they achieve the same score.

reasons for their career choice. Thus, it is crucial to deconstruct the stereotypes rooted in patriarchal culture that frame teaching as a female profession.

## 3. Teacher Education for Healthy, Creative and Equal Gender Relations

Teacher education is crucial in fostering a cultural shift that challenges patriarchal culture (Falter, 2016; Kelly, 2019). Teachers serve as role models and their communication, interactions and appreciation of differences significantly shape the school environment. Through specific teacher education, they can become aware of gender dynamics and cultural influences that reinforce stereotypes and adopt pedagogical strategies that promote gender-equitable education (Ferrero & Messi, 2023). Recognizing and addressing their own unconscious biases is the first step in creating a setting where all students can express their identities and potential without being constrained by traditional roles.

A key aspect of teacher education is enhancing interpersonal skills to promote empathetic and non-judgmental dialogue (Jaber et al., 2018; Neary, 2020). It fosters a more open and creative school environment where students learn to collaborate by valuing differences as strengths: in fact, creativity thrives in settings grounded in mutual trust (Zeffane, 2015). Teacher education paths can include workshops and simulations to explore innovative classroom management and encourage activities that break traditional gender norms. For instance, interdisciplinary projects can highlight the value of everyone's contributions to collective success, regardless of gender (Tonnetti & Lentillon-Kaestner, 2023).

Teacher education can play a pivotal role in driving cultural change and making the profession more appealing to men (Heinz et al., 2023; Mills, 2004). Before starting the paths (as an orientation aid) and during them (as a motivational tool), moments of male self-awareness (Rahmani Azad et al., 2023) could be useful in order to challenge gender stereotypes around care and education and highlight the complementary value of male contributions (McGrath & Sinclair, 2013). It is essential to deconstruct the notion that teaching is exclusively a female activity and demonstrate how men can achieve professional satisfaction in this field.

Ultimately, teacher education can help to build an educational community in which gender roles are lived more dynamically (Sadker et al., 2014). This could lead to a greater representation of men in schools, not only as positive role models for male students, but also as witnesses to a more equitable culture (Cushman, 2010; Piburn et al., 2011). The balanced presence of men and women creates a microcosm that reflects societal diversity, preparing students to live gender collaboration as the norm. Thus, purposeful teacher education can transform schooling into a powerful tool to shape relationships based on respect, creativity and equity, with a positive impact on future generations.

### *3.1 Teacher Education and Gender Issues in Italy*

Since 1998[5], teacher education has been fully managed by universities, with specific paths for future teachers in kindergartens and primary schools and multiple steps for those preparing to teach in secondary schools (Magni, 2024; Mortari & Silva, 2020). The Master's degree for kindergarten and primary school teachers includes knowledge in education, psychology, sociology and anthropology, focusing on pedagogical methods to teach various subjects. However, the attention given to gender issues varies depending on the universities' autonomy. Teachings that challenge gender biases and prejudices to support the cultural change needed are only included in a few cases (Biemmi, 2015; Guerrini, 2022).

Teacher education for future middle and high school teachers has undergone several reforms over the years. They complete a Bachelor's and Master's degree in a specific disciplinary area before embarking on a one-year teacher education program that focuses on education and subject-specific teaching (Mincu, 2019). However, the gender aspect is often not explicitly addressed (Pagliapoco, 2022).

The lack of an adequate focus on the topic in initial teacher education does not allow for the structural and cross-curricular implementation of gender education in schools. These activities are often

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[5] Before this date, kindergarten and primary school teachers were trained in a specific high school branch.

delegated to external professionals, with a negative impact on their capillarity and continuity (Alfonsi, 2019; Sapegno, 2014). Instead, teachers should take care of this fundamental aspect of students' growth, in order to promote a cultural change that overcomes patriarchy and reduces episodes of gender-based discrimination and violence.

## 4. Conclusion

Internationally, there is a widespread tendency to regard care and education as typically female professions. This phenomenon has its roots in patriarchal biases that associate roles with certain genders, reinforcing occupational segregation. Thus, the teaching profession becomes a field with a high proportion of women and a low presence of men: this aspect contributes to perpetuate stereotypes, prejudices and patriarchy. Such an imbalance has profound implications, not only on employment, but also on educational models that reproduce stereotypical roles and expectations. However, education plays a crucial role when it comes to fight the dynamics of gender segregation, inequality and violence. Teacher education is fundamental for the development of professional awareness and the introduction of pedagogical approaches that promote gender equality. In Italy, the strong occupational segregation in the teaching profession reflects the unbalanced workload in the family, which places a particular burden on women and reinforces stereotypical role models, patriarchal culture and structural inequalities. Teacher education that addresses these issues is essential to challenge these conventions and promote equity and gender creativity.

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# Teacher training and well-being best practices:
# the 3H project[1]

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## Abstract

The 3H Project (Head-Heart-Hand) - Erasmus+ - promotes a holistic approach to Vocational Education and Training (VET), integrating cognitive, socio-emotional, and practical skills. Focused on innovative teacher training, it addresses challenges like disengagement and school dropout by fostering well-being and inclusivity. Through Learning Teaching Training Activities (LTTA) visits in the Netherlands, Spain and Finland, a Compendium of best practices was developed, including activities like *Lego® Art* and *Walk of Life*. These practices enhance socio-emotional competencies, highlighting the transformative role of teachers. The project offers tools to foster empathy, creativity, and holistic growth, contributing to a more inclusive educational context.

**Keywords:** socio emotional skills; well-being; teacher training; good practices; 3H project.

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[1] The authors shared the structure and content of the article. Specifically, Paola Zini wrote paragraphs 1 and 2, while Dalila Raccagni wrote paragraphs 3 and 4.

# 1. Social-emotional skills at school

For a long time, pedagogical thought has highlighted the essential connection between affective, cognitive, and motor aspects that characterise human development, knowledge, growth, maturation, and learning. Consider, for instance, the reflections of J.H. Pestalozzi (1801), who emphasised the necessity of linking the head, heart, and hands for the integral development of the person. Numerous other scholars, including J. Dewey (1938), have embraced a similar line of thought, recognising the risks inherent in educational approaches that focus exclusively on one of these three dimensions. Such approaches often underpin educational methods that are, respectively, sensationalist, intellectualist, or unreflectively practical. Equally well-established in pedagogical discourse is the call to acknowledge the social dimension of education, an arena where human beings live and develop, which cannot be disregarded in learning processes or educational aims. Indeed, it is within the social dimension that the interplay of action, intellect, and emotion, activated by education, takes place.

The contemporary strand of Socio-Emotional Learning (SEL)[2], continuing this long-standing tradition, has brought to light a significant deficit in the attention paid to the socio-emotional dimensions of teaching, learning, and education in modern school systems. Through theoretical models and empirical research, SEL as a field of inquiry has accumulated irrefutable evidence. On the one hand, this evidence reaffirms the centrality of the socio-emotional sphere as a fundamental dimension of education; on the other, it offers guidelines for improving existing educational systems and shaping those of the future. This approach places students' well-being and active engagement at the heart of the educational process. It promotes not only academic success but also personal and relational growth among learners. Such a perspective marks a significant advance in teacher training, integrating human and educational dimensions that are crucial for navigating the complexities of an increasingly interconnected society.

A recent systematic review and meta-analysis of universal school-based (USB) social and emotional learning (SEL) interventions for K-12 students (2008–2020) revealed that participation in these programs was associated with significant improvements in students' skills, attitudes, behaviors, school climate and safety, peer relationships, school functioning, and academic achievement. However, variability in the content, features, contextual factors, and implementation quality of USB SEL interventions was found to moderate the observed outcomes (Cipriano et all., 2023).

In recent years, various documents and measures issued by the Organisation for Economic Co-operation and Development (OECD) have underscored the pressing need for a holistic approach to education, framed in terms of "socio-emotional education" and "socio-emotional competencies". Among these, the publication *Embedding Values and Attitudes in Curriculum: Shaping a Better Future* (OECD, 2021a) is noteworthy, following closely on the heels of *Adapting Curriculum to Bridge Equity Gaps: Towards an Inclusive Curriculum* (OECD, 2021b). These documents highlight the necessity of broadening the spectrum of learning outcomes and assert that schools must adopt a bold and ambitious educational vision. The metaphor employed to convey this vision is that of a compass: the *Learning Compass* (OECD, 2018). This framework emphasises the need for students to learn how to navigate independently along the longitude of personal growth and the latitude of unfamiliar challenges and contexts.

These recommendations are particularly pertinent to Vocational Education and Training (VET), which is called upon to provide a holistic education that equally integrates intellectual-cognitive, socio-emotional, and technical-practical components (CEDEFOP, 2023). One rationale for this perspective lies in the professional profiles cultivated within VET institutions - namely, practitioners and specialised technicians in various economic sectors. As D. Schön observed, practitioners must be capable of managing uncertainty and drawing upon established knowledge to devise innovative solutions and methods of working (1987).

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[2] Social and Emotional Learning (SEL) is defined by CASEL (Collaborative for Academic, Social, and Emotional Learning) as an educational process that enables individuals to acquire and effectively apply a set of knowledge, attitudes, and skills. These abilities are essential for understanding and managing one's emotions, setting and achieving positive goals, developing empathy for others, establishing and maintaining constructive interpersonal relationships, as well as making responsible decisions in both social and personal contexts (https://casel.org/, accessed on 02.01.2025).

Additionally, VET often grapples with challenges such as educational inefficacy, student disengagement, and dropout rates, making the call for a comprehensive and balanced educational approach even more critical.

## 2. The 3 H Project – Head Heart Hand

In light of these considerations, the "3-H" project, inspired by Pestalozzi's pedagogy, seeks to explore how to introduce the socio-emotional perspective into schools' daily work with students, addressing issues such as demotivation and discomfort. In various European countries - particularly in Northern Europe - there are noteworthy examples of schools that explicitly and purposefully integrate socio-emotional aspects into their training courses. These schools employ a range of methodologies, some of which are adapted, with appropriate adjustments, from non-formal or informal education practices. The 3-H project aims to study some of these experiences and the approaches underpinning them, with the goal of replicating them in Italy and Spain. In these countries, socio-emotional competencies are typically taught in an implicit and transversal manner, while teachers and trainers often lack the skills needed to address issues such as motivation, demotivation, and socio-emotional development. Building on this premise, the 3-H project seeks to reduce the number of VET learners who feel unmotivated or uncomfortable within the school environment.

Developing socio-emotional competencies in students also requires robust educational competencies on the part of teachers and trainers. Promoting socio-emotional skills necessitates equipping educators with methodologies derived from community education practices, such as educational dialogue, animation, play, personalised planning, and more. The "3-H" project (Head, Heart, Hand) focuses on the following key aspects: promoting the development of knowledge and methodologies that enable teachers to address socio-emotional aspects in their practice; designing a robust reception model to support students during the initial months of their VET pathways; developing and adopting best practices that enhance student well-being at school (starting from the reception phase) and foster student motivation; implementing Project-Based Learning (PBL) experiences to develop socio-emotional competencies while enabling students to acquire knowledge in an authentic and contextualised manner.

The 3-H project aims to achieve the following objectives:

- Encouraging educational organisations to allocate explicit time to personal and social education through methodologies rooted in socio-educational animation. This initiative could be particularly impactful at the beginning of an educational pathway but requires continuous integration throughout the entire training programme. The project seeks to promote activities that foster a sense of well-being and belonging among students, broadening the purposes of education beyond mere academic growth to address a wider range of existential needs.
- Promoting active learning within cultural disciplines, where student agency, problem-/project-based approaches, and collaborative/cooperative dimensions serve as drivers of personal growth, extending beyond the scope of individual disciplinary learning.
- Incorporating personal and social skills into assessment processes, ensuring these competencies are valued as integral outcomes of the educational experience.
- Contributing to the renewal of the teacher's professional identity, emphasising the importance of socio-emotional competencies as a key aspect of teaching.

The 3-H project has been developed through several phases:

a. Collection of best practices for the development of socio-emotional skills in VET students (LTTA visits in the Netherlands, Spain and Finland);

b. Creation of a compendium, which gathers some good practices of activities to be carried out with students. Each practice has a focal point, among Welcoming and Orientation; Well-being and Motivation; Self-directed Learning, and Problem-based Learning[3];

c. Creation of a toolkit with activities that were used in experimentation in some Italian VET schools: Collection of Practices to Activities that Can Be Experimented and Tested[4];

d. Creation of guidelines, which were verified in a consensus conference. These guidelines are intended to support schools by providing useful indications for building a social-emotional curriculum, while providing the organisational elements to facilitate its implementation[5].

e. Write policy recommendations from the guidelines and with input from various agencies that are working on social emotional learning and skills (figure 1)[6].

## POLICY RECOMMENDATIONS

1. The socio-emotional dimension is always a fundamental pillar of learning; it must therefore necessarily play a key role in teaching, didactics, training and education.

2. Teachers and school leaders, with their socio-emotional competence, are the essential link that makes socio-emotional care of students possible, in different forms and methodologies depending on their age, as well as through example and indirect teaching.

3. The development of socio-emotional competence among teachers and school leaders should be a central pillar of initial training and Continuing Professional Development. The socio-emotional training of teachers and school leaders can only occur through the logic of transformative and experiential learning.

4. The crucial role played by teachers in social-emotional learning must be supported by school, social and professional policies at all levels, as well as by appropriate organizational forms, in terms of educational spaces, timing, grouping methods, pedagogical and didactic resources.

5. Leadership and governance – in terms of personal qualities and management solutions – are a fundamental element to enable organizational transformations capable of supporting social-emotional learning in the school community.

6. Social-emotional care requires the systematic and systemic exercise of the logic of community building, at every level: within the classroom, in teacher-students and teacher-teacher relations, in school-family and school-territory cooperation, and, where appropriate, also at the broader scales of district, city, region, state and international and global community.

7. Social-emotional care requires that students play a leading role: organizational flexibility must therefore allow the consideration of their voice and their operational proposals in guiding the teaching-learning process in relation to the context.

8. The adoption of a reference framework (curriculum) of Socio-Emotional Skills (SES) is useful for an educational design that makes the socio-emotional aspect a goal and a detectable outcome of the educational work; on the other hand, the assessment of SES should be introduced with caution and attention, allowing it to be interpreted as exquisitely formative assessment, stimulating dialogue and self-evaluation.

9. Focusing the curriculum on social-emotional skills is also essential to enhance the potential of technology and attenuate its risks; the use of learning technologies, including emerging ones based on Artificial Intelligence, is not only a necessity dictated by the context but a source of educational opportunities.

10. Social-emotional learning, in addition to being a transversal attention to the entire curriculum, should be the subject of explicit practices and dedicated time, some involving the whole school community, others directed to subgroups of students and/or phases of the path that require particular attention to re-elaboration and growth.

*Figure 1: policy recommendations*

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[3] https://www.enac.org/wp-content/uploads/2023-02-03-COMPENDIUM_V04_ENG_Final.pdf (accessed on 02.01.2025).
[4] https://www.enac.org/wp-content/uploads/TOOLKITEN-1.pdf (accessed on 02.01.2025).
[5] https://www.enac.org/wp-content/uploads/GUIDELINES-and-TOOL-KITS_EN-DEF-1.pdf (accessed on 02.01.2025).
[6] [6] https://www.enac.org/wp-content/uploads/PR3-POLICY-RECOMMENDATIONS_EN_v2.pdf (accessed on 02.01.2025).

The guidelines intend to support schools by providing useful indications for building a social-emotional curriculum, while providing the organisational elements to facilitate its implementation. We decide to divide into four sections. Each section contains 6 guidelines; each guideline provides a certain number of "practical suggestions" to put the guidelines into practice. This structure allows each school, according to its existing constraints, to apply and realize a version of the model suited for the local context.

a) *Pedagogical*: this section of the guidelines concerns reflections on the school's educational task, on social impact of school, on the empowering of students as protagonists of their own learning and of the construction of their future.
b) *Organisational*: this section concerning the organisation of school time and spaces, with a diversification of learning situations, with the possibility of differentiated and customised course. Other key drivers are the relationships with local stakeholders and the definition of a continuous quality improvement system.
c) *Didactic*: it is the section of the guidelines that deals with teaching, and particularly its socio-emotional dimensions. It explores the important role of teamworking and "project and problem-based learning", as well as the possibility of teaching activities specifically aimed at socio-emotional learning.
d) *Staff*: the guidelines in this section are addressed to the role of the teacher and their improvement of the socio-emotional dimensions, for the role and in action. From selection to the provisions of adequate organisational support, from training to continuing professional development, the school must deal with many aspects to enhance the value of teachers, protect them, stimulate collaboration among them and boost their creativity, to achieve an educational care that is not limited to intellectual and practical learning but is also dedicated to human development.

## 3. Beyond teaching: socio-emotional skills and teacher training

The 3-H project engaged various stakeholders from the educational context, including students and school leaders, while assigning a pivotal role to teachers, regarded as the cornerstone of pedagogical transformation. The "Head-Heart-Hand" approach was promoted as an innovative educational paradigm, aimed at enhancing not only teachers' cognitive competencies but also their socio-emotional (OECD, 2022) and practical skills[7]. This integrated model effectively addresses the growing demands of an educational system that seeks not only to transmit knowledge but also to develop professionals equipped with empathy, creativity, and adaptability (OECD, 2021a; 2021b).
The current educational landscape, characterised by increasingly diverse classrooms and a variety of individual needs, presents significant challenges for teachers. Their professionalism, which involves the demanding emotional work referred to in the literature as "emotional labour" (Zembylas, 2002; Winograd, 2003), has gained new layers of complexity (Fiorucci & Zizoli, 2022) that go beyond the mere transmission of disciplinary content. It has become essential for teachers to develop skills and knowledge that support inclusive educational practices, enabling them to value diversity and respond flexibly and thoughtfully to ongoing social and cultural transformations (Baldacci et al., 2020; Fabbri et al., 2014).
The training proposed by the 3-H project stands out for its multidimensional nature, addressing themes that transcend the boundaries of traditional teaching and promoting a holistic approach to education. Central to this vision is socio-emotional education (Chiosso et al., 2021; Dato, 2019), which seeks to develop crucial intrapersonal and interpersonal competencies. According to J.E. Zins, R.P. Weissberg, M.C. Wang, and H. Walberg, these competencies are organised into five key areas: self-awareness; self-management; social awareness, relationship skills, and responsible decision-making (2004).

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[7] In accordance with Bill No. 2943, Article 2, Teacher Training for the Development of Non-Cognitive Skills in School Pathways, approved by the Italian Senate on November 20, 2024, https://www.senato.it/service/PDF/PDFServer/DF/440476.pdf (accessed on 10.01.2025).

Through innovative methodologies and experiential activities, compiled in the project's *Compendium – Collection of Good Practices* (2023), teachers were guided in developing essential competencies for creating inclusive and stimulating learning environments. These good practices are instrumental in fostering the skills needed to address contemporary educational challenges[8].

In this contribution, we present two examples of "good practices" drawn from the *Compendium* (2023) - *Lego® Art* (pp. 49–50) and *Walk of Life* (pp. 96–98) - both of which we experienced firsthand during the Learning Teaching Training Activity (LTTA) (Raccagni, 2023).

One of the practices explored is *Lego® Art*, an innovative activity that has garnered attention for its impact on students' well-being and motivation. Trialled during the LTTA in Oulu, Finland, this activity is part of an orientation and welcoming framework, fostering meaningful connections among participants. Student groups are invited to create a piece of art using Lego® bricks, stimulating creativity while developing transversal skills such as concentration, problem-solving, and patience. Each group is assigned a proverb as the theme for their creation, such as *"Actions speak louder than words"* or *"A friend in need is a friend indeed"*. Teams collaborate to represent the proverb visually using Lego® bricks. At the end of the activity, each group presents their creation, explaining how it connects to the assigned proverb.

The activity encourages creativity and dialogue, creating a positive environment that promotes active participation. A key factor in the success of *Lego® Art* is establishing an initial climate of safety, enabling participants to express themselves freely. Positive feedback at the conclusion of the activity reinforces students' efforts, fostering a sense of belonging and collaboration within the group.

The second example of good practice is the *Walk of Life*, an activity designed to encourage students to reflect on their career choices while walking along a route of up to 5 km, either in an urban setting or a natural environment. The activity unfolds across various stages, with students pausing at designated points to reflect on themes related to professional competencies. These reflections are inspired by the five areas identified by Kuijpers and Scheerens (2006): self-reflection on one's qualities, motivation, networking, career orientation, and exploration of work activities. Accompanied by teachers and tutors, students use the act of walking as a metaphor for their professional journey, exploring their career aspirations through shared reflection. Lasting approximately two hours, the activity promotes not only individual contemplation but also team building and interpersonal connections. The value of the *Walk of Life* lies in the synergy between physical movement and mental reflection: walking stimulates the mind and fosters an environment conducive to sharing and dialogue. A key element of the activity's success is its adaptability; the route and themes can be tailored to meet the specific needs of the group. At the conclusion, students provide feedback and are guided to recognize the importance of reflection in an informal, outdoor context.

Activities such as *Lego® Art* and *Walk of Life*, designed and facilitated by teachers, exemplify how social-emotional competencies can be seamlessly integrated into educational settings. These initiatives offer students opportunities to engage practically with key group dynamics, fostering cohesion, collaboration, and the exchange of ideas. Through active participation in these activities, students develop critical skills such as interpersonal communication, creativity, problem-solving, and emotional regulation. In these educational experiences, teachers play a central role as facilitators of learning and co-designers of activities aimed at promoting students' holistic development. From this perspective, co-design becomes a reflective and collaborative practice, involving ongoing dialogue between teachers and students to create educational pathways that address learners' specific needs and interests (De Vivo et al., 2022; Schön, 2016; Mortari, 2003).

Additionally, these practices provide teachers with a valuable opportunity to assess the sustainability of the proposed activities. This involves a systematic analysis not only of the effectiveness of these experiences in fostering social-emotional skill development but also of their capacity to remain adaptable and relevant over time. Continuous assessment of educational sustainability requires teachers to evaluate whether practices can be repeated, modified, or expanded in the future,

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[8] These good practices, collected in the compendium, ware produced from series of six Learning Teaching Training Activities (LTTA) organized among the partners of the 3H-project. To get to the point, hosting institutes and presenters at LTTAs were asked to share examples of methodologies, practices, projects, programs explicitly aimed at developing their student's socio-emotional competences. They were guided in selecting and organizing the practices by the four themes anticipated above in the Introduction: (1) Welcoming/guidance, (2) Well-being and motivation, (3) Self-directed learning, and (4) Problem-based learning. For more details see *Compendium*, pp. 10-12.

responding to evolving educational contexts, changing student dynamics, and the shifting needs of learners (Hadji, 2022). Thus, evaluative capacity becomes a fundamental aspect of the teaching profession, ensuring that activities not only engage students in stimulating ways but also remain sustainable in the long term, creating a lasting and meaningful educational impact (Montalbetti, 2024).

This process of continuous analysis fosters the development of a resilient school community capable of adapting and evolving. Teachers are encouraged not only to design but also to monitor and refine their practices continually, ensuring their efficacy and relevance in an ever-changing educational landscape.

## 4. Conclusions and Future Challenges

This contribution, focused on the 3H project, has highlighted the urgency of an educational approach that integrates socio-emotional competencies with cognitive and practical skills, placing teacher training at the heart of pedagogical transformation. In an educational context marked by growing complexity, the role of the teacher extends beyond the mere transmission of knowledge, evolving into that of a facilitator of emotional processes and a promoter of students' well-being and holistic development (WHO, 2021).

In light of these challenges, teacher training must be dynamic, evolving, and prioritize the development of skills related to emotional awareness and management, recognizing them as fundamental elements of pedagogical practice. The integration of these dimensions into educational pathways not only enhances students' active engagement (Jennings & Greenberg, 2009) but also enables teachers to respond sensitively (D'Emidio-Caston, 2019) and flexibly to the needs of a diverse and constantly evolving school community (Mitchell, 2018).

Looking ahead, teacher training will need to strike a balance between disciplinary, socio-emotional, and practical competencies, preparing professionals who can combine academic rigor with empathy, resilience, and critical self-reflection (Mortari, 2019). In this sense, the 3H project serves as a promising model, yet the creation of an education system genuinely focused on well-being requires sustained efforts to redefine pedagogical practices and to value the role of teachers as drivers of change and innovation.

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# POSTER SESSION

# Integration of the Synchrony method in physical education during school age in the digital era

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## Abstract

Excessive screen exposure during childhood may impair attentional processes and motor development, particularly by reducing peripheral vision and movement diversity (Clayton et al., 2015; Bozzola et al., 2022). To address this issue, the Sincrony method integrates structured motor activities with targeted visual stimulation to enhance cognitive and physical skills. This study assessed the effectiveness of this approach in 36 pre-adolescent girls (mean age 12) with high digital exposure (10+ hours/week). Participants were divided into three groups: Sincrony, coordinative activities without visual focus, and control. A 12-week protocol was implemented with pre/post testing using the Trail Making Test, VFCT, Stork, Sargent, and Cooper tests. Results showed significant improvements in sustained attention and motor skills in the Sincrony group compared to others (p < 0.05). These findings support the potential of integrative methods to counteract the cognitive-motor effects of digital overexposure and promote balanced development during critical growth stages (Donnelly et al., 2016).

**Keywords:** physical education; screen devices; didactics; attention; sincrony method.

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## 1. Introduction

In today's educational context, characterized by the widespread use of digital tools, increasing concerns are being raised about the potential negative effects of excessive screen exposure on children's cognitive and motor development (Panjeti-Madan et al., 2023). Recent studies show that prolonged use of screen-based digital devices can impair peripheral vision, thereby limiting the harmonious development of both basic motor skills and the ability to sustain attention over time (Clayton, Yeung, & Kadosh, 2015; Jourdren et al., 2023). In this sense, excessive visual focus on screens may be associated with selective attention as a preferred channel, reducing sustained attention and negatively affecting the ability to process information from broader contexts (Reed et al., 2017). The American Academy of Pediatrics, in this regard, has recommended controlled screen exposure time: no more than 90 minutes per day for adolescents, and no more than one hour per day for younger children (AAP, 2016). These effects, however, do not only concern cognitive and attentional abilities but also motor development. Children who spend too much time in front of screens tend to reduce the time spent on physical activities, which are essential for their harmonious development. Movement plays a fundamental role in the development and consolidation of motor skills, such as postural balance and hand-eye coordination, which are essential for children's interaction with their environment and functional autonomy. The reduction in movement, combined with a decrease in diffuse attention capacity, can lead to weaknesses in the development of both fine and gross motor skills, with potential negative consequences for the musculoskeletal system, including postural issues such as neck and back pain, and even adolescent idiopathic scoliosis (Priftis & Panagiotakos, 2023). In this regard, in addition to the indirect inactivity caused by prolonged use of screen-based technologies, research suggests that certain types of fast-paced or overstimulating digital content may hinder attentional control and reduce the ability to maintain focus in cognitively demanding situations (Madigan et al., 2020; Bozzola et al., 2022). To support the harmonious growth of young people in light of the modern context, new motor skills methodologies have been developed. The Sincrony movement education methodology, for example, integrates correct biomechanics with targeted neuro-motor training tools that go beyond traditional physical activity. While peripheral vision is naturally engaged in many sports, the Sincrony method trains it deliberately and systematically through specific visual and motor stimulation exercises, within structured protocols that include a clear progression of phases (warm-up, core activity, cool-down) and gradually increasing levels of complexity. The aim is to improve attentional flexibility and body awareness through an integrated and pedagogically grounded approach (De Bernardi, 2008; Fogliata & Ambretti, 2023; Cabeza & Nyberg, 2000). This motor-pedagogical approach aligns with the theories of psychomotricity and embodied cognition, offering a solid theoretical foundation for a practical and applicable methodological framework (Wulf & Su, 2007). This integrated approach could indirectly help counteract prolonged screen exposure by promoting a balanced development of both motor and cognitive skills, which are fundamental during critical stages of growth. Through practices that involve the entire body and specifically peripheral vision, the Sincrony method could encourage children to develop spatial awareness and the ability to respond to complex visual and motor stimuli. Furthermore, by exposing children to an environment rich in stimuli and varied physical activities, this pedagogical approach aims to mitigate the potential negative effects of digitalization on children's learning and physical health (Donnelly et al., 2016; Tremblay et al., 2016). In this context and with this perspective, teachers in general, and physical education teachers in particular, could play an important educational role. Their expertise could indeed help integrate physical movement with cognitive stimulation to emphasize a healthy, balanced growth. In an era dominated by digital technology, physical education teachers could use new tools to promote a counterbalance. The present study aims to evaluate the effectiveness of the Sincrony method in improving sustained attention and motor skills in pre-adolescent girls who are highly exposed to screen-based technologies.

## 2. The guidelines from the American Academy of Pediatrics

The guidelines from the American Academy of Pediatrics regarding the use of digital devices and screen time for children emphasize the need to limit exposure to protect and promote healthy development. For children under 18 months, the use of digital media should be avoided. However, a study found that by the age of 12 months, 45% of children had already been exposed to digital media (Durham et al., 2021). For children aged 18 to 24 months, a maximum screen time of less than 1 hour is suggested, with careful selection of programs to view together (Sainani, 2022). For children aged 2 to 5 years, it is also recommended to limit screen time to a maximum of 1 hour per day of high-quality programming. Studies show a significant negative correlation between screen time exceeding the guidelines and cognitive-motor development scores in young children (Zaky et al., 2024). For children aged 6 years and older, although no specific limit is set, it is emphasized that screen time should not interfere with sleep and physical activity, thus remaining within a threshold of two hours (Manuja et al., 2024). Although a notable percentage of parents are aware of these recommendations, only a minority are able to apply them effectively (Lammers et al., 2021). Therefore, raising awareness becomes very important, as well as promoting healthy habits and tailored integrations at the school level (WHO, 2019; Canadian Paediatric Society, 2017). It is essential for parents and educators to work on finding useful strategies to ensure a balanced lifestyle.

## 3 Materials and methods

The study assessed the effectiveness of the Sincrony method, an innovative motor education model, aimed at improving sustained attention and motor skills in a sample of 36 pre-adolescent girls (mean age 12 years, SD = ±0.4). The participants were selected based on specific criteria, including high exposure to digital devices, defined operationally as more than 10 hours per week. Although current pediatric guidelines for children aged 6 and above do not prescribe a strict upper limit, exposure above this threshold has been associated in the literature with a higher risk of negative impacts on attention, physical activity levels, and posture, particularly in pre-adolescents (Bozzola et al., 2022; Zaky et al., 2024) and general good health, with no pathologies that could hinder the execution of exercises in the gym. The homogeneity of the sample, consisting exclusively of female subjects, was a methodological choice to ensure greater uniformity in this pilot study. The program lasted for 12 weeks, with two weekly sessions of 30 minutes each.Group 1 (Sincrony method - 13 participants): the girls in this group followed the Sincrony method, an integrated approach combining playful-motor exercises with a specific focus on improving peripheral vision, concentration, and body awareness. Each session started with a 5-minute warm-up, consisting of dynamic stretching exercises and walking with varying rhythms. The central part of the session (20 minutes) focused on activities such as throwing colored balls, to which participants had to respond visually using peripheral vision, as well as balance exercises on unstable surfaces to promote body centering. The final 5 minutes were dedicated to breathing and relaxation exercises aimed at improving body awareness and reducing muscle tension. Group 2 (coordinative activities without visual focus-12 participants): this group performed similar playful-motor activities as Group 1, but without the element of peripheral vision awareness and body centering. In this case as well, the sessions began with a 5-minute warm-up, followed by 20 minutes of obstacle courses, coordination games in pairs or small groups, focusing on improving general motor coordination. However, no emphasis was placed on specific cognitive or visual components. The final 5 minutes were dedicated to cooling down with light breathing exercises and static stretching. Group 3 (Control-11 participants): the control group did not participate in any structured movement programs but used teams game. The participants continued their normal school activities without engaging in specific exercises for motor or cognitive development. Table 1.

| Group | Participants | Activity | Duration | Frequency | Main Objectives |
|-------|-------------|----------|----------|-----------|-----------------|
| Group 1 | 13 | Warm-up, exercises for peripheral vision and body centering | 30 min | 2 times per week | Improve sustained attention and motor skills through visual stimuli and body awareness |
| Group 2 | 12 | Warm-up, coordination exercises without visual focus | 30 min | 2 times per week | Improve general motor coordination through similar exercise to Gruop 1 whitout visual focus |
| Group 3 | 11 | Warm-up, teams game, without visual focus | 30 min | 2 times per week | Teams game |

*Table 1: Activities in the different groups.*

The training sessions for all groups were conducted in the school gymnasium, a familiar and safe environment for the participants. The sessions were delivered by two expert physical education teachers with specific training in the Sincrony methodology. Both trainers followed a standardized protocol to ensure consistency in the delivery of the sessions across the 12-week intervention. For Group 1 (Sincrony), the structured protocol included a progressive complexity model: each session started with basic visual-perceptive and coordination drills and gradually evolved toward more integrated visual-motor activities involving spatial awareness and divided attention. The content of Group 2 was designed to parallel the Sincrony group in duration and movement intensity, but excluded visual or attentional stimuli. The control group participated in unstructured physical games supervised by a teacher but without specific cognitive or postural focus. In this study, a series of standardized tests were administered both before (T1) and after (T2) the intervention to assess cognitive and motor improvements among the participants. One of the primary assessments was the Trail Making Test (TMT), used in both Part A and Part B. This neuropsychological tool is designed to evaluate visual attention and cognitive flexibility (Reitan, 1958). In Part A, participants are required to connect a sequence of numbered circles as quickly and accurately as possible, testing basic visual processing speed and attention. Part B adds a more complex task, where participants alternate between numbers and letters (e.g., 1-A-2-B), which introduces a cognitive load and requires greater task-switching and executive function. The second one, the Visual Focus and Concentration Test (VFCT) used in this study was adapted from classroom-based assessments commonly employed in educational settings to evaluate sustained visual attention. This test was not standardized but was specifically designed to measure the ability to maintain visual focus over time through timed discrimination tasks involving visual stimuli.) This test requires participants to focus on a series of visual stimuli over an extended period, assessing their ability to maintain attention and avoid distraction. However, motor skills were evaluated through a combination of standardized tests, including the Stork Test (Johnson& Nelson, 1986); the Sargent Test (Sargent, 1921); and the Adapted Cooper Test (Cooper, 1978). The Stork Test assesses balance by having participants stand on one foot for as long as possible, testing their postural control and ability to maintain equilibrium. This test provided a clear measure of the participants' stability and motor coordination. The Sargent Test wasused to evaluate explosive leg power by measuring the vertical jump height of participants, offering insights into their muscular strength and overall motor performance. Finally, the Adapted Cooper Test, a validated version of the traditional Cooper Test used in Italian school settings, was employed to assess endurance and cardiovascular fitness. This protocol, described by the Italian Ministry of Education (Ministero della Pubblica Istruzione, 2009), requires participants to walk or jog for 12 minutes at a self-selected pace, with the total distance covered serving as an indicator of aerobic capacity.

## 4 Results and Discussion

The results were analyzed using non-parametric tests in SPSS software. The Wilcoxon signed-rank test was employed to assess pre- and post-intervention differences within each group, while the Kruskal-Wallis test was used to compare changes between the groups. The Wilcoxon signed-rank test revealed a significant improvement in sustained attention and motor skills in Group 1 (Sincrony method), with $p < 0.005$ for both attention (TMT) and motor performance (Stork Test, Sargent Test). Group 2 (coordinative activities) also showed improvements, but these were less pronounced ($p < 0.05$), while Group 3 (control) did not exhibit any statistically significant changes. The Kruskal-Wallis test confirmed that the improvements in Group 1 were significantly greater than those in Groups 2 and 3 ($p < 0.01$), indicating the effectiveness of the Sincrony method in enhancing both cognitive and motor skills. A post-hoc power analysis based on the sample size and a medium effect size ($f = 0.25$) yielded an estimated power of 0.23. These results are consistent with the exploratory nature of the study. These findings highlight the dual benefits of integrating motor activities with cognitive focus, as in the Sincrony method, especially in countering the negative effects of high digital exposure. Group 1's superior results suggest that the cognitive component is key to maximizing improvements in both attention and motor performance, while unstructured or purely physical activities, as in Group 2, yield less significant outcomes. Detailed results for all tests and groups are reported in Table 2.

| Test | Group | Pre (Mean ± SD) | Post (Mean ± SD) | Test statistic |
|---|---|---|---|---|
| TMT–A | Group 1 | 45.2 ± 8.1 | 37.5 ± 7.9 | z = –2.98 |
| TMT–B | Group 1 | 89.3 ± 9.5 | 75.8 ± 8.2 | z = –3.12 |
| Stork | Group 1 | 12.1 ± 2.3 | 18.4 ± 2.5 | z = –3.01 |
| Sargent | Group 1 | 28.4 ± 4.2 | 34.2 ± 4.7 | z = –2.85 |
| Cooper | Group 1 | 1020 ± 110 | 1160 ± 105 | z = –2.76 |
| TMT–A | Group 2 | 44.8 ± 7.9 | 41.9 ± 7.6 | z = –2.12 |
| TMT–B | Group 2 | 88.5 ± 8.7 | 84.6 ± 8.3 | z = –1.97 |
| Stork | Group 2 | 11.9 ± 2.5 | 14.3 ± 2.4 | z = –2.20 |
| Sargent | Group 2 | 27.9 ± 3.9 | 30.8 ± 4.3 | z = –2.05 |
| Cooper | Group 2 | 1005 ± 115 | 1070 ± 112 | z = –1.99 |
| TMT–A | Group 3 | 45.4 ± 8.3 | 45.1 ± 8.2 | z = –0.55 |
| TMT–B | Group 3 | 90.2 ± 9.6 | 89.8 ± 9.5 | z = –0.49 |
| Stork | Group 3 | 12.2 ± 2.2 | 12.0 ± 2.3 | z = –0.66 |
| Sargent | Group 3 | 28.3 ± 4.1 | 28.5 ± 4.0 | z = –0.42 |
| Cooper | Group 3 | 1015 ± 108 | 1020 ± 110 | z = –0.50 |

*Table 2: Pre- and post-intervention performance in cognitive and motor tests for each group.*

## 5 Conclusion

In conclusion, a modern educational context increasingly dominated by digital technology, concerns regarding the negative impacts of excessive screen exposure on children's cognitive and motor development are growing. This pilot-study provides that the Sincrony method can be an effective tool to counteract these effects, offering a balanced approach that integrates motor activities with cognitive awareness. In fact, the study show that the group trained with the Sincrony method showed significant improvements in both sustained attention and motor skills suggesting that exercises aimed at enhancing peripheral vision and body awareness not only improve physical abilities but also stimulate cognitive processes. These results are in line with theories of psychomotricity and embodied cognition, which emphasize the interconnectedness of physical movement and cognitive development. However, the study highlights the importance of developing educational methodologies that address the challenges posed by the pervasive use of digital devices. Physical education teachers, in particular, could adopt this approach to foster balanced development

in young people, helping to mitigate the negative effects of excessive screen exposure while promoting overall well-being. By integrating peripheral visual stimulation and body-centered motor tasks, the Sincrony method targets two domains commonly impaired by excessive screen use sustained attention and postural control. These elements, grounded in both psychomotor and cognitive development theories, provide a structured response to the health and cognitive challenges raised in the introduction.

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# Music as an inclusive tool for promoting a sustainable Culture

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## Abstract

This research project, conducted in a middle school, investigates the outcomes of implementing Technology Enhanced Active Learning (TEAL) using a wearable bio-feedback tool that converts plant electrical variations into musical notes. The aim is to strengthen students' connection with nature and encourage pro-environmental behaviors. Participants were divided into control and experimental groups, with pre- and post-intervention questionnaires guiding the analysis. The study emphasizes inclusive learning through Orff music and accessible digital tools, benefiting students with and without formal musical training. The research explores the role of music in fostering ecological literacy and biophilic responses, examining how music-making with nature can enhance creativity, emotional well-being, and environmental awareness.

**Keywords:** nature; music; inclusion; well-being; education.

## 1. Introduction

In an era where global sustainability challenges demand innovative approaches, education emerges as a powerful tool to foster ecological awareness and action. Among various educational strategies, music presents a unique and underexplored avenue to bridge the gap between human experiences and environmental consciousness. As a universal language capable of transcending cultural, linguistic, and social barriers, music has the potential to evoke emotional responses, foster creativity, and inspire a sense of interconnectedness with the natural world. This study investigates how music, integrated with technology and pedagogy, can serve as an inclusive medium for promoting sustainable culture within educational contexts.

Music education, historically revered for its cultural and emotional significance (Varadi, 2022), often operates on the periphery of formal educational curricula. Despite its potential to contribute to holistic human development, music is frequently sidelined in favor of subjects perceived as more directly relevant to academic or professional success. However, its intrinsic qualities—emotional resonance, aesthetic appeal, and collaborative nature—make it an ideal candidate for addressing broader societal goals (Rabinowitch, 2020), such as fostering environmental stewardship. Recent pedagogical advancements (Ivanaj & Ivanaj, 2010; Trott, Even & Frame, 2020) advocate for interdisciplinary approaches that integrate arts, sciences, and technology, thus providing fertile ground for exploring music's role in sustainability education.

The concept of sustainability encompasses four interconnected dimensions: environmental, social, educational and economic (Biasutti & Frate, 2017). However, achieving sustainability is as much a cultural and emotional challenge as it is a scientific or technical one. Education for sustainable development (ESD) emphasizes the importance of equipping individuals with the knowledge, skills, values, and attitudes necessary to contribute to a sustainable future. In this context, music can act as a catalyst for emotional engagement and behavioral change, fostering a deep and enduring connection to the natural world.

The growing field of ecomusicology offers insights into how music can reflect and influence environmental values (Allen, Titon & Von Glahn, 2014; Gambirasio, 2022). By exploring the intersection of music, culture, and ecology, ecomusicology highlights the potential of music to inspire action and deepen understanding of ecological issues. Building on this foundation, the current study examines how technology-enhanced music education can nurture a biophilic response—a natural affinity for living systems—and foster ecological literacy among students.

A critical dimension of this research lies in its focus on inclusivity. Traditional educational models often exclude or marginalize students with diverse needs, abilities, or backgrounds. Inclusive education, by contrast, seeks to create learning environments where all students can participate fully and meaningfully. Music, with its universal appeal and adaptability, offers a powerful means to achieve inclusivity, particularly when combined with digital tools that enhance accessibility. The use of wearable biofeedback devices, such as the Plants Play technology employed in this study, represents an innovative approach to bridging the gap between nature, music, and education. By translating the bioelectrical signals of plants into musical notes, these devices provide students with a sensory and interactive experience of the natural world, fostering curiosity and emotional engagement.

## 2. Music education in the Italian school

History bears witness to how the Italian peninsula has been, and continues to be, the birthplace of many of the most influential musicians and composers in the international music scene. Consider, for instance, the Renaissance, during which luminaries such as Gioachino Rossini, Gaetano Donizetti, Giuseppe Verdi, and Giacomo Puccini emerged, eventually leading to modern figures like Ennio Morricone. This phenomenon can be explained by various sociocultural characteristics, such as a rich cultural tradition that provided fertile ground for the development of new musical forms and styles, as well as the establishment of infrastructures that allowed music's evocative power to flourish.

A key driving force behind the composition of musical works was not only the emotions rooted in the artists' souls but also their social status within the broader society. It is no exaggeration to say that music has historically served as one of the primary forms of both emotional and cultural education for various peoples since antiquity. Yet, despite the significant role music has played—and continues to play—on the Italian peninsula, musical education has struggled to gain formal recognition as an integral discipline within structured learning environments.

In the context of music education, It is essential to distinguish between *music education* and *music tuition*, since these two areas, although interconnected, have different pedagogical objectives and teaching strategies depending on the educational context in which they are applied.

The term *music education* refers to music education in a broad sense, often integrated into school curricula and aimed at providing students with a general understanding of music. This includes the acquisition of theoretical (music reading and writing), historical (evolution of music and its styles), cultural and creative (listening, composition, improvisation) skills (Jääskeläinen, 2021). School music education aims to develop an artistic sensibility and basic musical knowledge accessible to all students, regardless of their level of instrumental or vocal ability.

On the other hand, *music tuition* refers to the specific teaching of a musical instrument or singing, often in individual or small group settings. This type of education is generally offered in conservatories, music schools and secondary music schools, or through private lessons and focuses on developing technical and interpretive skills. The main objectives include learning performance techniques, practice and performance, adapted to the needs of each student according to their level and artistic aspirations.

In this sense, the first evidence of music education in Italy can be traced back to 1885 when, through a circular issued by the Ministry of Public Education of the Kingdom of Italy, Minister Baccelli included singing among the optional school subjects. From that point onward, music education began to take on a marginal role in the Italian school system.

Later, the Royal Decree no. 2185 of 1 October 1923 further addressed music education, stating in Article 7 that:

"The preparatory grade education has a recreational character and aims to discipline the first manifestations of a child's intelligence and character. It includes, in addition to the simplest prayers: Singing and musical listening; [...]"

This decree formally introduced music education in nursery and primary schools across the Kingdom of Italy, while excluding it from secondary schools, both lower and upper levels. An exception was made for teacher training colleges, where two hours were dedicated to "elements of music and choral singing," and for girls' high schools and vocational training schools, where choral singing was also included (R.D. 2185/1923).

A pivotal step in integrating music education into Italian schools was Law 1859/62, which made middle school (secondary school) compulsory and included "artistic education" in the curriculum. However, the content of this subject was not specified until the passage of Law no. 517/1977, one of the most significant pieces of legislation in Italian educational history. This law introduced profound and lasting innovations to the education system, including greater emphasis on artistic and expressive subjects such as music education.

The 1977 law had a significant impact on music education by introducing integrative and workshop-based activities. Music was recognised as a fundamental component of school education, not only for its educational value but also for its contribution to the development of students' expressive, creative, and relational skills, especially for special needs students (Darrow, 2003). Through the hands-on approach promoted by the law, music education became more practical and experiential, encouraging direct student participation through activities like singing and playing musical instruments.

In 1979, the new curricula, outlined in the Ministerial Decree of 9 February 1979, introduced specific guidelines for music education, which was allocated two hours per week. These guidelines were noteworthy for their focus on content tailored to students' needs and the interdisciplinary approach to music as its "profound essence" (M.D, 1979).

It would take another thirty years to see a renewal of primary school curricula. In fact, with the so-called "Moratti Reform" (Law 53/2003), music education and music tuition were given a more

prominent role through the establishment of specialised music high schools (licei musicali). The Moratti Reform aimed to modernise and restructure the Italian education system, emphasising school autonomy and the enhancement of students' individual talents. It granted music education greater visibility within school curricula, recognising its potential to stimulate cognitive, emotional, and social development. However, despite its recognition, the reform did not bring substantial innovation to music as a core subject. Instead, it primarily underlined the need for stable music instruction without necessarily expanding its scope.

Conversely, the Gelmini Reform (2008) marked a step back for music education. By reorganising the school system, it reduced the hours allocated to music instruction in secondary schools. In particular, music education in lower secondary schools (scuola secondaria di I grado) became optional, undermining its previously established role.

Following the "Moratti Reform," the R.P.D. No. 89 of 2010 further defined the organisational framework of musical high schools (licei musicali).

Article 7 of this decree specifies that musical and choreutic high schools aim to provide students with a balanced and comprehensive cultural and musical education. The article outlines that the curriculum includes both theoretical and practical music studies, encompassing the learning of multiple instruments, composition, analysis, music history, and ensemble practice. This structure enables students to acquire specific competencies and prepares them for advanced studies at university or conservatory level.

Additionally, Article 7, paragraph 5, of the R.P.D. establishes that the annual schedule of mandatory activities and lessons for all students totals 594 hours in the first two years, the second two years, and the final year, corresponding to 18 weekly hours. For each of the musical and choreutic sections, an additional 462 hours per year are included during the same periods, equating to an average of 14 weekly hours.

Despite the detailed regulations provided by R.P.D. No. 89/2010, the penalising situation for music education introduced by the "Gelmini Reform" persisted until the enactment of Legislative Decree No. 60 of 2017. This decree introduced the possibility for lower secondary schools (scuole secondarie di primo grado) to establish music-focused pathways within their regular sections. These pathways were prioritised for groups of students, in alignment with the school's Three-Year Educational Offer Plan (Piano Triennale dell'Offerta Formativa, PTOF). This framework was later consolidated by the Interministerial Decree No. 176 of 1 July 2022 (M.D. 176/2022).

The aforementioned decree grants each educational institution the ability to create a music-focused pathway, subject to authorisation by the Regional Education Office (Ufficio Scolastico Regionale, USR). These new music pathways have become an integral part of the schools' PTOF and aim to provide students with a comprehensive education in musical language, combining theoretical, practical, cultural, and instrumental instruction. The inclusion of musical instruments is treated as a component of a personalised school timetable and influences the validity of the school year, as well as promotion to the next grade and eligibility for final State exams.

As previously mentioned, the establishment of music-focused pathways depends on the acquisition of suitable facilities and equipment to ensure lessons on musical instruments can take place. These include individual and group instruction, music theory and reading lessons, and ensemble music practice. Activities within these pathways occur as additional hours beyond the regular school timetable.

In conclusion, music education in Italy has followed a long and challenging trajectory, reflecting both the cultural richness of the peninsula and the structural and political difficulties of fully integrating music into school curricula. Despite significant progress introduced by legislation such as Law No. 517/1977, the Moratti Reform of 2003, and Legislative Decree No. 60/2017, challenges remain concerning resource availability, teacher training, and the full recognition of music as a core discipline.

However, with the establishment of music-focused pathways and the increased autonomy of schools in designing a more diverse educational offer, a new phase has begun. If adequately supported, this phase has the potential to make music a central pillar of the educational system, fostering culturally aware and creatively expressive citizens.

In conclusion, the growing interest in music education has led to an increase in scientific research on the subject. Over the following paragraphs, a pilot study on the 'Green Music' research protocol will be presented. The goal of this protocol is to integrate science, art, and technology in order to foster a genuine connection with the natural world, aligning with the objectives of the 2030 Agenda for Sustainable Development, particularly those focused on promoting environmental sustainability and quality education (Goals 4-13).

## 3. Music in Environmental Education (EE)

During the investigation of major research databases, including the analysis of academic, professional, and gray literature, a limited number of articles were found that explore the role of music as a tool for communication and raising environmental awareness. Despite the scarcity of available studies, several methodological approaches and avenues for advancing this research have been identified.

The purpose of this study is to explore not only the potential of music as an art form but also as a powerful tool for raising environmental awareness and promoting greater engagement with sustainability, leveraging its nature as a universal language and an accessible and inclusive medium. Music, through its capacity to evoke emotional responses, can serve as a catalyst for creating connections between humans and the natural world. While the dichotomy between humans and nature is scientifically and physiologically inaccurate—since humans are an integral part of the ecosystem—such a separation is still perceived as a reality by contemporary society (Adams & Beauchamp, 2019; Orr, 2020). This phenomenon of alienation from nature has been confirmed in various studies, including those by Kaplan (1989), which highlight the importance of direct experiences with the natural environment in fostering an ecological connection.

The increasing disconnection of children from nature has also been defined as a "nature deficit" (Louv, 2011; White, 2022), with significant implications for the development of their biophilia and naturalistic intelligence (Wilson, 1984). Indeed, the reduced exposure to the natural environment, particularly in early childhood, has devastating effects on the development of pro-environmental skills, as suggested by Barbiero and Berto (2021). Pyle (2003) spoke of the "extinction of experience" to describe the progressive lack of opportunities for direct interaction with nature, a phenomenon that diminishes both the quality and quantity of such formative experiences.

Before industrialization, humans were immersed in natural soundscapes, which represented an important aesthetic and communicative dimension of daily life (Schafer, 1994). With modernization and industrialization, this connection gradually weakened as nature became increasingly regarded as a resource to exploit in the production process, as noted by Gergen (2015).

However, music can serve as a powerful tool for re-establishing this connection, especially when integrated into educational approaches that promote direct interaction with the natural environment (Higgins & Nicol, 2013).

Educators and musicians could collaborate to create music-based educational programs that strengthen students' emotional bonds with the natural world. Recent studies suggest that integrating music and environmental education could stimulate greater pro-environmental engagement, transforming musical experiences into effective interventions for ecological awareness and education (Boyce-Tillman, 2020). Specifically, music can act as an educational tool to enhance sensory and aesthetic experiences, promoting a sense of belonging and motivating actions to protect the environment, as highlighted by Kinker (2021) and Turnbull (2018).

Attachment to places and people, concepts widely discussed in attachment theory (Bowlby, 1969), plays a fundamental role in forming an emotional connection with the environment, which in turn motivates the adoption of pro-environmental behaviors. Recent research suggests that music, as a tool for emotional expression, can serve as a catalyst for developing a positive attachment to nature, especially when integrated into interdisciplinary educational experiences that foster mindful listening and direct interaction with natural environments (Turner & Freedman, 2004; Sunderlal, 2017).

Including music in environmental education not only enriches students' aesthetic experience but also promotes greater ecological awareness, allowing them to become more responsible and proactive citizens in the context of a global ecological crisis (Allen, 2012). Recent research indicates that skills developed through music—such as collaboration, creativity, and environmental awareness—are transversal and applicable not only within the academic curriculum but also in students' daily lives, enhancing their ability to listen, understand, and engage with ecological issues (Tojeiro-Pérez & Gillanders, 2024; Turner & Freedman, 2004).

## 4. A pilot study

Addressing the environmental issue is not a simple matter, especially when it is associated with negative elements and catastrophic perspectives. The educational action of raising awareness about promoting well-being and protecting natural heritage is often aimed at providing behavioral rules and knowledge related to the environmental phenomena taking place. Although having an ethical code of conduct is important, it is not sufficient in terms of educational and formative outcomes; on the contrary, it could risk exacerbating the detachment from nature that we have discussed in the previous paragraphs, creating an image of Nature as a wicked mother, hostile to humans and full of dangers. So, some questions arise spontaneously: how can we protect something that is perceived as something separate from ourselves? How can we protect something for which we do not feel *sympathy*? In the pilot study detailed in the following paragraph, an attempt will be made to answer these questions using an interdisciplinary approach, aimed at first eliciting an emotional response from the participants, which is essential for (re)building the connection with Nature.

### 4.1 Introduction and Objectives

In a time when disconnection from natural dynamics represents a significant socio-educational challenge, the "Green Music" protocol emerges as an innovative attempt to foster a deeper bond between young people and nature. The pilot study, conducted at the "D. Alighieri" lower secondary school in Modugno (BA), aimed to evaluate the operational feasibility and preliminary impact of an interdisciplinary educational intervention. The research explored whether and how contact with the natural world, mediated by music as a universal language and biofeedback technology, could enhance emotional and cognitive connections with nature, particularly within school settings.

Specifically, the study investigated how we can promote ESD (Education for Sustainable development) through the use of musical learning and strategies.

Innovative methodologies have the potential to overcome the limitations of traditional teaching practices, opening new perspectives in learning. The use of biofeedback sonification through the Plants Play device is not just a tool for creating immersive experiences but also a bridge between emotions, knowledge, and creativity, transforming the way we engage with learning.

The effects of the proposed activities on the sense of belonging and interconnectedness with the natural world, measured using the validated Connectedness to Nature Scale – children (CNS-ch).

### 4.2 Tools and Methodology

The cornerstone of the protocol was the use of the Plants Play device, which translates plants' bioelectrical signals into musical sounds. This technology, paired with a mobile application, allows users to listen to and record the melodies "produced" by plants in real time, offering a unique sensory window into the natural world. The proposed experiences included the creative use of Orff instruments, Digital Storytelling (DST) activities, guided explorations, and collective reflections, aiming to foster an experiential understanding of ecological dynamics.

The study sample, consisting of 23 students aged 11 (including 11 males and 12 females), was divided into two groups:

Control Group (CG): Followed a traditional environmental education protocol, focused on theoretical and laboratory-based activities for plant species identification.

Experimental Group (EG): Participated in the "Green Music" protocol, characterized by the introduction of music as a privileged mediator in the human-nature relationship.

Both groups completed a multi-phase program, including pre- and post-intervention CNS-ch assessments, cooperative learning activities, and dissemination moments. Digital and technological tools were integrated to stimulate active participation and promote inclusiveness.

### 4.3 Quantitative Results
Analysis of data from the CNS-ch scale, as shown by Fig.1, showed a 20% increase in average scores for the experimental group, compared to an 8% increase for the control group. Although the improvement did not reach statistical significance, the results suggest a promising trend, indicating that the innovative approach may positively influence the perception of connectedness to nature.
These quantitative findings were supported by observed changes in participants' behaviors and interactions during the activities. Children in the experimental group exhibited greater enthusiasm, curiosity, and engagement, attributing emotional value to the experiences.
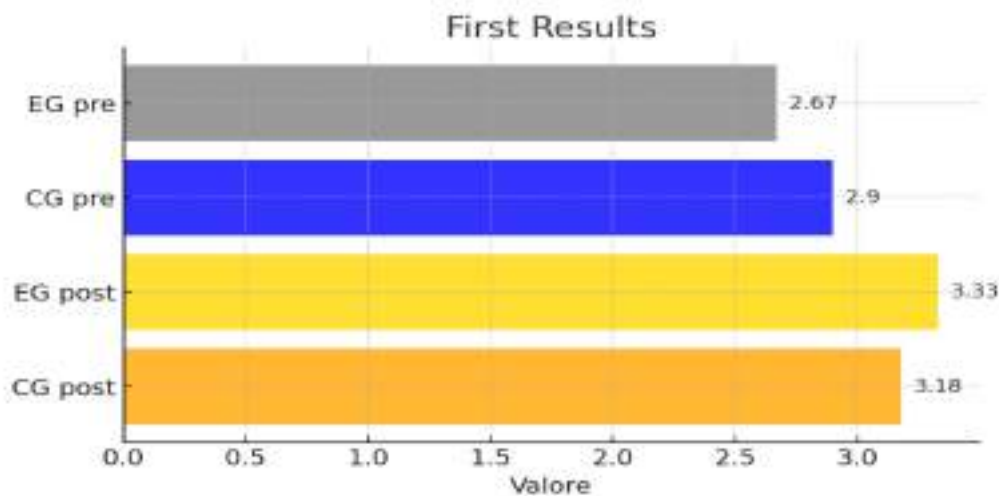


*Figure 1: Results obtained following analysis of ex ante and ex post data on the CNS-ch scale.*

The analysis of the standard deviation in the two groups shows a reduction in data variability after the intervention, more pronounced in the experimental group than in the control group. In the control group, the standard deviation decreases from 0.773 to 0.442, while in the experimental group it reduces from 1.155 to 0.577. The F-test, which compares the pre- and post-intervention variances, returned a value of 3.07 for the control group and 4.00 for the experimental group. Comparing these values with the critical F-value at a 5% significance level, we observe that in the control group, the variation is not statistically significant, whereas in the experimental group, the reduction in variance is significant. This suggests that the intervention had a stabilizing effect on the data in the experimental group, reducing dispersion in a way that cannot be attributed to chance, whereas in the control group, the change might be due to random or external factors.

### 4.4 Qualitative Results
Interviews conducted through a thematic analysis, during debriefing provided a rich, complementary perspective to the numerical data. Many children described their contact with nature as a transformative experience, capable of evoking wonder and deep reflections. Some participants perceived the plants' music as a secret language, conveying important messages about the fragility and balance of ecosystems.
The collected testimonies also highlighted how the multisensory approach made the activities more inclusive, allowing all students – regardless of their prior skills or challenges – to actively participate and creatively contribute to the project.

### 4.5 Discussion

The study demonstrated that the "Green Music" protocol could serve as a valuable tool to innovate educational practices and address the challenges of the global environmental crisis. The combination of immersive experiences and advanced technologies allowed participants to transcend the limitations of traditional teaching methodologies, which often focus solely on theoretical knowledge acquisition.

The use of tools such as Plants Play introduced an element of wonder and surprise, fostering an ecological awareness that was not only rational but deeply emotional. Group activities, such as Digital Storytelling and cooperative learning, also promoted the development of transversal skills, including collaboration, creativity, and empathy.

However, certain limitations must be considered. The small sample size and the specific school context may affect the generalizability of the results. Future studies should scale up the implementation, integrating long-term monitoring tools to assess the sustainability of the observed effects.

### 4.6 Future Implications

The experience of the "Green Music" protocol offers several insights for the future of environmental education:

Interdisciplinarity: Integrating music, technology, and experiential pedagogy represents an innovative approach to fostering a profound understanding of ecological dynamics.

Inclusivity: The proposed activities can be adapted to diverse educational contexts, ensuring the active participation of all students, including those with special educational needs.

Long-Term Impact: It will be essential to verify whether increased connectedness to nature translates into lasting changes in ecologically sustainable behaviors.

## 5. Conclusions

The results from the "Green Music" protocol pilot study suggest that music, when integrated into environmental education, can serve as a powerful tool for fostering deeper connections with nature. The results indicate that music can enhance emotional engagement, promote creativity, and encourage a sense of belonging to the natural world, particularly when coupled with innovative technologies like biofeedback. The positive trends observed in the experimental group—though not yet statistically significant—highlight the potential of music as an effective medium for stimulating environmental awareness, empathy, and pro-environmental behaviors.

By bridging the gap between emotional, sensory, and cognitive experiences, the study emphasizes the role of music in breaking traditional boundaries in education, making learning more immersive, inclusive, and impactful. The protocol's success in creating a multisensory, collaborative learning environment offers a promising direction for future educational interventions, where ecological understanding is nurtured not only through theoretical knowledge but also through emotional and experiential engagement.

Future research should build upon these findings by expanding the scope of study, evaluating long-term effects, and assessing how music-based environmental education can lead to sustained changes in behavior. Ultimately, this research contributes to a more holistic approach to environmental education, one that empowers students to not only understand ecological concepts but to feel and act on a deeper, personal connection to the natural world.

### Division of paragraphs

The paragraphs were divided equally among the authors. Author Finestrone wrote paragraphs 3 and 4, author Savino wrote paragraphs 1 and 2 while author Palmisano wrote paragraph 5.

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# Nature Connection and Music in Early Education: Insights from the CNS-Ch Scale and TEAL Methods

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## Abstract

This study explores the connection between music, technology, and nature through the analysis of results from the CNS-ch scale (Connectedness to Nature), measuring the personal relationship with nature in students aged 6 to 11. Biophilia, humans' innate affinity with nature (Barbiero & Berto, 2016), provides insight into individual and collective well-being, the regenerative potential of nature, and the need for its preservation. Technology-enhanced active learning (TEAL) offers an innovative context to integrate nature connection into education (Hills & Thomas, 2020), surpassing traditional environmental education in Italy. This research highlights the use of technologies converting plants' electrical variance into musical notes, allowing children to improvise with percussion or voice. The goal is to assess children's connection with nature using methodologies leveraging music as a propelling tool (Arbuthnott et al, 2022).

**Keywords:** nature; TEAL; education.

## 1. Introduction

The society we live in, increasingly shaped by urban growth and a growing disconnection from nature, underscores the need to invest in innovative environmental education practices to address modern challenges. This paper highlights the transformative potential of interdisciplinary approaches in education, which combine science, art, and technology to foster a deeper connection with the natural world. These methods emphasize the importance of experiential learning and leverage our innate biophilia to inspire sustainable behaviors and a sense of environmental responsibility. The central idea is to move beyond traditional, didactic learning models that often fail to engender lasting pro-environmental attitudes or behaviors. By adopting experiential and interdisciplinary approaches, educational interventions can promote active engagement with nature, fostering emotional and sensory connections that encourage a more profound ecological awareness. This shift supports the development of environmental literacy and empowers individuals to take meaningful action for the planet. The paper is structured into several sections, each exploring a key element of these educational approaches. The first part examines the intersection of nature, culture, and artistic human expression, analyzing the ways in which our environment influences how we perceive and relate to the world around us. It highlights how cultural and natural elements are interwoven and how this relationship can serve as a foundation for fostering environmental mindfulness. The second section focuses on the Connectedness to Nature Scale for Children (CNS-ch), a standardized self-assessment tool that evaluates how deeply children perceive themselves as part of the natural world. Derived from the original scale for adults by Mayer and McPherson Frantz (2004), the CNS-ch was adapted to capture the cognitive and emotional specificities of younger individuals. This tool underscores the importance of early interventions to build strong connections with nature, showing how such bonds are linked to pro-environmental behaviors and overall well-being. The final section introduces the Technology Enhanced Active Learning (TEAL) model, a student-centered teaching methodology based on Dewey's (1938) principle of "learning by doing." TEAL integrates active, collaborative, and interdisciplinary activities with digital tools, creating immersive learning experiences that encourage critical thinking and problem-solving. Originally designed for STEM disciplines, this methodology has proven effective in fostering engagement and inclusivity in a variety of educational contexts, including environmental education. A significant strength of these approaches is their emphasis on inclusiveness and personalization. By incorporating hands-on outdoor activities and accessible digital tools, these educational models are adaptable to diverse socio-cultural contexts and ensure active participation from all students, regardless of their abilities or prior experiences. This inclusivity promotes equity in learning and broadens the reach of environmental education to a wider audience.

## 2. Ecomusicology: a convergence of nature, culture, and sound

The intricate relationship between humans and their environment has long been a subject of inquiry across disciplines. From the rhythms of nature influencing ancient rituals to contemporary debates on ecological sustainability, the interplay between the natural world and human expression continues to reveal profound insights. Music, as a universal form of communication and creativity, stands at the crossroads of these explorations, offering unique perspectives on how we perceive, engage with, and impact our surroundings. Within this broader context, the emerging field of ecomusicology provides a lens to examine these interconnections, merging artistic, cultural, and ecological dimensions.

Ecomusicology represents an interdisciplinary field exploring the intersection between music, nature, and culture, investigating the relationships between sounds, environments, and human communities. This approach considers music not only as a cultural product but also as a phenomenon deeply embedded within natural contexts and shaped by environmental dynamics. Recent studies, such as that by Adams and Beauchamp (2021), have demonstrated how the environment profoundly influences musical experiences, transforming them into a medium for connecting with the natural world. For instance, rural settings, with their natural sounds like birdsong or rustling leaves, enrich

musical creation and foster a deeper relationship between individuals and their surrounding environment (Arbuthnott et al, 2022).

The concept of ecomusicology encompasses two main approaches: an analytical one, which studies musical communities with the same holistic perspective ecologists use to observe ecosystems, and an experiential one, which views music as a tool for encountering and understanding the world. The latter approach, central to Gambirasio's (2022) work, emphasizes the importance of listening as a means to connect with others and with the environment, fostering an interdependent understanding of community and ecosystem needs. In this perspective, music becomes not only an expressive medium but also an educational and transformative tool, capable of promoting pro-environmental behaviors.

A crucial aspect of ecomusicology is its connection to the concepts of biophilia and musicophilia. Biophilia, defined by Kellert and Wilson (1995) as an innate tendency to seek connections with the natural world, and musicophilia, understood by Sacks (2014) as a profound attraction to music, share a common denominator: human well-being. Both concepts highlight the importance of emotional and relational experiences in fostering a sense of belonging and harmony with nature. Biophilia, in particular, can be stimulated through pedagogical pathways emphasizing emotional participation, encouraging an evolved and conscious relationship with the natural world.

Beyond its effects on humans, research has begun exploring the interaction between music and other forms of life, such as plants. Studies in plant neurobiology (Shivanna, 2022) reveal that plants not only respond to sound stimuli but also use them to communicate their physiological state and adapt to their environment. Specific sound frequencies, such as those produced during cavitation processes, can provide information about plant stress conditions, suggesting a complex and multifunctional form of communication. These findings expand our understanding of sound-ecosystem interactions, highlighting how sound can serve as a universal language among different forms of life.

This interdisciplinary panorama encourages broader reflection on the need to rethink the relationship between humans and nature. Music, with its unique ability to connect and inspire, can be used as an educational tool to raise awareness about environmental sustainability and the importance of preserving ecosystems. Understanding plants as complex beings with communicative and behavioral capabilities breaks anthropocentric barriers and invites us to recognize our role within the web of life. Ultimately, ecomusicology offers an innovative framework for exploring the interconnections between music, nature, and culture. By integrating diverse disciplines, it promotes a holistic and inclusive vision of the living world, opening new pathways for addressing contemporary environmental and social challenges. This work aims to delve deeper into these interactions, analyzing how music can act as a bridge between humans and the environment, fostering a more harmonious and sustainable relationship with the planet.

## 3. The Connectedness to Nature Scale - children (CNS-ch).

The Connectedness to Nature Scale for Children (CNS-ch) is a standardized self-assessment tool designed to measure the extent to which children perceive themselves as integral parts of the natural world. This scale, an adaptation of the original CNS by Mayer and McPherson Frantz (2004) for adults, was developed by Berto, Pasini, and Barbiero (2012; 2016) to address the unique cognitive and emotional characteristics of younger populations. The CNS-ch comprises seven items, which aim to assess various dimensions of a child's connection to nature, such as feelings of unity with natural elements, affinity with plants and animals, and the perception of equality between humans and other living beings. Each item is rated on a Likert scale ranging from 0 ("never") to 4 ("always"), with a cutoff score of 3, which serves as a threshold to indicate a significant level of connectedness.

The adaptation of the CNS to children reflects an increasing recognition of the importance of fostering ecological awareness and emotional connections with the environment during formative years. Research has shown that a strong sense of connectedness to nature in children is associated with a range of positive outcomes, including increased pro-environmental behaviors, enhanced well-being, and improved academic performance in environmental education contexts. For example,

studies employing the CNS-ch have demonstrated that children with higher scores on the scale tend to exhibit greater curiosity about natural phenomena and are more likely to engage in activities that promote environmental sustainability.

In educational settings, the CNS-ch has been employed to evaluate the effectiveness of various interventions aimed at strengthening children's bonds with nature. These findings underscore the potential of innovative educational approaches to deepen children's emotional and cognitive engagement with the natural world.

The CNS-ch's methodological rigor is supported by its psychometric properties, which ensure its reliability and validity as a measurement instrument. The scale's items are carefully worded to capture children's subjective experiences and perceptions, avoiding overly complex or abstract language that might hinder comprehension. This accessibility makes the CNS-ch suitable for diverse educational and cultural contexts, as evidenced by its successful application in studies conducted in various countries and school systems. Additionally, the scale's brevity and simplicity facilitate its integration into broader research protocols without imposing excessive demands on participants or educators.

In recent applications, the CNS-ch has been used to explore children's relationships with nature through quantitative measures, offering insights into their emotional and cognitive connections. While primarily focused on structured assessment, its integration with other methods, such as observational studies, could enhance understanding of how children engage with their natural environments. By integrating qualitative and quantitative approaches, researchers can better understand the multidimensional nature of children's connections to the environment.

Despite its strengths, the CNS-ch is not without limitations. The scale's reliance on self-reported data may introduce biases, such as social desirability or variability in children's interpretations of item wording. To mitigate these issues, researchers often complement CNS-ch data with observational methods or third-party assessments by educators and parents. Furthermore, while the cutoff score of 3 provides a useful benchmark, its applicability across different cultural and environmental contexts requires further validation. Future studies could explore the development of localized versions of the CNS-ch, tailored to reflect specific ecological and cultural characteristics.

The CNS-ch's integration into interdisciplinary research and practice underscores its potential as a tool for promoting environmental literacy and sustainability education. For instance, the scale has been used to evaluate the impact of outdoor learning programs, which emphasize hands-on, experiential engagement with nature. These programs often incorporate activities such as ecological fieldwork, wildlife observation, and creative projects that encourage children to explore their natural surroundings. By quantifying the outcomes of such interventions, the CNS-ch helps educators and policymakers identify effective strategies for fostering environmental stewardship among younger generations.

Technological innovations have further expanded the scope of CNS-ch applications. Digital tools, such as biofeedback devices and interactive platforms, have been used alongside the scale to create immersive learning experiences that enhance children's sensory and emotional connections to nature. For example, the use of portable biofeedback instruments allows students to "listen" to the electrical signals emitted by plants, which are converted into musical notes. This innovative approach not only deepens children's appreciation for the complexity of natural systems but also provides a tangible, multisensory experience that reinforces their connection to the environment. Studies incorporating such technologies have reported significant increases in CNS-ch scores, suggesting that these tools can effectively complement traditional educational methods.

The CNS-ch also plays a vital role in addressing broader societal challenges related to environmental sustainability. By cultivating a strong sense of connectedness to nature among children, educators and researchers can contribute to the development of environmentally responsible behaviors and attitudes that persist into adulthood. This aligns with global initiatives, such as the United Nations Sustainable Development Goals, which emphasize the importance of environmental education in achieving a sustainable future.

# 4. Technology enhanced active learning (TEAL)

Technology Enhanced Active Learning (TEAL) is a student-centered teaching methodology based on Dewey's "learning by doing" (1938), emphasizing action as a crucial element for fostering meaningful learning. Developed at MIT to address performance issues and dropout rates, TEAL integrates lectures, simulations, and hands-on activities, offering a collaborative and interdisciplinary learning experience (Panzavolta & Cinganotto, 2020). Originally designed for STEM disciplines, it has been progressively adapted to other fields, proving effective in diverse educational contexts (Hassan, Puteh & Sanusi, 2018).

The TEAL model follows four main phases: activation, production, elaboration, and closure. During the activation phase, teachers introduce open-ended tasks or problems to spark curiosity and critical thinking, following the principles of conceptual change (Posner et al., 1982). In the production phase, students apply problem-solving strategies and interdisciplinary approaches, consolidating skills through practical and collaborative work (Wood, Bruner & Ross, 1976). The elaboration phase fosters metacognition, encouraging students to critically reflect on outcomes and integrate feedback (Flavell, 1979; Nicol & Macfarlane-Dick, 2006). Finally, the closure phase supports the transfer of acquired skills to new contexts, aligning with transfer theory (PS-Perkins & Salomon, 1988).

Educational technologies, such as digital platforms and monitoring tools, strengthen collaborative learning, enhance student engagement, and provide immediate and personalized feedback (Dunn & Kennedy, 2019). Despite challenges related to resources and digital competencies, TEAL represents an innovative and sustainable model adaptable to various educational contexts.

At the same time, emotional intelligence plays a fundamental role in fostering meaningful learning. Initially defined by Salovey and Mayer (1990) as the ability to recognize, understand, and use emotions to enhance thinking, it includes competencies such as self-awareness, emotional regulation, and empathy. Goleman (1995) expanded the concept, highlighting how emotional intelligence influences motivation, memory, and decision-making. Neuroscientific studies, such as those by Damasio (1999), show that positive emotions enhance learning by improving memory retention and active participation, whereas negative emotions, like anxiety and stress, can hinder it. The link between technology, active learning, and emotions is critical for creating enduring educational experiences. Tools such as simulations and virtual reality promote immersive learning, combining cognitive and emotional stimuli to make educational experiences more meaningful (Chaidi, Drigas & Karagiannidis, 2021). When applied to environmental education, these methodologies help develop an authentic connection with nature by integrating practical and emotional experiences.

Environmental education represents a field where TEAL and emotional intelligence can be combined to foster sustainable behaviors. Activities that incorporate tools like biofeedback devices, capable of translating natural signals into music, stimulate curiosity and ecological awareness. These multisensory experiences encourage a deep connection with the environment, inspiring students to protect and value natural heritage.

# 5. Conclusions

In conclusion, the interdisciplinary approach explored in this chapter underscores the transformative potential of integrating science, art, and technology into environmental education. By moving beyond traditional learning methods and fostering experiential and inclusive practices, such approaches can inspire a deeper connection with the natural world and promote pro-environmental behaviors.

The integration of tools like the Connectedness to Nature Scale for Children (CNS-ch) and methodologies such as Technology Enhanced Active Learning (TEAL) demonstrates how innovative educational frameworks can nurture ecological awareness and emotional engagement. These frameworks empower learners to perceive nature not as a distant or abstract concept but as an interconnected system in which they play an active role.

A key strength of these educational strategies lies in their adaptability and inclusiveness. By accommodating diverse socio-cultural contexts and utilizing accessible technologies, they create equitable learning environments that engage participants of all abilities and backgrounds. This inclusiveness broadens the reach of environmental education and ensures its relevance in addressing the pressing challenges of urbanization and ecological disconnection.

Ultimately, interdisciplinary and experiential educational models provide a powerful pathway for cultivating a profound appreciation for nature and fostering sustainable behaviors. As we face growing environmental challenges, these approaches offer a valuable foundation for shaping a future that is more connected, equitable, and harmonious with the natural world.

## Division of paragraphs

The paragraphs were divided equally among the authors. Author Finestrone wrote paragraphs 3 and 4, author Savino wrote paragraphs 1 and 2 while author Palmisano wrote the abstract and the author Toto Supervised the entire research and writing process.

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# Kinesiologists' and Coaches' Self-Assessment of Their Pedagogical Competences

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## Abstract

This study aimed to evaluate the pedagogical competence of kinesiologists and coaches through self-reflection, in order to identify areas for pedagogical improvement and professional development. The research included 302 participants from Croatia—217 kinesiologists and 85 coaches. The instrument used was the "Self-Assessment of Pedagogical Competence of the Teacher's Role" questionnaire, which demonstrated high reliability (Cronbach's alpha = 0.98). Results showed a high level of motivation and interest in working with children and athletes, which is a key trait of pedagogically competent professionals. Additionally, a negative correlation was found between pedagogical competence and both uncertainty in work and perceived existing knowledge, highlighting the value of self-reflection.

**Keywords:** pedagogical practice; education; correlation; initial education.

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## 1. Introduction

A kinesiologist and a coach, as professionals and experts, are participants in a system requiring a wide range of knowledge and skills for successful operation within it. Because kinesiologists are part of the educational system, they can be seen as education subjects with developmental and creative functions (Lukaš & Mušanović, 2020). This is why pedagogical knowledge is necessary to fulfil the prerequisites and lay the foundations for children's holistic growth and development. The initial education of education subjects often influences different levels of competencies. Kinesiologists acquire more pedagogical, didactic, methodological, and sports knowledge during their education than coaches who complete coaching school. Since not everyone has the same initial education, the levels of pedagogical competencies and, subsequently, pedagogical practice differ. However, initial education is not the only precondition for successful pedagogical practice; it is the starting point from which other conditions and factors affecting the level of pedagogical competencies arise.

One of the main parameters of pedagogical competence is the implementation of pedagogical practice and its self-reflection. This is manifested through three elements: "experience of control," "relationship," and "good feeling" (Kostović-Vranješ & Ljubetić, 2008). That is, they should control their actions and work and manage their feelings and behaviour during work to create a positive atmosphere in learning or training. Additionally, it is necessary to establish communication with the education subjects to receive feedback for improvement and enjoyment of their work. As a fundamental human right, education promotes individual freedom and empowerment and yields significant development benefits (Žnidarec Čučković & Ohnjec, 2017). Considering the constant changes in society, improving knowledge and skills and adapting them to new working methods is necessary to be considered competent. According to Weimer (2002), this implies a deviation from the classical frontal teaching, in which the kinesiologist is at the centre of the training process, to modern work methods, in which the student or athlete is placed at the centre. The pedagogical practice of kinesiologists and coaches within training programs plays a significant role in the education of their athletes, contrary to the popular opinion that pedagogical practice belongs exclusively to school systems. This is confirmed by the research conducted by Visak et al. (2015), who determined that the coach's attitude towards the athlete is the second reason for engaging in sports activity. This underscores the vital role of kinesiologists and coaches not only in the development of physical abilities but also in the development of traits and social characteristics. Young people are involved in various sports activities not only because of the sports program offered but also because of the coach's relationship with them and because of the emotional atmosphere that the coach brings to the training program (Jowett, 2017). Athletes perceive coaches precisely through their feelings towards the coach and behaviour during training sessions (Gomes et al., 2020). All the listed characteristics that the coach and kinesiologist bring into the training programs should create a quality relationship with the student/athlete and their intention to stay within the preferred sports activity. Previous research has established the link between a quality relationship between coaches and athletes and athletes' enjoyment of sports (Gardner et al., 2016). If the kinesiologist/coach does not have a quality relationship with their athletes/students, negative feelings will arise, and they will eventually give up sports activities. Factors that often cause students/athletes to give up sports are an autocratic style of physical activity, frequent emphasis on the importance of winning, conflicts with a coach/kinesiologist, and lack of encouragement (Rottensteiner et al., 2015; Birr et al., 2023). Students/athletes observe the behavioural patterns of their coaches and teachers and often apply them in their interactions with peers (Alajbeg & Kovačević, 2019). The role of coaches and teachers is not only to transfer knowledge and teach sports skills but also to provide pedagogical support. Kinesiologists/coaches who possess pedagogical competencies and improve their work and relationships with students/athletes can expect sports progress from their students/athletes (Čokorilo et al., 2011; Stone et al., 2021). Consequently, the importance of pedagogical competencies in all subjects of education, including kinesiologists/trainers, is evident. Therefore, it is important to research this topic to gain insight into the state of pedagogical competence and consequently act on potential shortcomings.

Furthermore, the research intends to assess the pedagogical competence of kinesiologists and coaches through self-reflection. The goal is to identify specific areas for improvement in pedagogical

education and practices, with the potential to significantly contribute to the professional development of kinesiologists and coaches. This study aims to establish specific areas of pedagogical education and practice with the overall aim of enhancing and advancing the profession.

## 2. Materials & Methods

### 2.1 Participants
A total of 217 kinesiologists (BA and MA) and 85 trainers who completed coaching school in Croatia participated in this research. Among them, 175 were male and 127 were female. The respondents are employed in primary or secondary schools (N = 184), sports clubs, sports associations, sports or recreation centres (N = 112), and kindergartens (N = 6). The directors of these institutions played a crucial role in the research, approving the implementation and forwarding the questionnaire to their employees/kinesiologists for inspection. The kinesiologists/trainers were given the opportunity to participate in the research by filling out the questionnaire and could withdraw at any time. The research followed the ethical principles outlined in the 1964 Declaration of Helsinki, with appropriate modifications and updates reflecting current ethical standards.

### 2.2 Data collection
The survey utilized the "Self-assessment of Pedagogical Competence of the Teacher's Role" questionnaire (Kostović-Vranješ & Ljubetić, 2008), which was meticulously modified for kinesiologists' assessments of pedagogical competence. This thorough modification process ensured the questionnaire's relevance and accuracy. It included four independent variables (gender, years of service, education, and employment) and 26 dependent variables related to kinesiologists' self-assessment of their pedagogical competencies. Each dependent variable was assessed on a Likert-type scale ranging from 1 (never) to 5 (always). The questionnaire was distributed to the directors of institutions or directly to kinesiologists. After completion, it was returned to the researchers.

### 2.3 Data Analysis
After collecting the questionnaires, we analyzed the answers using IBM SPSS Statistics, a system for statistical data processing. The frequency of the data determined how often a particular value appears in each variable. Descriptive statistics were used to determine the questionnaire's reliability, and Cronbach's alpha was found to be 0.98, indicating high reliability. Additionally, descriptive statistics were used to analyze the year of service variable regarding normality and breakdown descriptions.

Our factor analysis was meticulously conducted. We employed the Principal Component Analysis (PCA) model with oblique rotation of Oblimin with Kaiser normalization to validate our findings, instilling confidence and trust in our research results. This approach allowed us to identify clearer manifest variables within the factor. Subsequently, the extracted factors were named, further reinforcing the validity of our analysis.

## 3. Results

Breakdown descriptive statistics (Table 1) determined the arithmetic mean of the participants' responses regarding the years of service.

| Years of service | Number of participants by years of service | By instinct, I know what children or athletes need. M | For the proper treatment of children or athletes, I need more knowledge. M |
|---|---|---|---|
| 0–5 | 72 | 3.86 | 3.08 |
| 6–10 | 52 | 3.98 | 2.69 |
| 11–15 | 52 | 3.83 | 2.52 |
| 16–20 | 29 | 3.97 | 2.52 |
| >20 | 97 | 3.99 | 2.45 |
| **Total:** | **302** | **3.93** | **2.66** |

*Table 1: arithmetic mean of the participants' responses regarding the years of service.*

After descriptive statistics was performed, the obtained results were processed by factor analysis in which 6 factors were extracted out of 26 manifest variables of kinesiologists' pedagogical competence. EFA was conducted using Principal Component Analysis (PCA) with Oblimin rotation to identify coherent factor structures. The Kaiser–Meyer–Olkin measure verified the sampling adequacy for the analysis, KMO = 0.86 ('excellent' according to Field, 2024), and Bartlett's test of sphericity, $\chi^2(325) = 1023.5$, $p < .001$, indicated that correlations between items were sufficiently large for PCA. An examination of the pattern and structure matrices representing the parallel and orthogonal projection enabled an overview of the variables describing the extracted factors (Table 2).

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