

21st Century European Teachers

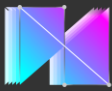
Research report (D2.2)

Project Title	21st Century European Teachers
Project Acronym	XXI-EU-TEACH
Project Number	101104591
Deliverable Number	D2.2
Work Package Leader	“Alexandru Ioan Cuza” University of Iasi (UAIC), Romania
Work Package Partners	VIA University College (VIA), Denmark. CESIE ETS (CESIE), Italy. Universidad Rey Juan Carlos (URJC), Spain. EUN Partnership Aisbl (EUN), Belgium. Laurea Ammattikorkeakoulu Oy (LAUREA), Finland. Jyvaskylan Yliopisto (JYU), Finland
Participating Schools	Kolind Skole, Denmark. Istituto Comprensivo Giovanni XXIII – Piazzini, Italy. Colegio Peñalar, Spain. Colegiul National “Costache Negruzzi”, Romania. Hollihaka primary School, Finland
Dissemination Level	Public
Delivery Date	2025-02
Version	1
Author(s)	Magda Elena Samoilă, Angelica Hobjilă, Andrei Marian, Ciprian Ceobanu, Nicoleta Laura Popa
List of contributors	Ane Wolfsberg, Louise Lottrup, Ditte Amund Basballe, Cecilie La Monica Grus, Jesús Paz-Albo, Aránzazu Hervás Escobar, Lidija Kralj, Tomi Tolonen, Merike Kessler and Jonna Kangas.
Editor(s)	Laura Lindberg
Graphic design	Mattia Gentile



Co-funded by
the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.



CONTENTS

INTRODUCTION	4
The 21st century European Teacher Project.....	4
THEORETICAL BACKGROUND	6
Technological empowerment	6
Sustainable learning	6
Entrepreneurship.....	7
Playful learning	7
Teachers' international mobility	8
METHODOLOGY	9
Participants	9
Instruments.....	10
Procedure	10
RESULTS	11
The quantitative study	11
The qualitative study	15
CONCLUSIONS	26
REFERENCES	27

INTRODUCTION

The 21st century European Teacher Project



The overall objective of the 21st Century European Teachers Project is to gain insight into how European teachers can approach and develop teaching in emerging subject matter areas that arise as a result of large complex upheavals affecting society, e.g., climate change and the ubiquitous digital development.

Learn more about and follow the project at: [21st Century EU Teachers](https://www.21centuryeuteachers.eu/)

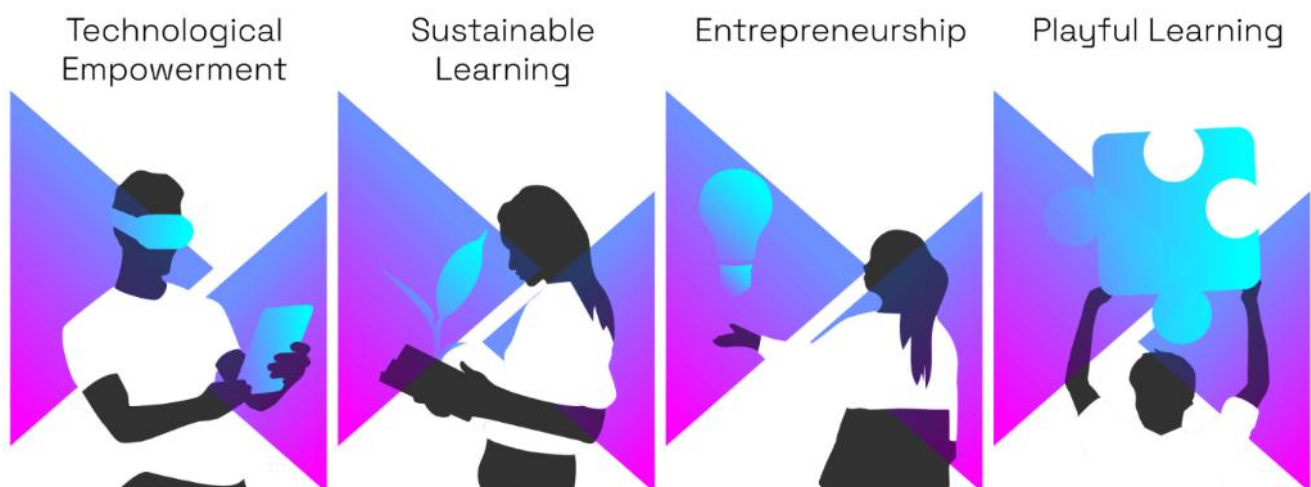


Figure 1 - The four emerging subject areas that the project addresses.

The first step in achieving this ambitious goal is to lay the groundwork for a common understanding of the participating countries' school systems, teacher education, further education options, and teacher training needs within the four subject areas. This includes the options for pre- and in-service teachers to engage in mobility to learn from practices in other countries.

This research report introduces the four central themes of the 21st Century European Teachers Project (i.e., technological empowerment, sustainable learning, entrepreneurship and playful learning), and the international

mobility as one of the factors fostering teachers' continuous professional development (CPD), as part of the transformative framework proposed for teacher education and training, as well as a summary of the results of a two-steps study. The research was conducted across five European countries – Denmark, Finland, Italy, Romania and Spain – based on a mixed-method methodology: a quantitative study designed to delve into perceptions of policy and decision makers, teachers' educators and trainers, school leaders, pre-service and in-service teachers about the elements of the transformative framework proposed, and teachers' mobility role as a springboard for meaningful advancements in teacher education; and an ethnographical participatory study to empower relevant stakeholders, mostly university and school leadership, teachers' educators and trainers, pre-service and in-service teachers in order to co-create multiple shifting positions on the proposed innovative framework.

THEORETICAL BACKGROUND

Technological empowerment

The European institutions and programmes actively promote effective training strategies for digital literacy and information (e.g., European Literacy Policy Network, 2020; Digital Europe Programme, 2021). Also, recent EU higher education initiatives emphasize the critical role of universities in shaping more green and more digital economies (Council of the European Union, 2022a; Council recommendation on building bridges for effective European higher education cooperation, 2022b), and digital competences play a central part in this process. However, technological empowerment goes beyond digital literacy and competences. In an attempt to provide a clear background for technological empowerment, Pandey & Zheng (2019) refer to Alsop & Heinsohn's (2005) empowerment types and associated indicators – community, political, economic, and cultural and gender empowerment, and Zimmerman's psychological theory of empowerment (1995; 2000). The first theoretical framework touches upon the collective level, while the second focuses on individual empowerment. Empowerment categories defined at group level may support researchers and educators in teacher education to recognize differential changes in power at structural and organizational level, while psychological empowerment deals with power changes at individual level. This last type of empowerment in relation with technology, and among pre-service and in-service teachers may be deeper scrutinized, although it is a rather problematic construct. According to Zimmerman (2000), individual empowerment is context-sensitive and differs across population, changes over time, and has to be understood both as a process and an outcome. If one considers these two lines of reasoning around empowerment, she should also reflect on whether technology is a tool to empower teachers, a specific and open environment that fosters the process of empowerment, or/and an unavoidable outcome of teacher education for the 21st century teachers. Most probably all perspectives need to be addressed, together with the need to reconsider the discourse and practices on developing teachers' digital competences.

Sustainable learning

Following Hays & Reinders' (2020) interpretation of sustainable learning and education (SLE), this has to be interpreted as different than education for sustainability or sustainable development. SLE is rather "a philosophy of learning and teaching founded on principles of sustainability" (p. 2), and may be defined "as learning that is retained (and may be transferrable) after initial exposure to it and may involve a process of 'learning to learn'" (p. 2), and it involves cycles of contextualized building and rebuilding one's knowledge and skills, but also 'unlearning'. Lasting and transferable acquisitions, as well as dynamic learning tightly connected with context developments and emerging possibilities are also mentioned by Berman & Graham (2018). Graham, Berman & Bellert (2015, p. 3) stress that sustainable learning should be understood as "learning for all, teaching that matters, learning that lasts".

The Council of the European Union (2022c) recommended the inclusion of education for sustainable development and green transition as priority areas in education and training policies and programmes, in formal, non-formal and informal settings, with appropriate infrastructure, digital tools and resources, and building in particular on the new European Competence Framework on Sustainability (GreenComp). The recommendation also acknowledges teachers' needs for professional development programmes related to sustainability, which will eventually result in better incorporating the principles of the green transition and sustainable development in their teaching and training practices.

As argued, both education for sustainable learning and education for sustainable development (as instilled in education programmes around the world according to the 2030 Agenda for Sustainable Development – United Nations, 2015) are to be addressed in teacher education and training.

Entrepreneurship

Although the traditional perspective on entrepreneurship is often dominated by the economic facets, the international discourse on the topic broadened in the last two decades, and even supported the infusion of entrepreneurship as transversal competence education at all levels, and in teacher education (European Commission, 2004; European Commission, 2011). Thus, entrepreneurial education is mostly seen as “a broader concept of education for entrepreneurial attitudes and skills, which involves developing certain personal qualities and is not directly focused on the creation of new businesses” (European Commission, 2004, p. 11). In this sense, entrepreneurship embeds attitudes and skills transferable in everyday life: “It includes creativity, innovation, showing initiative and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives” (European Commission, 2011, p. 2). In some European countries, entrepreneurship has a long tradition in teacher education in the form of ‘pedagogical entrepreneurship’ (Haara & Jenssen, 2016), while in others small steps have been taken so far. A more recent European report mentions that “only seven education systems treat entrepreneurship education as a compulsory topic in initial education for teachers, at least for some prospective teachers” (European Commission/EACEA/Eurydice, 2016, p. 94).

It is rather easy to strongly argue for ‘entrepreneurial mindsets’ among all pre-service and in-service teachers, and the concept may be generously connected with technological empowerment, education for sustainable learning and sustainable development, and playful learning.

Playful learning

At the beginning of the 21st century, some tendencies have been overemphasized in higher education to the point they became ‘mandatory ingredients’ for developing this sector (Nørgård et al., 2017): growing commercialization, the increased importance on metrics, the domination of the ‘the corporate universities’. There are opinions that in

these circumstances and in order to counterbalance the increasing menace of the entrepreneurial approach for the educational process in higher education, there is an increased interest for 'gamification engagement' (Bozkurt & Durak, 2018) and also, we witness "the emergence of the so-called gameful approaches in higher education, including the use of educational games, and gamification techniques" (Nørgård et al., 2017, p. 272).

From a theoretical point of view, the gamification approach is based on the constructivist theory – the individual construction and interpretation of the reality, encouraging creativity and imagination (Rice, 2009). It is certainly obvious that the playful learning approach and gamification are also very relevant in teacher education and training. For the purposes of the current project, we can see the playful learning in a double perspective: as a practical method for delivering education and training for teachers and as a theoretical content to be learned by the pre-service and in-service teachers, in order to use it in the classroom. Furthermore, this approach seems to have clear benefits for teaching and learning, especially in terms of increased motivation and engagement in the learning tasks (Nørgård et al., 2017). Some studies show that the use of playful learning in the field of initial teacher education has demonstrated three important outcomes: students' increasing happiness for their studies and consequently for the future teaching career, a growing positive perception about personal competence and a developing professional readiness (Jensen & Rørbæk, 2022).

Teachers' international mobility

International mobility may be considered a powerful tool for fostering a global perspective, enhancing skills, and improving the quality of education for both pre-service and in-service teachers. It provides teachers with opportunities to experience different educational systems, exchange ideas, and learn from diverse cultures and pedagogical approaches, and contributes to teachers' personal growth and effectiveness in the classroom, resulting from exposure to varied curriculum structures, assessment practices, and educational technology with enriching effects (Pachocki, 2021; Richardson & Munday, 2013).

Teachers who engage in international mobility not only develop professional competences, but also gain intercultural awareness, and tend to implement more culturally responsive teaching strategies, and create a more inclusive environment for all learners (Patelarou et al., 2023). They become members of professional networks that provide long-term benefits, such as sharing of educational innovations, research and best practices. It can be viewed as an additional tool for nurturing teachers' leadership, encouraging them to step outside their comfort zones, manage challenges, and adapt to new environments. Teachers who engage with diverse educational systems are more likely to adopt innovative approaches to teaching and leadership roles, as they are exposed to alternative answers to similar educational challenges.

Some studies (e.g., Pachocki, 2021) suggest that internally mobile teachers often experience greater job and career satisfaction as well as personal growth. However, obstacles to teachers' international mobility may negatively impact

their full participation: the difficulty experienced by schools in relation to the replacement of teachers while participating on mobility programmes; lack of support from head-teachers, lack of official recognition, lack of language skills and distrust in different pedagogical approaches are just some examples of documented barriers (London Economics, 2008).

Critical voices scrutinizing the European policy discourses on teachers' mobility also need further and deeper analysis, but this goes beyond the scope of the present report. Nonetheless, it may be relevant to mention the call for more "more substantial pedagogical and learning-oriented ideas" (Dyred Pedersen, 2023, p. 776) when discussing the policies articulated to promote teachers' participation in international mobility.

METHODOLOGY

Participants

A total number of 415 educational actors with different roles in teacher education and training (see Table 1), aged between 22 and 55 years, 324 female and 91 male, participated in the quantitative study. With one exception, all participants are engaged with one of the five educational systems represented in the project. Most of them reported Bachelor (33.7%) and Master of Arts (60.2%) as the highest educational degree, and a small number indicated either a pedagogical vocational high school degree, or a doctoral degree respectively. In terms of prior participation in international mobility programmes, almost one fourth reported at least one previous experience (see Table 2).

Table 1. Participants' educational roles

	Frequency	Percent	Valid Percent	Cumulative Percent
Policy and decision makers	14	3,4	3,4	3,4
Teachers' educators	53	12,8	12,8	16,1
Teacher trainers	29	7,0	7,0	23,1
School leader	19	4,6	4,6	27,7
Pre-service teacher	221	53,3	53,3	81,0
In-service teachers	79	19,0	19,0	100,0
Total	415	100,0	100,0	

Table 2. Beneficiary of an international mobility

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	92	22,2	22,2	22,2
No	323	77,8	77,8	100,0
Total	415	100,0	100,0	

A total number of 54 pre-service and in-service teachers from five countries participated to the focus-groups (10 in Denmark, 14 in Finland, 13 in Italy, 15 in Romania, and 2 in Spain).

Instruments

Quantitative data were collected with a questionnaire organised in three main sections: the first includes main information about the study and the informed consent form; the second covers demographics; and the third incorporates sets of questions targeting participants' views about the relevance of technological empowerment, sustainable learning, entrepreneurship, playful learning and international mobility for teacher education and training programs.

Qualitative data we collected through focus groups with pre-service and in-service teachers conducted in each participating country (Denmark, Finland, Italy, Romania and Spain), as well as classroom observations and informal talks organised during the school visits in each country. The focus-group interview guide included the consent form, and open questions on the five dimensions addressed in the transformative framework proposed within the 21st Century European Teachers Project.

Procedure

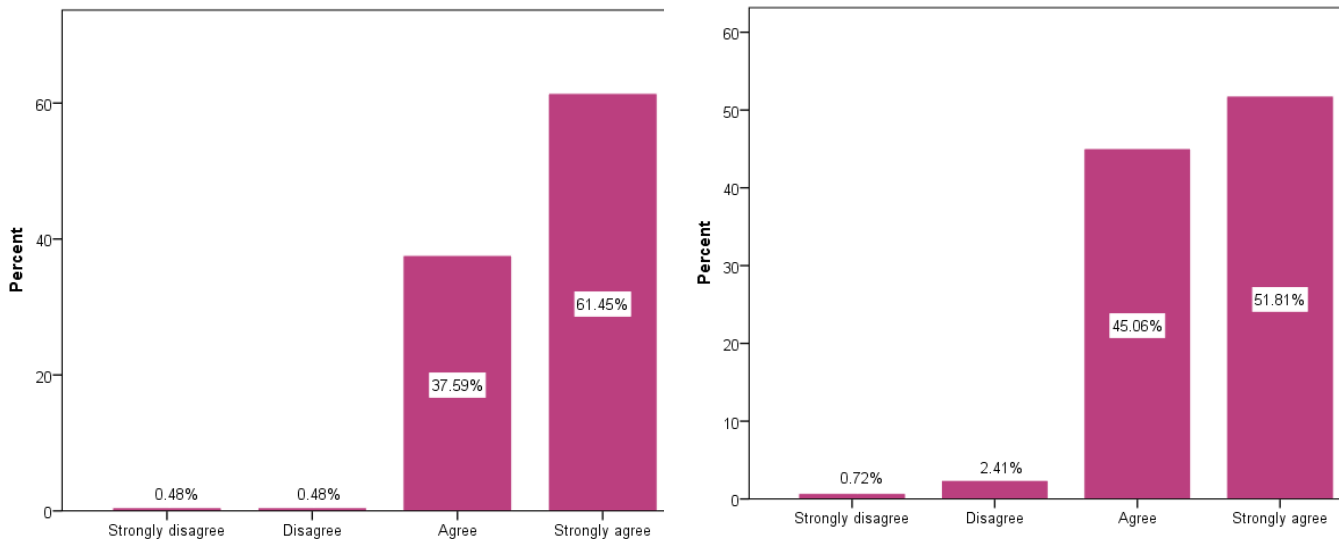
The questionnaire was self-administered online (Microsoft Office Form), and data were descriptively analysed with IBM SPSS 24. The focus groups interviews were conducted, recorded, transcribed and translated into English by local research teams in each of the five countries, and analysed with NVivo 15 software. The analysis is descriptive and case-driven, as national and institutional contexts are rather different, and require careful consideration.

RESULTS

The quantitative study

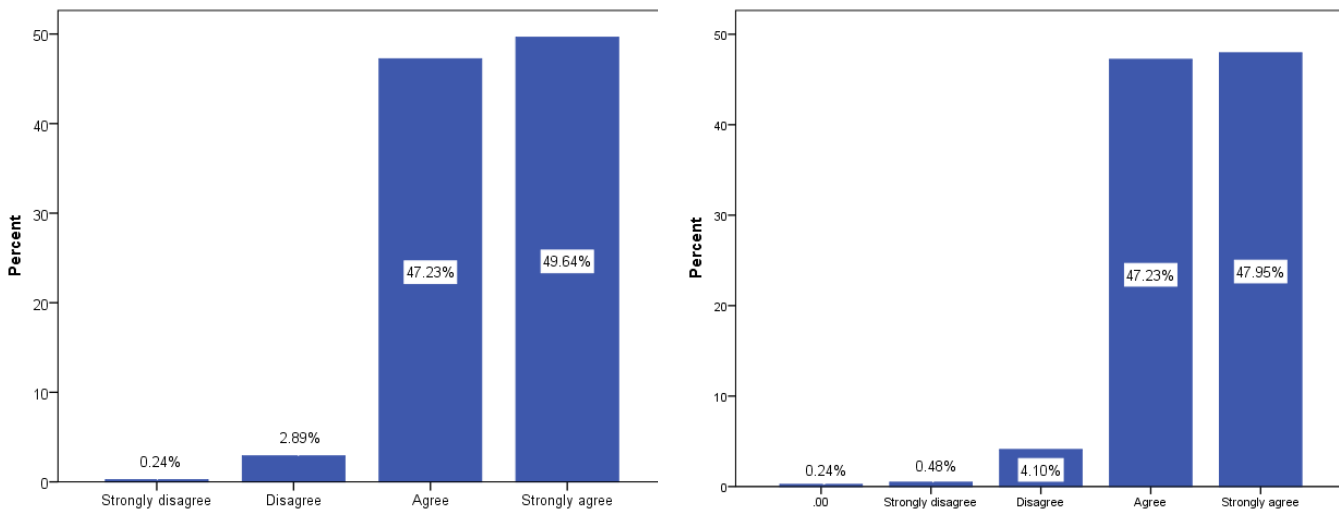
Overall, descriptive quantitative results indicate a strong but nuanced support for all four subject areas proposed and promoted in the transformative framework for the 21st Century European Teachers. A high percentage of participants (61.45%), regardless their educational roles, strongly agree that digital technology is important for teacher education and training programs and should be embedded into corresponding curricular structures (51.81%; see also Figure 1).

Figure 1. Views on Digital technology



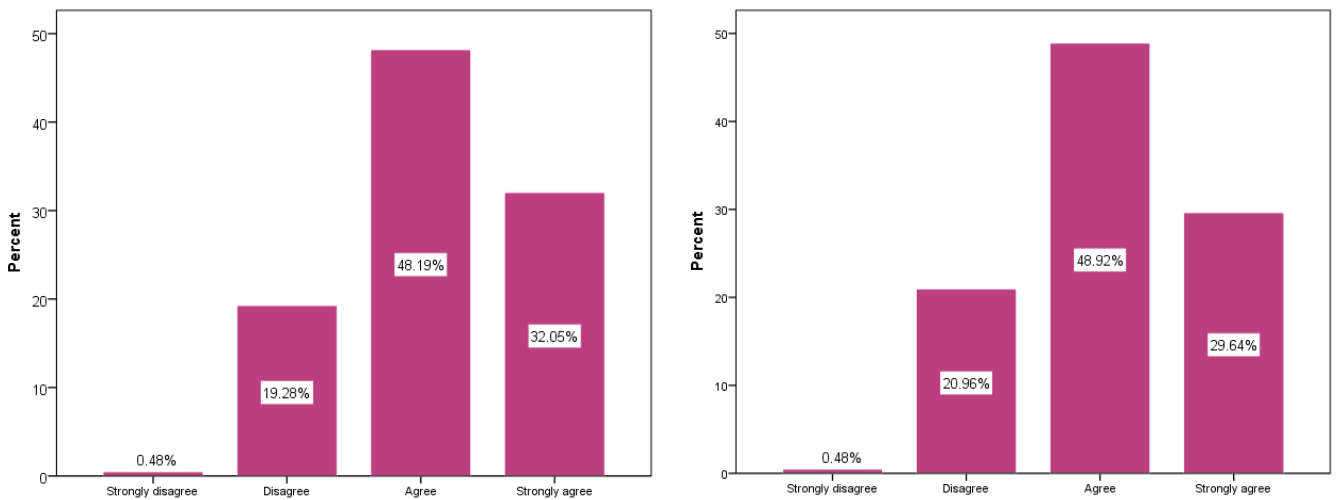
The same applies for sustainable learning, perceived as highly important and needed in teacher education and training programs by almost a half of the participants (49.64%, 47.95% respectively; see also Figure 2).

Figure 2. Views on Sustainable learning



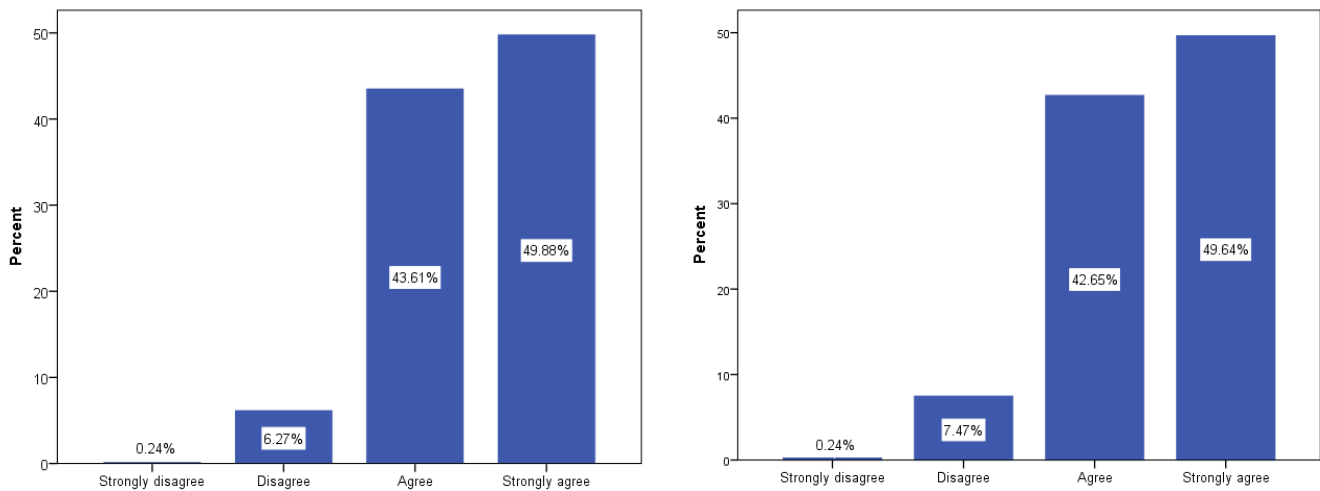
The support for the importance of entrepreneurship is slightly lower (32.05% strongly agree), as well as the need to integrate it in teacher education and programs (29.64% strongly agree; see also Figure 3).

Figure 3. Views on Entrepreneurship



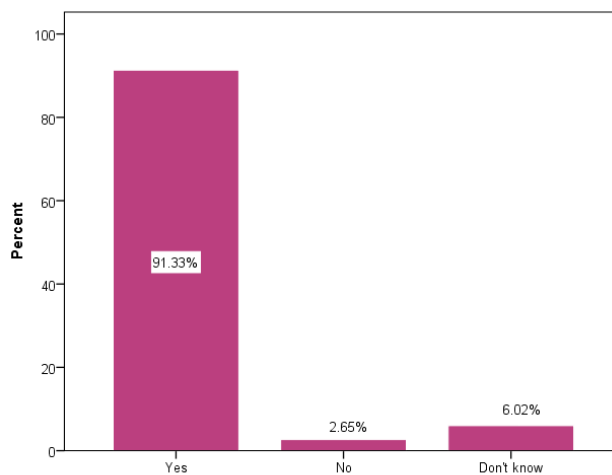
Nearly a half of the participants strongly agree that playful learning is important for teacher education and training programs and is to be infused into teacher education and training programs (49.88%, and 49.64% respectively; see also Figure 4).

Figure 4. Views on Playful learning



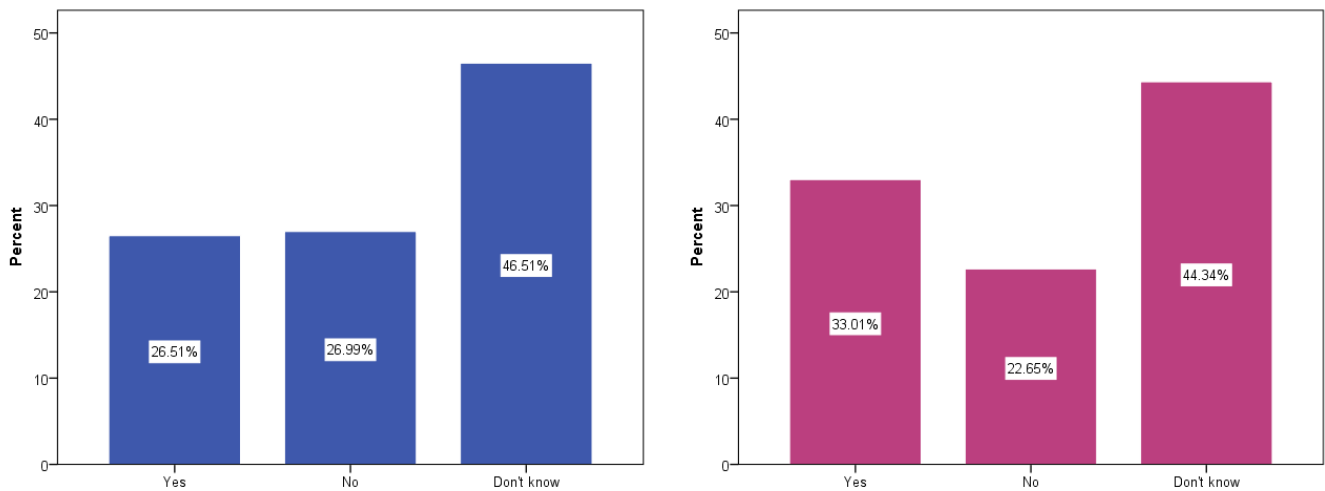
A very high percentage of the participants (91.33%) believe that technological empowerment, sustainability, entrepreneurship, and playful learning call for new or different ways of teaching (see Figure 5).

Figure 5. The four subject areas call for different ways of teaching



However, when asked to indicate if they have the necessary qualifications to teach these new subject areas, pre-service teachers seem rather confused: almost a half of them (46.51%) do not know. The same applies to their awareness on educational paths to obtain the necessary qualifications to teach these new subject areas: 44.34% of the participants do not know (see figure 6).

Figure 6. Pre-service teachers' views on the necessary qualifications and their awarness to obtain them.



Participants' views on specific benefits of international mobility for teacher education and training bring upfront the openness and the motivation to continuous professional development and life-long learning, resulting in a better learning experience for students, and the openness to innovation and transfer of knowledge and skills. A lower mean score is associated with reduced scepticism of other cultures and alternative teaching methods (see also Table 3; minimum score 1, maximum score 5).

Table 3. Benefits of teachers' international mobility: participants' views	Mean score
Teachers' motivation to teach, allowing first-hand experiences of other cultures and teaching methods that teachers can then bring back to their own students	4.34
Teachers' attachment to their profession, by providing meaningful, interesting and real-life contextual frameworks in which they can present their own curriculum	4.31
Teachers' lower scepticism of other cultures and alternative teaching methods	3.77
Teachers' own confidence in teaching and openness to integrate new teaching methods into their own school	4.36
Improved linguistic skills, by encouraging teachers to learn new languages particularly at conversational level	4.36
Innovation in communication (i.e. the use of complementary methods to promote communication when common language skills may not be that strong)	4.29
Motivation to learn a foreign language	4.28
Increased openness to Europe and European cultures, values and school cultures	4.35
Improved skills and additional qualifications	4.35
Teachers' openness and motivation to continuous professional development and life-long learning, resulting in a better learning experience for students	4.41
Teachers' openness to innovation and transfer of knowledge and skills.	4.41

Additional benefits mentioned by pre-service teachers are personal and educational development, as well as improved learning experiences, while in-service teachers emphasize higher professional flexibility in adapting to diverse classrooms, the development of a deeper understanding of global challenges and solutions in education, and improved effectiveness in the classroom.

Barriers for international mobility in teacher education and training are rated lower, with the highest mean scores for administrative burden and personal factors (see also Table 4).

Table 4. Barriers for teachers' international mobility: participants' views	Mean score
Administrative burden	3.87
Timing of applications	3.66
Timing of payments	3.60
Substitute or replacement cover	3.63
Discontinuity in teaching	3.50
Lack of support from head-teachers	3.61
Lack of support from colleagues	3.38
Lack of support from parents	3.12
Lack of confidence to travel due to lack of language skills	3.57
Personal factors (e.g., family responsibilities)	3.86

Additional barriers noted by pre-service and in-service teachers include financial constraints, anxiety to travel and fear towards the unknown, limited awareness about mobility opportunities, bureaucratic hurdles, as well as differences in education systems, difficulties in recognition of qualifications, and limited access to funding or scholarships.

The qualitative study

Regarding **the profile of the 21st century teacher**, both the perspective of in-service and pre-service teachers highlight qualities such as: creativity, adaptability, empathy, technological competences, professional expertise and responsibility (Denmark); strong ICT skills and digital literacy to enhance versatility in teaching methods (Finland); communication and relational abilities, but also digital literacy and the capacity to design innovative projects, (Italy); a balanced professional profile merging teaching knowledge, skills and attitudes and openness to innovation (Romania); digital literacy and the ability to adapt to the demands and challenges of the current era, in addition to more conventional skills like interpersonal and communication skills (Spain).

Technological empowerment

Technological empowerment is valued by pre-service and in-service teachers in all the five countries. Danish teachers emphasize aspects such as: selecting / understanding the technology and being able to use it in the right

contexts, having technological competencies, understanding how technology works to help children navigate well and also to enhance the quality of teaching; in addition, pre-service teachers' perspective highlights the responsibility as a teacher to impart to the student the immense power of technology and the many consequences that can accompany it, signalling, at the same time, the insufficient information that the teachers have in the field of technology. Finish participant emphasize the role of technology in facilitating research-based learning and creating engaging learning experiences for students. Among Italian teachers there is a consensus that teachers must be equipped to understand and navigate new technological challenges comprehensively, enabling them to effectively guide and instruct students based on valuable research. Romanian teachers stress the importance of digital literacy, and the need to use technology in relation with other relevant educational tools, while Spanish teachers argue for the value of digital literacy and the ability to adapt to the demands and challenges of the current era, in addition to more conventional skills like interpersonal and communication skills. They emphasize how important it is to modify these competencies to be successful in the 21st century and to be adaptable in terms of changing curriculum and instructional strategies to meet current demands.

Key themes emerging from the focus-groups

- Technology Selection & Understanding
- Technological Competencies
- Research-Based Learning and Engagement
- Digital Literacy
- Technology integrated with other digital tools
- Adaptability & Curriculum Change

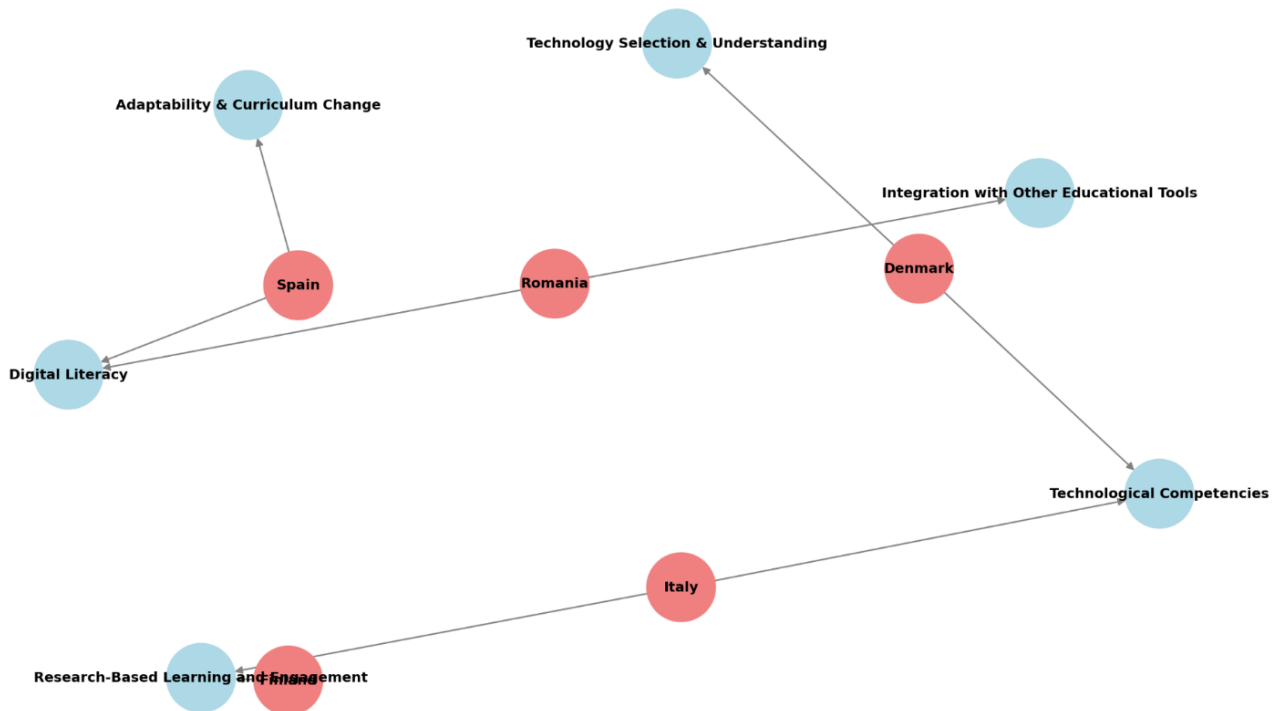
Relationships between themes and countries

Country	Key technological empowerment themes
Denmark	Technology Selection & Understanding, Technological Competencies
Finland	Research-based learning and engagement
Italy	Technological Competencies: Research based learning
Romania	Digital literacy; integration with other educational tools
Spain	Digital literacy, Adaptability & Curriculum Change

The Social Network Analysis map provided by Nvivo 15 relates priority issues for different countries regarding specific technological competences and an instructional approach. In Denmark, the priority is set on the choice and understanding of technologies as well as the development of appropriate technical competencies facilitating the effective integration of technology in teaching. For Finland, priority is in research-based learning and the aspect of engagement which has a very important role when the student has an initiative to find things out. Italy combines

technological competencies with research-based learning. Romania underlines the priority in digital literacy and also that of integrating technology into other educational tools thus balancing between traditional and modern teaching methodologies while Spain is focused on adaptability and changes in the curricula along with all aspects of digital literacy.

Figure 7. Social Network Analysis – Technological empowerment in teacher education and training



Sustainability

Sustainability, on the other hand, is considered by Danish pre-service and in-service teachers as “the most challenging concept to work with”, involving learning about resources, about the fact that everything is in a cycle of development. Sustainable learning practices are emphasized by Finish teachers as essential for fostering students' curiosity and creativity, and participatory teaching methods and research-based learning were highlighted as effective approaches for sustaining curiosity and inspiring students to take an active role in their education. Sustainable learning, according to the Italian participating teachers, involves not only learning how to learn but also learning for life. Teachers play a crucial role in helping students filter, assess, and analyse information through the lens of their knowledge. An interdisciplinary approach, integrating various subjects and transversal topics, is deemed essential for sustainable learning, ensuring students develop critical thinking skills and adaptability to navigate the complexities of the world. In connection to sustainability, Romanian teacher trainers emphasize the importance of environment concerns and the understanding the concept in relation to the learning process. In this sense, both education for sustainable learning and education for sustainable development need to be addressed. The concerns related to the environment, the digital transition are common places within the Spanish educational system, both

on national level and local level and both orientations may be connected with parts of the 21st Century Teacher profile.

Key themes emerging from the focus-groups

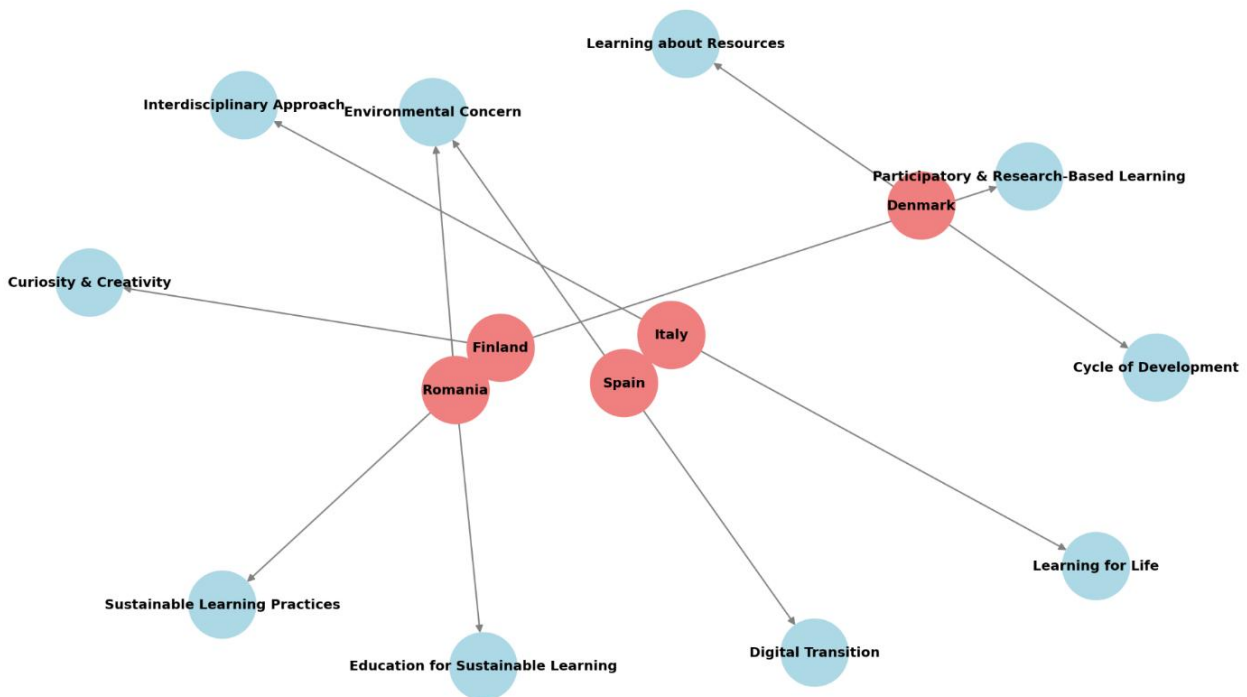
- Curiosity & Creativity
- Participatory & Research-Based Learning
- Interdisciplinary Approach
- Education for Sustainable Learning
- Environmental Concerns
- Digital Transition
- Cycle of Development
- Learning about resources

Relationships between themes and countries

Country	Key sustainability themes
Denmark	Learning about resources, Cycle of Development
Finland	Sustainable Learning Practices, Curiosity & Creativity, Participatory & Research-Based Learning
Italy	Interdisciplinary Approach, Learning for life
Romania	Environmental concern, Education for Sustainable Learning
Spain	Environmental concern, Digital Transition

The Social Network Analysis map presents to what extent different countries prioritize specific themes related to sustainability within their focuses on education. In Denmark, the emphasis is on resources and cycles of development, In Finland, the focus is on creativity, curiosity, and participatory research-based learning. In Italy, the interdisciplinary approach and lifelong learning provide a comprehensive and interconnected perspective on sustainability. In Romania, environmental concern and education for sustainable learning ensure that sustainability is firmly anchored in the process of learning. Spain also addresses environmental concerns but extends its focus to digital transition, reflecting the importance of adapting to technological advancements in sustainable education.

Figure 8. Social Network Analysis – Sustainability in teacher education and training



Entrepreneurship

The field of entrepreneurship is associated by Danish teachers with coordinates such as: collaboration, group work, focusing on a project, valuing the process, 21st Century European Teachers not just the result, anchoring in practice, usefulness in real life, associating theory with practical aspects, in order to fulfil a certain purpose. In the opinion of pre-service teachers to these elements is added the imagination and the freedom to create something, starting from given elements. The idea of the need for entrepreneurship to be more integrated into the regular curriculum is also noted. Entrepreneurship is seen by Italian teachers as a strategy to empower students, stimulating critical and creative thinking while fostering responsibility for their own learning. Teachers should possess soft skills such as empathy, open-mindedness, and individualised attention to guide students effectively and nurture their talents. This approach encourages students to take ownership of their learning path and cultivates a mindset of innovation and problem-solving. Entrepreneurship is identified by Finish teachers as a valuable skill for students to develop, requiring teachers to possess versatile expertise and innovative approaches. Integrating entrepreneurship into education can empower students to take responsibility for their learning 21st Century European Teachers and develop functional skills for the future. Romanian participants also argue for a 'entrepreneurial mindsets' among all pre-service and in-service teachers, and connects the concept to technological empowerment. In terms of entrepreneurship, Spanish participants agreed that this means to provide the opportunity to the young students to value, test and implement ideas and to think about new opportunities to work on new jobs. Teachers must have a broad understanding of current events, cultural awareness, and sensitivity in order to promote a more students' holistic development.

Key themes emerging from the focus-groups

- Collaboration & Group Work
- Project-Based & Purpose-Driven Learning
- Innovation & Problem-Solving
- Entrepreneurial Mindset
- Cultural Awareness

Relationships between themes and countries

Country	Key entrepreneurship themes
Denmark	Collaboration, Focusing on a project, Usefulness in real life
Finland	Versatile expertise, Innovative approaches
Italy	Strategy to empower students, Critical and Creative thinking, Responsibility for learning
Romania	Entrepreneurial Mindset, Technological Empowerment
Spain	Valuing & Implementing Ideas, New Job Opportunities, Cultural Awareness

The *Social Network Analysis* of Entrepreneurship in Education displays links between countries and the main themes correlated with entrepreneurship education. Denmark stresses partnership, project learning, and the application of entrepreneurship as strategy which indicates the tangible implementation of education. Comparatively, Finland links entrepreneurship with know-how, innovation, and entrepreneurial thinking, thus pointing to knowledge acquisition. Romania highlights the entrepreneurial mindset and technological skills, infusing digital transformation into entrepreneurship education. Spain associates entrepreneurship with new job opportunities, and cultural awareness, as a tool for professional and societal adaptation.

Figure 9. Social Network Analysis – Entrepreneurship in teacher education and training



Playful Learning

The Danish teachers' perspective on playful learning is nuanced, by reporting, on the one hand, the advantages of such an approach (playful character, creativity, learning through play, etc.) and, on the other hand, the challenges that such an approach implies: time and material resources to prepare the activity, class management, the “courage” to interpret a certain role etc. Playful learning emerged in the exchange with Finish teachers as a powerful method for engaging students and fostering a love for learning. Students advocate for a shift towards more playful and exploratory learning experiences, with teachers serving as guides to support students' curiosity and discovery. Embracing playful learning approaches can create dynamic and enriching learning environments that cater to diverse learning styles and interests. Playful learning is perceived by Italian teachers as an old yet complex methodology that requires strong training and preparation for implementation. While some teachers advocate for playful learning as a teaching strategy applicable across different subjects, others express concerns about its generalisation and emphasise the need for a student-centred approach. Playful learning is often perceived by Romanian participants as linked to gamification, and the importance of playful methods in learning and in developing students' critical and creative skills is acknowledged. Playful learning is considered very relevant for the contemporary teacher by Spanish participants, because they have to create the environment to motivate the students to learn, and playful activities may have an important effect in this regard.

Key themes emerging from the focus-groups

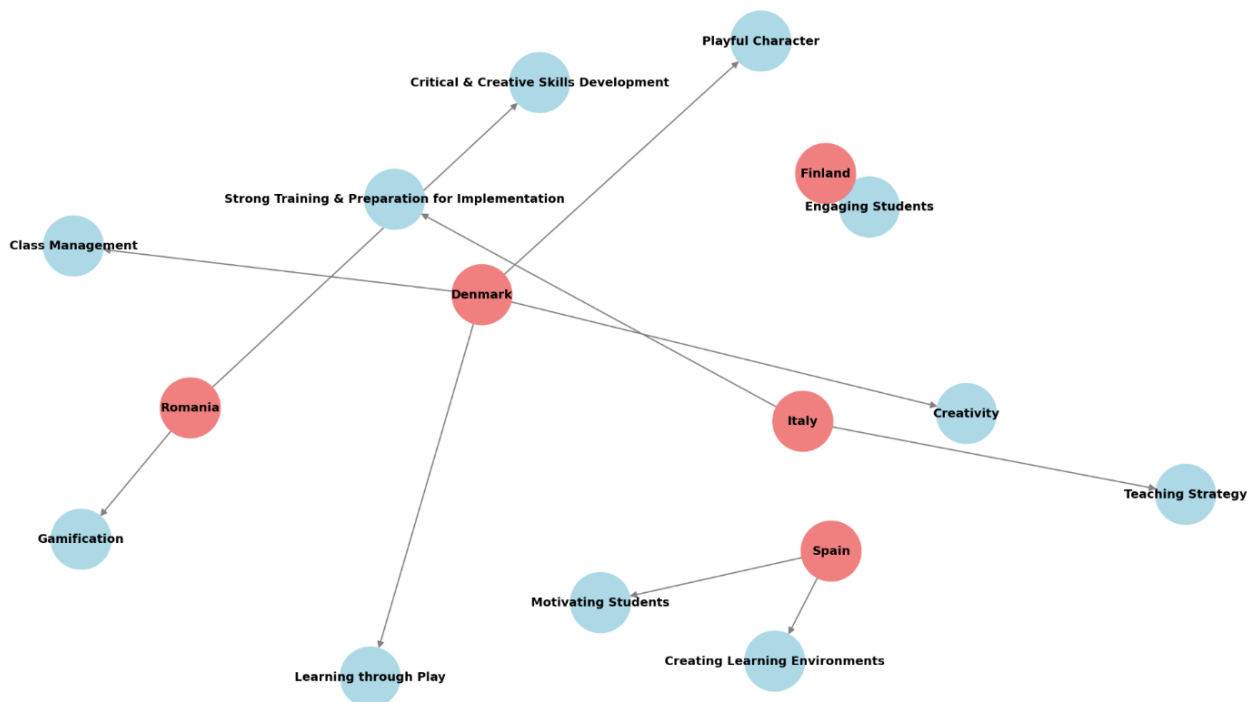
- Playful character, creativity, learning through play
- Time & material resources, class management
- Exploratory learning, dynamic environments
- Strong training and preparation for implementation, teaching strategy
- Linked to gamification, critical and creative skills
- Motivating students, Creating learning environments

Relationships between themes and countries

Country	Key playful learning themes
Denmark	Playful character, Creativity, Learning through play, Class management,
Finland	Engaging students
Italy	Strong training and preparation for implementation, teaching strategy
Romania	Gamification, Critical & creative skills development
Spain	Motivating students, Creating learning environments

The Social Network Analysis graph of Playful Learning in Education shows how different countries relate playful learning to major themes identified. For instance, Denmark relates playful character, creativity, learning by play, and class management, underlining advantages and disadvantages of using this approach. Romania relates Playful Learning to gamification and to the development of critical and creative skills, thus stressing more digital and interactive ways. Finland prioritizes engaging students, emphasizing the role of playful learning in fostering motivation and active participation. Spain considers that one of the main keys in motivation and dynamism in the classroom; is the playful learning which makes learning more attractive, having an important influence on adhesion to learning as well. As for Italy, it links playful learning to solid formation and preparation for implementation, seeing it as a methodology of teaching.

Figure 10. Social Network Analysis – Playful learning in teacher education and training



International mobility

International mobility is viewed by Danish teachers as enabling teachers to gain international experience, to enhance their cultural understanding and to broaden their teaching perspectives. The role of international mobility in the context of teacher education programs and teacher continuous professional development was equally appreciated by pre-service and in-service Finnish teachers. The former expressed a strong desire for increased opportunities for international mobility, emphasizing its meaningfulness and potential for personal and professional growth. They highlighted the importance of experiencing teaching methods and school cultures from other countries, which broadened their horizons and enriched their understanding of effective practices. In-service Finnish teacher considered that international mobility offers invaluable opportunities for personal and professional growth. It cultivates cultural competence and self-awareness, allowing individuals to recognize their strengths and weaknesses as educators. Through exchanges, educators gain insights into effective teaching practices, enhancing their pedagogical skills. Despite limited personal experience in international mobility, Italian participants expressed their belief in the benefits of international exchange programs: opportunities to gain insight into foreign educational systems, class structures, and teaching methodologies. Most of the Romanian participants were involved in international mobility as part of teacher education or training programs, and describe in positive terms their experience abroad, emphasizing direct and unmediated contact with other educational systems and colleagues, as well the opportunity for exchanges and development. They mention the opportunity to make comparisons,

analyses, and identify common and different aspects across educational systems. These experiences provided them with the opportunity to directly apply what they learned, observing aspects of school life, and even administrative mechanisms. Spanish teachers agree that international mobility is essential for both professional and personal development. The interviewed teachers emphasized that participating in such programs contributes not only to becoming a better teacher but also to maturing as a person. They believe that international mobility offers valuable opportunities allowing them to see how educational systems are managed in other countries, understand various teaching methods, and meet colleagues from other cultures. These experiences help them bring back ideas and practices that they can implement and adapt in their own schools. While there are challenges to overcome, the overall view is that international mobility greatly enriches the professional training of teachers, contributing to the development of more effective and culturally competent educators.

Key themes emerging from the focus-groups

- International experience, career development, self-awareness.
- Cultural Understanding.
- Understanding and implementing effective teaching practices, broadening perspectives.
- Teacher Education & Continuous Professional Development
- Comparing Educational Systems
- Navigating difficulties in mobility and adapting to new environments.

Relationships between Themes and Countries

Country	Key international mobility themes
Denmark	Gaining international experience, Enhancing cultural understanding, Broadening teaching perspectives
Finland	Teacher education & continuous professional development, Experiencing teaching methods & school cultures, Cultural competence & self-awareness,
Italy	Learning about class structures & teaching methodologies
Romania	Direct & unmediated contact with other systems, Comparing & analysing educational systems, Observing school life & administrative mechanisms
Spain	Implementing, adapting new ideas & practices, Personal and professional growth

The Social Network Analysis of International Mobility in Teacher Education and Training draws attention to the fact that different countries place emphases on different dimensions of teacher mobility. For Denmark, mobility is to gain international experience, understand cultures, and widen the view of teaching. For Finland, mobility is significant to teacher education, further training, and cultural competence which stresses self-reflection and exposure to different pedagogical approaches. In Italy, the mobility focuses on the knowledge of the class structure

and methodology of teaching. Romania emphasizes the direct, unmediated interaction with other systems, comparing and analysing educational models and observing school administration; the above point highlights the analytical perspective of mobility. In Spain, mobility is perceived as an implanting and adaptive method of new ideas and as encouragement for personal and professional development.

Figure 11. Social Network Analysis – International mobility in teacher education and training



CONCLUSIONS

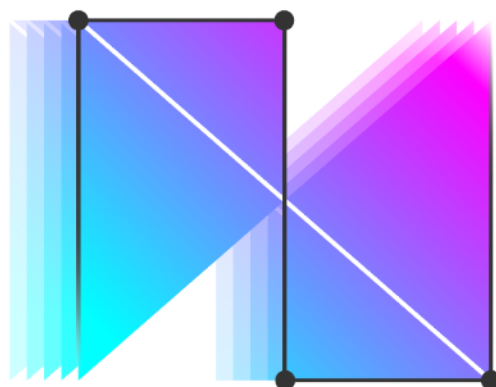
Mapping contextualized perspectives on central topics addressed in the 21st Century European Teacher Project – technological empowerment, sustainable learning, entrepreneurship, playful learning – resulted in a refined picture of overall agreement about their relevance for European teacher education and training programs. Educational actors participating in the quantitative and qualitative studies share the belief that the themes addressed need to be infused in teacher education, in order to better prepare them to meet the demands of an increasingly interconnected and digital world. Key competence areas of the 21st Century European teacher include digital literacy, which enables teachers to integrate technology into their teaching, engage students in innovative ways, and access vast resources; sustainable learning focusing on knowledge, skills and attitudes that equip students for future challenges in evolving environmental, social, and economic contexts; entrepreneurship, which encourages teachers to foster creativity, problem-solving, and a growth mindset in their students; and playful learning, which enhances student engagement and makes learning both enjoyable and effective, helping students develop critical thinking and collaboration skills, through interactive and gamified approaches.

Lastly, international mobility is essential, enabling teachers to experience diverse educational systems, exchange ideas, and collaborate on best professional practices. This global perspective enriches the classroom experience, exposing pre-service and in-service teachers to different cultures and enhancing their ability to exchange views with their peers in a highly internationalized world. If strongly interconnected, these competencies may ensure that European teachers are not only educators, but also facilitators of future-ready learners.

REFERENCES

- Alsop, R., & Heinsohn, N. (2005). *Measuring empowerment in practice – structuring analysis and framing indicators*. Washington, DC: World Bank.
- Berman, J., & Graham, L. (2018). *Learning intervention. Educational casework and responsive teaching for sustainable learning*. New York, NY: Routledge.
- Bozkurt, A., & Durak, G. (2018). A systematic review of gamification research: In pursuit of homo ludens. *International Journal of Game-Based Learning*, 8(3), 15–33. <https://doi.org/10.4018/IJGBL.2018070102>.
- Council of the European Union (2022a). Council conclusions on a European strategy empowering higher education institutions for the future of Europe. 6985/22. <https://data.consilium.europa.eu/doc/document/ST-7936-2022-INIT/en/pdf>.
- Council of the European Union (2022b). Council Recommendation of 5 April 2022 on building bridges for effective European higher education cooperation. 2022/C 160/01. [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022H0413\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022H0413(01)&from=EN).
- Council of the European Union (2022c). Council Recommendation on learning for environmental sustainability. <https://data.consilium.europa.eu/doc/document/ST-9242-2022-INIT/en/pdf>.
- Dyred Pedersen, T. (2023). Mobility for teacher students or teacher students for mobility? Unravelling policy discourses on international student mobility in the context of teacher education. *European Educational Research Journal*, 22(6), 761-780. <https://doi.org/10.1177/14749041221097202>.
- European Commission (2021). *Digital Europe Programme for 2021-2027*. <https://ec.europa.eu/digital-single-market/en/news/commissionwelcomes-agreement-digital-europe-programme-2021>.
- European Commission, DG Enterprise and Industry (2011). *Entrepreneurship Education: Enabling Teachers as a Critical Success Factor. A report on Teacher Education and Training to prepare teachers for the challenge of entrepreneurship education*. <https://ec.europa.eu/docsroom/documents/9272/attachments/1/translations>.
- European Commission. (2004). *Helping to create an entrepreneurial culture: A guide on good practices in promoting entrepreneurial attitudes and skills through education*. <https://op.europa.eu/en/publication-detail/-/publication/98912089-1cff-4f51-ab71-a3d422804a5c>.
- European Commission/EACEA/Eurydice (2016), *Entrepreneurship Education at School in Europe Eurydice Report*, Publications Office of the European Union, Luxembourg. https://publications.europa.eu/resource/cellar/74a7d356-dc53-11e5-8fea-01aa75ed71a1.0001.02/DOC_1.
- Graham, L., Berman, J., & Bellert, A. (2015). *Sustainable Learning: Inclusive Practices for 21st Century Classrooms*. Cambridge: Cambridge University Press.
- Haara, F. O, & Jenssen, E.S. (2016). Pedagogical entrepreneurship in teacher education – what and why? / *Icelandic Journal of Education*, 25(2), 2016, 183-196.

- Hays, J., & Reinders, H. (2020). Sustainable learning and education: A curriculum for the future. *International Review of Education*. <https://doi.org/10.1007/s11159-020-09820-7>.
- Jensen, H., & Rørbæk, L. L. (2022). Smoothing the path to practice: Playful learning raises study happiness and confidence in future roles among student teachers and student ECE teachers. *Studies in Educational Evaluation*, 74. <https://doi.org/10.1016/j.stueduc.2022.101156>.
- London Economics (2008). Mobility of School Teachers in the European Union [Study requested by the European Parliament's committee on Culture and Education]. <http://www.europarl.europa.eu/activities/committees/studies.do?language=en>.
- Nørgård, R. T., Toft-Nielsen, C., & Whitton, N. (2017). Playful learning in higher education: developing a signature pedagogy. *International Journal of Play*, 6(3), 272–282. <https://doi.org/10.1080/21594937.2017.1382997>.
- Pachocki, M. (2021). How do Teachers Benefit from Mobility Experience? Implications for Initial Teacher Education. DOI: 10.47050/66515314.42–52.
- Pandey, P., & Zheng, Y. (2019). Unpacking Empowerment in ICT4D Research. In P. Nielsen & H. C. Kimaro (Eds.), *Information and Communication Technologies for Development. Strengthening Southern-Driven Cooperation as a Catalyst for ICT4D* (pp. 83–94). Springer International Publishing. https://doi.org/10.1007/978-3-030-19115-3_8.
- Patelarou, E., Trivli, A., Đorđević, V., Papadakis, S. E., Papadourakis, G. M., Zourmpakis, A. I. ... Patelarou, A. (2023). Core competencies for international mobility for teachers and students in higher education. *Population Medicine*, 5(August), 20. <https://doi.org/10.18332/popmed/168398>.
- Rice, L. (2009). Playful Learning. *Journal for Education in the Built Environment*, 4(2), 94–108. <https://doi.org/10.11120/jebe.2009.04020094>.
- Richardson, R., & Munday, J. (2013). International student mobility programs and effects on student teachers' perceptions and beliefs about education and their role as future educators. *Universal Journal of Educational Research*, 1(3), 240-246.
- United Nations (UN). (2015). *Transforming our world: The 2030 agenda for sustainable development (A/Res/70/1)*. New York: UN General Assembly. <http://sustainabledevelopment.un.org>.
- Zimmerman, M.A. (1995). Psychological Empowerment: Issues and Illustrations. *American Journal of Community Psychology*, 23(5), 581-599.
- Zimmerman, M.A. (2000). Empowerment Theory: Psychological, Organizational and Community Levels of Analysis. In Rappaport, J. & Seldman, E. (Eds.). *Handbook of Community Psychology* (pp. 43-63). New York: Springer.



21st century European Teachers



**Co-funded by
the European Union**

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.