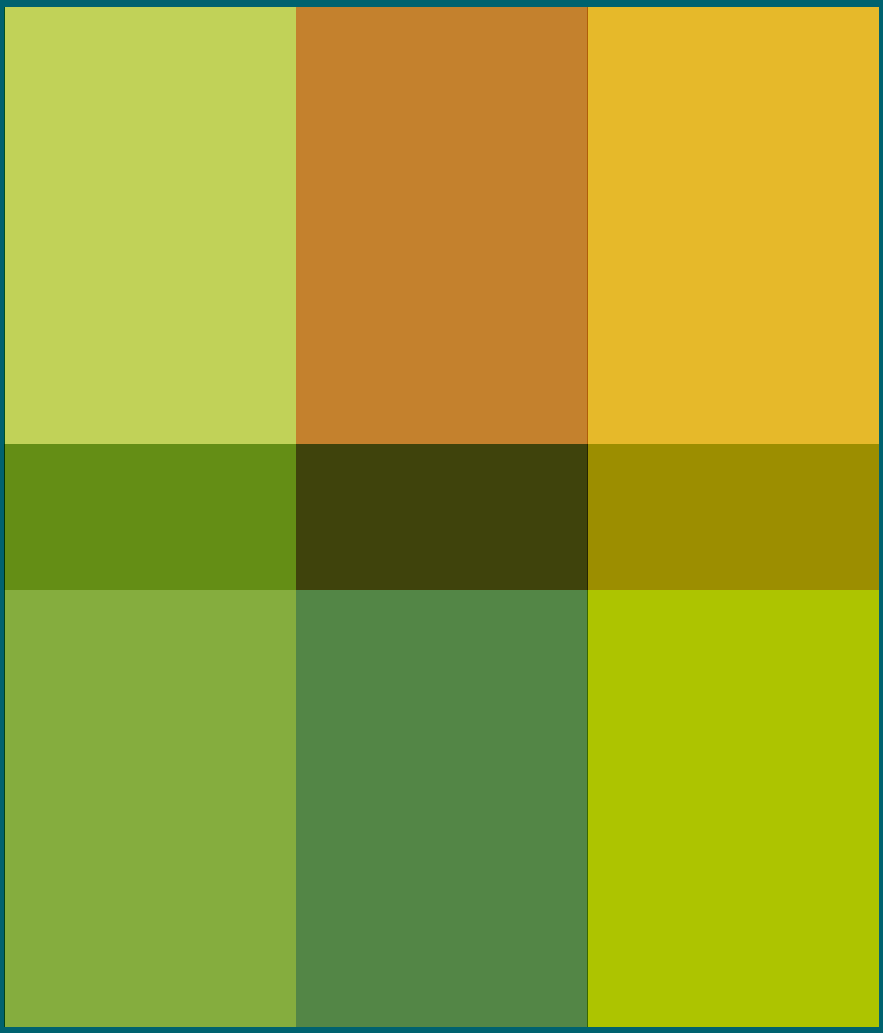
# C·E·P·S Journal

Center for Educational Policy Studies Journal
*Revija centra za študij edukacijskih strategij*

Vol.15 | No1 | Year 2025



**Vol.15, N°1, Year 2025**
**Issue Editors / Urednika številke:**
**Vasileios Symeonidis and Maria Impedovo**
Revija Centra za študij edukacijskih strategij
*Center for Educational Policy Studies Journal*
issn 2232-2647 (online edition / spletna verzija)
*Publication frequency:* 4 issues per year
*Subject:* Teacher Education, Educational Science
*Published by / Založila:* University of Ljubljana Press / Založba Univerze v Ljubljani / *For the publisher:* Gregor Majdič, The Rector of the University of Ljubljana / rektor Univerze v Ljubljani / *Issued by / izdala:* Faculty of Education, University of Ljubljana / Univerza v Ljubljani, Pedagoška fakulteta / *For the issuer:* Karmen Pižorn, The Dean of the Faculty of Education / dekanja Pedagoške fakultete ul
*Technical editor:* Tina Matić / *English language editors:* Murray J. Bales and Neville J. Hall / *Slovene language editing:* Tomaž Petek / *Cover and layout design:* Roman Ražman / *Typeset:* Igor Cerar

# C·E·P·S *Journal*

Center for Educational Policy Studies Journal
*Revija Centra za študij edukacijskih strategij*

The CEPS Journal is an open-access, peer-reviewed journal devoted to publishing research papers in different fields of education, including scientific.

**Aims & Scope**

The CEPS Journal is an international peer-reviewed journal with an international board. It publishes original empirical and theoretical studies from a wide variety of academic disciplines related to the field of Teacher Education and Educational Sciences; in particular, it will support comparative studies in the field. Regional context is stressed but the journal remains open to researchers and contributors across all European countries and worldwide. There are four issues per year. Issues are focused on specific areas but there is also space for non-focused articles and book reviews.

**About the Publisher**

The University of Ljubljana is one of the largest universities in the region (see www.uni-lj.si) and its Faculty of Education (see www.pef.uni-lj.si), established in 1947, has the leading role in teacher education and education sciences in Slovenia. It is well positioned in regional and European cooperation programmes in teaching and research. A publishing unit oversees the dissemination of research results and informs the interested public about new trends in the broad area of teacher education and education sciences; to date, numerous monographs and publications have been published, not just in Slovenian but also in English.

In 2001, the Centre for Educational Policy Studies (CEPS; see http://ceps.pef.uni-lj.si) was established within the Faculty of Education to build upon experience acquired in the broad reform of the national educational system during the period of social transition in the 1990s, to upgrade expertise and to strengthen international cooperation. CEPS has established a number of fruitful contacts, both in the region – particularly with similar institutions in the countries of the Western Balkans – and with interested partners in EU member states and worldwide.

~

Revija Centra za študij edukacijskih strategij je mednarodno recenzirana revija z mednarodnim uredniškim odborom in s prostim dostopom. Namenjena je objavljanju člankov s področja izobraževanja učiteljev in edukacijskih ved.

**Cilji in namen**

Revija je namenjena obravnavanju naslednjih področij: poučevanje, učenje, vzgoja in izobraževanje, socialna pedagogika, specialna in rehabilitacijska pedagogika, predšolska pedagogika, edukacijske politike, supervizija, poučevanje slovenskega jezika in književnosti, poučevanje matematike, računalništva, naravoslovja in tehnike, poučevanje družboslovja in humanistike, poučevanje na področju umetnosti, visokošolsko izobraževanje in izobraževanje odraslih. Poseben poudarek bo namenjen izobraževanju učiteljev in spodbujanju njihovega profesionalnega razvoja.

V reviji so objavljeni znanstveni prispevki, in sicer teoretični prispevki in prispevki, v katerih so predstavljeni rezultati kvantitavnih in kvalitativnih empiričnih raziskav. Še posebej poudarjen je pomen komparativnih raziskav.

Revija izide štirikrat letno. Številke so tematsko opredeljene, v njih pa je prostor tudi za netematske prispevke in predstavitve ter recenzije novih publikacij.

**The publication of the CEPS Journal in 2025 and 2026 is co-financed by the Slovenian Research and Innovation Agency within the framework of the Public Tender for the Co-Financing of the Publication of Domestic Scientific Periodicals.**

***Izdajanje revije v letih 2025 in 2026 sofinancira Javna agencija za znanstvenoraziskovalno in inovacijsko dejavnost Republike Slovenije v okviru Javnega razpisa za sofinanciranje izdajanja domačih periodičnih znanstvenih publikacij.***

# Contents

## Editorial



## Focus

## Review

This editorial was published on-line in March 2024 as a pre-print submission.
DOI: https://doi.org/10.26529/cepsj.2104

# Teacher Education in the Nexus Between Digital Transformation and Internationalisation

In an increasingly interconnected and interdependent world, teachers' initial education and continuing professional development remain somewhat limited to national borders. Teacher education systems in Europe are firmly rooted in national histories and conditions (Kothoff & Denk, 2007; Symeonidis, 2021), influenced by long-standing traditions and political culture (Louis & van Velzen, 2012). However, there is a growing need for teacher education institutions and practitioners to meet the emerging challenges of increased openness and cross-national and cross-institutional collaboration as the result of international processes, including the Bologna Process and the process of Europeanisation in teacher education (Symeonidis, 2021; Zgaga, 2013).

The Covid-19 pandemic posed new challenges to the internationalisation of teacher education, which policymakers have prioritised over the past decade. Physical mobility was halted and a 'forced' transition from face-to-face to remote teaching occurred. However, this global disruption also triggered an incubation phase for novel phenomena, so that education researchers are now referring to the crisis as 'an opportunity of the century' (Schratz, 2020). Ideas such as blended mobility and virtual exchange programmes are increasingly promoted as alternative options for international learning, as demonstrated by the priorities of the Erasmus+ programme for the 2021–2027 period (European Commission, 2021). The pandemic thus accelerated the digital transformation in teacher education, a process that had already been taking place in the years prior to Covid-19.

Considering this new reality posed by the pandemic, we invited submissions for a focus issue that would investigate the evolving landscape of internationalisation in teacher education within the broader context of digital transformation. This exploration seeks to understand the alternative methods for teacher mobility that have emerged and their impact on the profession. Additionally, it examines the development of teacher education curricula in response to internationalisation and digitalisation. The professional development of teachers and teacher educators is also adapting to these changes, influenced by the increasing relevance of online and hybrid mobilities, as well as training and learning communities. Ultimately, the focus is on defining what it means to be a global and European teacher in the post-Covid-19 era.

The first article, *Supporting Pre-service Teachers' Civic Competence as a Strategy for Internationalisation in the Digital Era*, by Aspasia Dania, Marios Koukounaras Liagkis, Agoritsa Gogoulou, Evdokia Karavas, Kosmas Vlachos, Kostas Magos and Magda Vitsou, seeks to understand the challenges and

opportunities presented by an internationalised at-home professional development programme aimed at enhancing preservice teachers' competencies for democratic culture within their practicum-based university courses. This programme, which is part of a three-year Erasmus+ KA2 project, integrates digital resources and practicum-based modules to foster democratic competencies. A SWOT analysis conducted among Greek university teacher educators highlights strengths like diverse educational materials and interdisciplinary collaboration, while also noting challenges such as entrenched beliefs and time limitations. The article advocates for the implementation of similar programmes as 'participatory internationalisation at home' strategies, emphasising the necessity of context-sensitive adaptation to effectively support democratic values and civic education.

The second article, *Learning About Sustainability in a Global Context of Digital Transformation in Teacher Education: Exemplary Vignettes of Experience in Webinars*, by Ann-Kathrin Dittrich, Kgadi Mathabathe, Irma Eloff and Evi Agostini, investigates the role of webinars as digital tools to engage international education stakeholders on sustainability topics within teacher education. This study, which is part of the Teach4Reach project, conducted four international webinars to facilitate collaborative learning and share insights on sustainable development, with the aim of fostering an international vision of quality education. The article critically analyses the collaborative value of webinars and their potential to enhance education quality, while addressing challenges faced by international participants in virtual settings. By employing vignette research, the paper delves into the participants' learning experiences globally, supplemented by reflections from the project team, in order to better understand how digital learning environments can be optimised for high-quality teacher education in the future. The authors conclude that, while webinars offer valuable opportunities for international exchange and learning, their effectiveness depends significantly on the recognition of their specific properties and the active role of facilitators.

The third article, *The Multifaceted Field of Virtual Exchanges in Teacher Education: A Literature Review*, by Claudia Ingrisch-Rupp and Vasileios Symeonidis, provides a comprehensive overview of how virtual exchanges were employed in teacher education in the period from 2020 to 2023. The study uses a scoping study approach to examine research papers, focusing on the planning, implementation and evaluation of virtual exchanges. It highlights the potential of virtual exchanges to enhance digital-pedagogical, intercultural and language competencies, while also noting challenges such as the reliance on the willingness and motivation of participants, as these exchanges are often

not compulsory and require institutional support. The paper concludes that expanding virtual exchanges beyond language education and combining small-scale and large-scale studies could better inform future research and practice in teacher education.

The next article, *Digital-Inclusive Transformation and Teacher Preparedness for Foreign Language Education – A Bilateral German-Norwegian Perspective*, by Solveig Chilla, Gerke Doetjes, Karin Vogt, Lina Abed Ibrahim and Dina Tsagari, explores the intersection of digitalisation and inclusion in foreign language teacher education. The study highlights the necessity of adopting a digital-inclusive mindset among educational stakeholders and future teachers in Germany and Norway. Through a survey involving 221 participants, the research examines the attitudinal component of teacher preparedness, focusing on the confidence and willingness of teachers to integrate digital technology in inclusive classrooms. The findings underscore the importance of developing teachers' confidence in using digital tools, linking preparedness to previous experiences with digital transformation. This study advocates for a comprehensive approach in teacher education programmes in order to enhance digital-inclusive teaching and learning.

In the following paper, *Greek Primary School Teachers' Narratives About Their Role Negotiation During the Covid-19 Pandemic*, by Menelaos Tzifopoulos, the author examines the experiences of Greek primary school teachers as they navigated the challenges of the Covid-19 pandemic. Using interpretative phenomenological analysis, the study delves into teachers' autonomy, digital literacy competences and relationships with students in a rapidly shifting educational landscape. Through the narratives of four teachers, the article highlights the lack of state support and the difficulties in managing digital classrooms, emphasising the need for better preparation for teachers in times of crisis. It explores themes of role renegotiation, professional identity reshaping and adaptation to online teaching, offering insights into psychological impacts and the necessity of support systems for teachers. The study concludes that addressing these challenges requires a more structured support framework and effective training in order to bolster teachers' resilience in future crises.

In the paper entitled *The Italian Way to the Europeanisation of Teacher Education: An Analysis of Reforms and the Ongoing Experience of Digital Transformation*, by Loredana Perla, Viviana Vinci and Laura Sara Agrati, the authors explore the process of the Europeanisation of teacher education in Italy, focusing on how digital transformation has been integrated into this process. The paper employs a documentary review study to analyse recent ministerial reforms in Italy and the DidaSco continuous professional development programme at

the University of Bari. The study highlights the challenges and opportunities presented by digitalisation in reshaping teacher education, emphasising the need for a comprehensive approach to training that incorporates technological innovations. The authors conclude that Italy is gradually developing a distinct approach to Europeanisation in teacher education, leveraging digital transformation as a significant driver for professional growth.

The last paper of the focus section, *Beyond Learning by Videoconference: Findings From a Capacity-Building Study of Kosovan Teachers in the Post-Covid-19 Era*, by Antigona Uka, Marigona Morina and Eugene G. Kowch, explores the effectiveness of online professional development programmes tailored to the specific needs of teachers in Kosova. Using Design-Based Research, the study involved 90 high school teachers and emphasised the importance of integrating complex technologies and instructional design concepts beyond simple videoconferencing tools. The research highlights the positive impact of including prior needs assessments in the development of teachers' attitudes towards online education. The paper concludes with specific recommendations for educational leaders and scholars, with the aim of enhancing teacher practice through innovative online learning strategies.

In the varia section, the first article, *Intercultural Competence, a Necessity in 21st Century Classrooms: Are Teacher Educators in Tanzania Interculturally Competent?*, by Patrick Severine Kavenuke and Grace Ezekiel Kihwele, investigates the extent to which teacher educators in Tanzania possess intercultural competence, which is crucial for teaching in today's globalised classrooms. Using a sample of 300 teacher educators from two Tanzanian university colleges, the study finds that, while educators score highly on dimensions such as attitude, external outcomes, internal outcomes and skills, they score significantly lower on the knowledge dimension. The research identifies factors like living abroad, level of education and teaching experience as significant influences on various dimensions of intercultural competence. The study concludes by highlighting the importance of enhancing intercultural knowledge among educators in order to better prepare them for diverse classroom environments.

The second varia article, *The Real and the Virtual in the Spatial Perception of Education Students*, by Bea Tomšič Amon, investigates how education students at the Faculty of Education, University of Ljubljana, perceive urban spaces and how these perceptions evolved in the period from 2001 to 2019. Using a questionnaire, the study compares students' descriptions of their favourite urban places, revealing that, while the sense of touch, as opposed to vision, was least mentioned, students in 2019 expressed themselves more accurately than those in 2001, indicating a growing sensitivity to space. The article suggests

rethinking pedagogical processes to enhance spatial awareness, emphasising the need for integrating real and virtual space experiences in education in order to foster a comprehensive understanding of spatial perception.

The last varia article, *Learning to Teach in Out-of-University and Out-of-School Environments in Primary Teacher Education in Estonia, Finland and Sweden*, by Helene Uppin, Kimberly Norrman, Anne-Mai Näkk, Linn Areskoug, Inge Timoštšuk, Solveig Cornér and Erika Löfström, explores how pre-service primary teachers are prepared to utilise diverse learning environments in Estonia, Finland and Sweden. This multiple case study examines the practices of Tallinn University, University of Helsinki and Uppsala University, highlighting the importance of practical experiences, sustainability of partnerships and professional networking across institutional boundaries. The study suggests that by integrating meaningful and reflective tasks in varied environments, pre-service teachers can enhance their pedagogical skills, ultimately benefiting their future students with diverse cultural and socio-economic backgrounds.

The issue ends with a book review by Maria Impedovo, who selected *Creating a Teacher Collective: Professional Development Within the Group, the Community, and the Network* by Maria Impedovo, Karen Ferreira-Meyers and Noriyuki Inoue. This publication delves into the creation and maintenance of teacher communities, emphasising their role in driving educational change and enhancing student learning outcomes. The book provides a practical guide for initiating and supporting teacher collectives, highlighting the importance of educational technology in these interactions. It consists of two parts: the first guides practitioners in creating and sustaining collectives, while the second offers examples of applying concepts and technologies. The review underscores the essential elements of passion, action, collaboration and reflection in fostering sustainable teacher collectives, advocating for a strategic development that incorporates these factors in navigating the complexities of educational landscapes.

Vasileios Symeonidis and Maria Impedovo

## References

European Commission. (2021). *Erasmus+ Programme Guide*. https://erasmus-plus.ec.europa.eu/document/erasmus-programme-guide-2021

Kotthoff, H.-G., & Denk, R. (2007). Last past the post? Teacher education and the European higher education area. In H.-G. Kotthoff, & S. Moutsios (Eds.), *Education policies in Europe economy, citizenship, diversity* (pp. 115–130). Waxmann.

Louis, K. S., & van Velzen, B. (Eds.). (2012). *Educational policy in an international context: Political culture and its effects*. Palgrave Macmillan.

Schratz, M. (2020, December 29). *Corona-positiv: Innovationsschub für das Bildungssystem?* [Corona-positive: An innovation book for the education system?]. Das Deutsche Schulportal. https://deutsches-schulportal.de/expertenstimmen/michael-schratz-schulen-corona-positiv-innovationsschub-fuer-das-bildungssystem/

Symeonidis, V. (2021). *Europeanisation in teacher education. A comparative case study of teacher education policies and practices*. Routledge. https://doi.org/10.4324/9781003013969

Zgaga, P. (2013). The future of European teacher education in the heavy seas of higher education. *Teacher Development*, *17*(3), 347–361.

Received: 11 June 2023, Accepted: 11 April 2024,
Published on-line as Recently Accepted Paper: May 2024 DOI: https://doi.org/10.26529/cepsj.1676

# Supporting Pre-service Teachers' Civic Competence as a Strategy for Internationalisation in the Digital Era

Aspasia Dania*[1], Marios Koukounaras Liagkis[2], Agoritsa Gogoulou[2], Evdokia Karavas[2], Kosmas Vlachos[2], Kostas Magos[3] and Magda Vitsou[3]

Higher education institutions worldwide show an interest in enhancing their internationalisation initiatives by integrating innovative teaching approaches into formal curricula. A main concern is to ensure that pre-service teachers enter future classrooms with a high level of civic competence. The aim of this study was to investigate the challenges and opportunities confronted within a professional development programme designed to promote pre-service teachers' competencies for democratic culture. The professional development programme was a three-year Erasmus+ KA2 programme involving the development of teacher training modules inspired by and aimed at developing competencies from the Reference Framework of Competencies for Democratic Culture. Its objective was to integrate digital resources within practicum-based learning modules based on democratic citizenship values. Following the implementation of the programme, a SWOT analysis (strengths, weaknesses, opportunities and threats) was conducted to gather data on the programme's potential to support pre-service teachers' civic competencies. The SWOT analysis was completed by ten teacher educators from five different university departments located in two metropolitan cities in central and northern Greece. Thematic analyses were used at a case and group level. The results showed that the online affordances of the programme, combined with each department's practicum-based learning modules, could effectively support the development of pre-service teachers' civic competencies, provided that resources were adapted with a human-centred sensitivity to the specificities of each context. In alignment with worldwide teacher education trends, we advocate for the implementation of similar programmes in the future as a *participatory internationalisation at home* strategy for supporting teacher online collaboration and peer learning.

**Keywords:** teacher education, democratic competencies, SWOT analysis, professional development programmes

1 *Corresponding Author. National and Kapodistrian University of Athens, Greece; adania@phed.uoa.gr.
2 National and Kapodistrian University of Athens, Greece.
3 University of Thessaly, Volos, Greece.

# Podpiranje državljanskih kompetenc bodočih učiteljev kot strategija za internacionalizacijo v digitalni dobi

Aspasia Dania, Marios Koukounaras Liagkis, Agoritsa Gogoulou, Evdokia Karavas, Kosmas Vlachos, Kostas Magos in Magda Vitsou

Visokošolske ustanove po vsem svetu kažejo zanimanje za krepitev svojih pobud za internacionalizacijo z vključevanjem inovativnih učnih pristopov v formalne učne načrte. Glavna skrb je zagotoviti, da bodo bodoči učitelji vstopili v svoje bodoče razrede z visoko stopnjo državljanskih kompetenc. Namen te študije je bil raziskati izzive in priložnosti, ki se pojavljajo v sklopu programa profesionalnega razvoja, namenjenega spodbujanju kompetenc bodočih učiteljev za demokratično kulturo. Program profesionalnega razvoja je bil triletni program Erasmus+ KA2, ki je vključeval razvoj modulov za usposabljanje učiteljev po zgledu Referenčnega okvira kompetenc za demokratično kulturo in je bil namenjen razvoju kompetenc iz omenjenega okvira. Njegov cilj je bil v na praksi temelječe učne module vključiti digitalne vire, ki temeljijo na demokratičnih državljanskih vrednotah. Po izvedbi programa je bila izvedena analiza SWOT (prednosti, slabosti, priložnosti in grožnje), da bi zbrali podatke o potencialu programa za podporo državljanskih kompetenc bodočih učiteljev. K analizi SWOT je prispevalo deset izobraževalcev učiteljev s petih različnih univerzitetnih oddelkov iz dveh velemest v osrednji in severni Grčiji. Tematske analize so bile uporabljene na ravni posameznih primerov in skupin. Rezultati so pokazali, da lahko spletne možnosti programa v kombinaciji z na praksi temelječimi učnimi moduli vsakega oddelka učinkovito podprejo razvoj državljanskih kompetenc bodočih učiteljev, če so viri prilagojeni z občutljivostjo za posebnosti posameznega konteksta, usmerjeno na človeka. Skladno s svetovnimi trendi izobraževanja učiteljev se zavzemamo za izvajanje podobnih programov v prihodnosti kot strategije »participativne internacionalizacije doma« za podporo spletnemu sodelovanju in vrstniškemu učenju učiteljev.

**Ključne besede:** izobraževanje učiteljev, demokratične kompetence, analiza SWOT, programi profesionalnega razvoja

## Introduction

The rising internationalisation trends call for changes in teacher education worldwide. Among scholars and policymakers, serious concerns have been expressed over the challenges that modern education systems face in terms of deficits in democracy and rights-based education, as well as controversies that require a reconsideration of civic education and engagement (Sardoč, 2021). Under this premise, education reforms are suggested as avenues for change (Kodelja, 2021). As a dynamic combination of socio-political, economic and academic rationales for change, internationalisation becomes a priority within the global (teacher) education reform agenda, taking the form of either *internationalisation abroad* or *internationalisation at home* practices (de Wit & Altbach, 2020). *Internationalisation abroad* practices are delivered via mobility schemes and privileges given both to faculty staff and students within knowledge hubs, joint degree programmes and transnational or cross-border initiatives. Such opportunities tend to stimulate 'skilled immigration of professional capital' in response to calls for intercultural competence and global citizenship education (de Wit & Altbach, 2020). *Internationalisation at home* takes the form of curriculum practices, and professional and citizenship development practices. Such practices build on online mobility, digital content and active collaboration within international online learning environments (e.g., MOOCs) in an effort to integrate global dimensions within national or regional ones. Some indicative examples are the establishment of online communities (Van Mol & Perez-Encinas, 2022), the support of intercultural learning within digital environments (Watkins & Smith, 2018), and the promotion of cross-sectional collaborations through digital spaces (de Wit & Altbach, 2021). The ultimate goal is the creation of '*third spaces*' within which future teachers can interact at an international level to develop the competencies needed to act effectively in diverse cultural settings (Mittelmeier et al., 2020).

*Internationalisation at home* and civic competencies share a common goal of preparing individuals to navigate and contribute to an increasingly interconnected and diverse world (Grad & van der Zande, 2022; Kraska et al., 2018). Teachers' interaction within internationalisation at home environments requires an awareness of belonging to a common social good, and thus civic and intercultural competencies are critical (Marks et al., 2018). Civic competencies fall under the umbrella term of *civic learning*, which encompasses lifelong learning outcomes such as knowledge and skills for democracy, moral development, global citizenship and many others (Dias & Soares, 2018). Within teacher education, *civic learning* has been connected with the acquisition of knowledge, skills and

dispositions that are fundamental for developing actions that are relevant to the diverse needs of internationalised contexts. Teacher educators play a vital role in selecting suitable content and methodologies, as well as creating conducive learning environments that promote the cultivation of engaged and analytical citizenship (Raiker, 2020). Consequently, it is imperative that teacher education programmes evolve to address these demands (Fuentes-Moreno et al., 2020).

In response to the broader need for education reforms for civic agency and intercultural awareness (Gaber & Tašner, 2021), teacher education programmes have always included school practicum and field placement in various ways to support student teachers to integrate theory and practice in the workplace (Lawson et al., 2015). The connection between suitable courses and school placement experiences has been highlighted as one of the most powerful ways of supporting future teachers in the era of internationalisation (Ingersoll et al., 2018). A significant finding of scholarship in this field is that internationalisation presents a challenge to teaching, since teachers need to enter their classrooms with a high level of cultural sensitivity as well as the knowledge and skills required to prepare students to live and coexist in society, and to independently exercise the rights, duties and responsibilities of a democratic society (Coates, 2016; Fuentes-Moreno et al., 2020; Myers & Rivero, 2019; Sjøen, 2023). Within school placement, a culturally sensitive stance would mean that the teacher would approach knowledge in a partial (i.e., what counts as knowledge for one may not count as knowledge for others), contingent (i.e., knowledge and competencies are context dependent) and provisional (i.e., knowledge may change as a result of interaction and influences) manner (Kerkhoff, 2017). However, the translation of theory into practice during practicum creates challenges for new teachers, who need mentoring support and facilitation from cooperating teachers and field supervisors.

For those of us working in the field of teacher education, the design of culturally sensitive practicum programmes (e.g., programmes enhanced with workshops, mentoring support and facilitation from cooperating teachers and field supervisors) remains a priority and a foundation for the promotion of *civic learning*. We acknowledge that *civic learning* represents a powerful opportunity for future teachers to recognise their knowledge gaps and adopt a stance of social justice, acceptance and respect for others. Thus, we advocate for the implementation of internationalisation at home programmes that support pre-service teachers to address potentially rigid/intuitive beliefs about teaching and learning as early as in their practicum and transform them into socially just professional attitudes and values (Shuali Trachtenberg et al., 2020; Vizek Vidović & Domović, 2019).

Based on the above, the aim of the present study was to investigate the challenges and opportunities within an internationalised at home professional development programme designed to promote pre-service teachers' competencies for democratic culture in their practicum-based university courses. In order to achieve this goal, the following research questions were addressed:

What are the issues inherent in the design of internationalisation at home (professional development) programmes for pre-service teachers?

What challenges are identified by teacher educators during the implementation of internationalisation at home programmes aimed at the development of pre-service teachers' civic competencies within school practicum?

## Method

### *Participants and Setting*

Ten teacher educators from five different university departments located in two metropolitan cities in central and northern Greece participated in this study. A case-study design was implemented to analyse the challenges and opportunities faced by the participants during an internationalisation at home programme that they applied within their university modules as part of their collaboration within a three-year Erasmus+ KA2 programme. The three-year Erasmus programme entitled STEP-UP DC Student Teachers' Competences for Democratic Culture included empirical knowledge drawn from European university backgrounds, and its goal was to promote democratic citizenship within teacher education based on the Reference Framework of Competencies for Democratic Culture (RFCDC) (Lenz et al., 2022). The Erasmus programme's overarching objective was to integrate open educational resources and an online certification module (based on democratic citizenship standards and human right values) within already existing teacher education modules. The rationale for selecting this particular programme as a case study was that (a) it introduced internationalisation at home activities and resources for the development of civic competencies within already existing teacher education modules, and (b) it combined academic instruction, microteaching exercises and school practicum. Specifically, the focus of the internationalisation at home activities and resources was to help pre-service teachers gain a deeper understanding of democratic values and civic involvement (Resch & Schrittesser, 2021), so that they could afterwards transfer these to their school practice.

All of the participants in the study were involved as university lecturers and supervisors of pre-service teachers' school practicum in primary and/or secondary schools (see Table 1 for institutional information) and had more

than ten years of experience in teacher education. Although each institution had its own organisational structure in terms of curriculum, staff and student requirements, all of the institutions were public universities offering a four-year bachelor programme (240 ECTS) in various subjects with an integrated teacher education component.

**Table 1**

*Institutional information and teacher education roles in the programme*

| Teacher Education Programme | Programme Level/ Duration | Module Requirements | Teacher Educators' Roles |
|---|---|---|---|
| Physical Education Teacher Education | four-year bachelor programme | two-semester theoretical courses – microteaching laboratory assignments<br>field-based practicum in public primary and secondary schools | module coordinator, lecturer, field-placement supervisor |
| Religious Education Secondary Teacher Education | four-year bachelor programme | four-semester religious education teachers' pedagogic and teaching competence programme with eight courses – two-semester teaching practice in secondary public and state schools | Erasmus programme coordinator, lecturer and teaching practice coordinator |
| Informatics Teacher Education | four-year bachelor programme | two-semester theoretical and laboratory courses – laboratory assignments – field-based practicum in the form of teaching observation in secondary schools and microteaching | module coordinator, lecturer, field-placement supervisor |
| Department of English Language and Literature Teacher Education | four-year bachelor programme | winter semester – Teaching Practice 1: TEFL practicum, spring semester – Teaching Practice 2: Practice teaching in schools | module coordinator, lecturer, mentor educator, teaching practice supervisor |
| Early Childhood Teacher Education | four-year bachelor programme | one-semester theoretical course, seminars, field-based practicum in public kindergartens | module coordinator, lecturer, field-placement supervisor |

As part of their participation in the programme, each team of teacher educators had to use the RFCDC framework to prepare internationalisation at home resources for their university modules, which are categorised into four types: (a) suggested readings on the relationship between democratic citizenship and teacher education theory and practice, (b) lesson templates with activities for implementing the RFCDC framework in school practicum, (c) workshop activities with examples of combining each module's content knowledge

with democratic teaching methods and pedagogies, and (d) video presentations on the meaning and value of competencies for democratic culture. The development of digital skills was deemed important to serve digital citizenship and increase cultural connectivity and sensitivity. For this reason, digital tools and platforms were purposively used. More specifically, the resources produced by the teacher educator teams were made available freely on the course management system, providing 'case-based scenarios' that pre-service teachers from all of the participating institutions could use as examples for developing children's and youth's civic competencies, as outlined by the Council of Europe's Competence Framework for Democratic Culture. Moreover, a teleconference system supported regular synchronous online collaboration between the different institutions. The main idea was to strengthen the content and pedagogies already offered within the participating teacher education modules. All of the participants were responsible for using the newly developed resources in their modules as internationalisation at home material that would support pre-service teachers to design, implement and evaluate field-based lesson plans that emphasised the social and educational value of democracy.

During the winter semester of the 2021–2022 academic year, 100 pre-service teachers from the participating institutions attended on a weekly basis the internationalisation at home programme, which involved attendance of lectures, short quizzes, synchronous collaboration and asynchronous online communication within a specially devised forum. As part of each institution's modules, pre-service teachers also had to attend short seminars and blended-learning workshops delivered by the teacher educator teams at each institution separately. The goal was to help pre-service teachers integrate the principles of democratic culture in their subject-specific instructional design (e.g., programme planning, implementation and evaluation). After attending the introductory seminar and the subject-specific workshops, the pre-service teachers were expected to apply democratic and human citizenship values in their practice, under the guidance and facilitation of their teacher educators. Specifically, the pre-service teachers at each institution were asked to use the internationalisation at home resources as a guiding framework for designing, implementing and evaluating lesson plans in their field-placement with a similar focus. Throughout the process of school practicum, the pre-service teachers were supervised and supported by the teacher educators and inservice cooperating teachers at schools, while also having an opportunity to interact with pre-service teachers from other institutions via the Erasmus programme's online forum.

***Data collection instrument and procedure: SWOT analysis***

A strength, weaknesses, opportunities and threats (SWOT) framework was applied for data collection and analysis as a method for assessing both internal and external factors influencing curriculum design and delivery, and for providing ideas for strategic planning in alignment with situational affordances and constraints (Hladchenko, 2014). The SWOT analysis is used as an appropriate method within case studies (Benzaghta et al., 2021) and has been adopted in various educational fields, such as informatics education (Sharma & Singh, 2010), environmental education (Romero-Gutierrez et al., 2016), medical education (Longhurst et al., 2020) and physical education teacher education (O'Brien et al., 2020).

In the present study, the SWOT analysis aimed to investigate teacher educators' perceptions of (a) the issues inherent in the design of the internationalisation at home resources and procedures, and (b) the challenges that were identified as part of the programme's goal to enhance pre-service teachers' democratic competencies in school practicum. A participative process was followed in order to eliminate potential misuse and misinterpretations of the SWOT analysis (Hladchenko, 2014). More specifically, for all of the SWOT components, each teacher educator team was asked to identify a set of relevant issues and challenges, and then to critically interpret these based on evidence and observations from each context's field-learning practice. Furthermore, each team was asked to submit a reflective synopsis of the SWOT analysis procedure, focusing on the way that internationalisation at home programmes can be adopted as a strategy to support pre-service teachers to develop civic learning skills in practicum. Data entries were analysed by the first author with the use of a thematic approach (Longhurst et al., 2020; Merriam & Tisdell, 2016) across the five teacher education institutions. Specifically, each SWOT component was read across the different cases and then reread to identify commonalities or differences. The themes that emerged from the comparative reading of the SWOT analysis were also examined in relation to the critical synopses that each team submitted. The themes that were produced were agreed upon by all of the authors through a process of member checking to secure data trustworthiness and the validity of the findings. The goal was to decide on the themes that could present the common view of the participating teams, and thus work towards a level of theoretical generalisation (Merriam & Tisdell, 2016).

## Results

The SWOT analysis indicated the presence of themes and sub-themes per each SWOT element (Table 2). To gain in-depth understandings of the present findings, the results are analysed per theme and sub-theme in the following section. The intention in the presentation of the results is not to prioritise themes or sub-themes in a hierarchy system of strengths, weaknesses, opportunities and threats, but rather to present a synthesis of issues and challenges that could provide a practical basis for reflection and dialogue on the introduction of internationalisation at home programmes for civic learning within teacher education contexts.

**Table 2**

*Themes and sub-themes generated per SWOT element*

| SWOT Element | Themes<br>*Sub-themes* |
|---|---|
| Strengths | **Diversity of educational material**<br>– *Interdisciplinary collaboration and exchange of ideas using digital tools*<br>– *Theory-practice connections*<br>– *Authentic solutions for lesson planning and teaching in today's classroom*<br>**Structure of educational material**<br>– *Case-based learning*<br>– *Bilingual material with grade level adaptations*<br>– *Criteria and indicators for assessment*<br>**Utility of educational material**<br>– *A useful reflection tool*<br>– *A new learning community of professionals in civic learning* |
| Weaknesses | **Established beliefs**<br>– *Students' experiences of democracy at schools*<br>– *Teachers' enaction of a true democratic framework*<br>**Time limits**<br>– *Short programme duration*<br>– *More time for pilot testing of educational material* |
| Opportunities | **Teaching and learning design**<br>– *Human-centred teaching and learning approaches*<br>**Open access and accreditation**<br>– *Open access certification process*<br>– *Internationalised master programme planning*<br>– *New field for school reform* |
| Threats | **ICT and democratic competencies**<br>– *Risk of considering democracy an easy task*<br>– *Lack of infrastructure to support digital training*<br>– *Civic competencies equated with the completion of online tests*<br>**Asynchronous training**<br>– *Gaps in evaluation relevance*<br>– *Teachers' inability to create a climate of meaningful online communication*<br>– *Hierarchical structures and power relations may pose a 'democracy deficit'*<br>**Complementarity of learning material**<br>– *Online materials misused for teacher reflection*<br>– *Unifying practices without culture/discipline specific adaptations* |

As became evident from the participants' responses, the present programme was perceived as effective in providing pre-service teachers with tools and resources that could support their learning and practice of democratic competencies within practicum. The main strengths that were identified were the diversity, structure and utility of the educational material developed within the programme. Concerning diversity, the teacher educators reported that the online material, the collaborative activities and the digital tools gave their students an opportunity to broaden their views and knowledge concerning democratic values, as they could study diverse forms of material and exchange ideas and opinions with peers from different departments. As they stated, the diversity of the material facilitated lesson planning from the students and the generation of authentic solutions to educational issues based on civic competencies (e.g., respect, responsibility, empathy, etc.). Regarding the programme design and structure, the participants underlined the efficacy of the 'case-based learning' methodology that was used, which gave pre-service teachers multiple opportunities to navigate the course management system and problem-solve classroom issues using complementary online study material (e.g., suggested readings, video-presentations, workshop activities, lesson activities and quizzes). Common to all of the participants' responses was the impression that the internationalisation at home programme offered a valuable new space for the creation of a community of inquiry, serving the needs of all of the members involved (e.g., teacher educators, pre-service teachers and in-service school cooperating teachers).

In terms of weaknesses, the participants reported that already established pre-service teachers' beliefs and value orientations concerning the enaction of civic learning at schools hindered the implementation of democratic principles in practice. As was noted, additional time is needed for this purpose, along with the adoption of project-based teaching and learning methodologies both at the school and university level.

Concerning future opportunities, the SWOT analysis revealed that programmes of this kind can support the development of future teachers' civic learning, especially when their affordances (both digital and face-to-face) allow interaction and purposeful communication. Given the specificities of school practicum, the participants mentioned that internationalisation at home programmes need to offer opportunities for the development of intercultural awareness, communication and sensitivity towards otherness, so that future teachers are supported to enact instruction effectively. It was clear from the findings that the online open-access training material of the programme was also a valuable professional learning opportunity for the in-service cooperating teachers

who supervised the pre-service teachers at schools. During the programme, the in-service cooperating teachers had free access to the online modules, which helped them to act as multipliers in their school and diffuse their knowledge to fellow teachers. Furthermore, the potential for using the programme as a basis for developing master's level programmes in the future was also addressed as an opportunity by the teacher educators.

The most important threats that were reported in the entries of the SWOT analysis focused on the false belief that democracy and civic competencies are easily learned within digital courses. As the participants stated, courses need to be designed purposefully to sustain a climate of meaningful communication and interaction for democratic learning. Otherwise, there is a possibility that pre-service teachers may feel that they have acquired civic learning skills and competencies just because they have successfully completed online tests and certifications.

## Discussion

The significance of improving teacher education programmes worldwide in order to address global goals and needs led us to focus our study on the challenges inherent in designing and implementing an internationalisation at home programme for pre-service teachers focused on democratic competencies. By using SWOT analysis as our main methodological tool, we sought to identify important issues that arise when internationalisation at home programmes are adopted within school practicum as tools/resources for enhancing pre-service teachers' civic competencies. By using teacher educators' perspectives as a point of reference, the results from the SWOT analysis provided some clues concerning the aspects or structure of such programmes within modern university contexts.

The strengths identified in the SWOT analysis concerned the diversity, structure and utility of the educational material used within the programme. These strengths reflect basic principles of effective instructional design within teacher education (Alsaleh, 2020; Hoogveld et al., 2005; Koukounaras Liagkis et al., 2022), along with the need to integrate web-facilitated and blended models of curriculum delivery in modern classrooms (Paskevicius, & Bortolin, 2016). Studies show that when discussion and collaborative dialogue (Ali et al., 2018; Ceballos López et al., 2016; Han et al., 2013; Lee et al., 2009) as well as inquiry-based strategies are used within internationalisation at home programmes, civic learning and online engagement are promoted (Jennings et al., 2021; Sardoć, 2021; Sun et al., 2022). Practices of this kind resonate with

the social constructivist nature of civic learning (Setiani & MacKinnon, 2015) and are congruent with calls for internationalising teacher education curricula, pedagogy and assessment (Ashby & Exter, 2019).

Concerning the programme's weaknesses, the participants in the present study admitted that pre-service teachers' beliefs were a major barrier, hindering the transfer of civic competencies in school practice. This was an expected finding, since changes in the cultural and ethnic composition of student populations in Greece, as in many countries worldwide, have stimulated different perspectives concerning the concepts of citizenship, democracy and social interaction (Inglehart & Welzel, 2010). Especially since the pandemic, many researchers have asserted that universities need scale up the professional learning of teachers at all grades (Torres-Cladera et al., 2021), so that they can efficaciously deliver civic learning principles in a context-specific and thus internationalised mode (de Wit & Altbach, 2021; de Wit & Deca, 2020). However, in the absence of institutional support structures (e.g., professional development seminars and training for in-service teachers, etc.), such initiatives remain fragmented (Schugurensky & Wolhuter, 2020). Experts in the field of teacher education suggest that it would be wise to integrate online learning modules in already existing field-based learning courses (as was done in our case), so that future teachers start to embrace online interaction and peer mentoring dialogues as opportunities to further reflect (Vizek Vidović & Domović, 2019) and promote their civic understandings and sensitivity towards people from different disciplines and cultures (Schugurensky & Wolhuter, 2020).

The potential of connecting digital learning with human-centred values more explicitly in future programmes was an opportunity addressed by the participants in our study. Research has shown that core practices of *civic learning*, such as dialogue, mobilisation and engagement, may not be enacted within digital contexts if participants are not facilitated to interact within peer-based activities and seek to exert both voice and influence on issues of shared concern (Garcia-Lopez et al., 2020; Kahne et al., 2016). Given the fact that school experience in and of itself may not necessarily be educational, the quality of university programmes will play a key role in providing valuable and relevant on-the-ground support to new teachers (Bomer & Maloch, 2019). Therefore, university programmes need to ensure that future teachers get support in their enactment of reflective practice, both individual and collective (Ceballos López et al., 2016), and develop the skills and knowledge needed to respond effectively to the phenomena they may encounter in their everyday practice. The findings of the present study further suggest that purposefully designed internationalisation at home programmes can also bring value to in-service or practicum

supervisor teachers. Thus, one of the challenges is finding ways to combine the work done within university courses and the work done at schools, so that all teachers understand professional development as a non-cumulative process of sharing that may lead to reinterpreting one's beliefs, values and expectations (Torres-Cladera et al., 2021).

One important finding of the present study is that a simple broadening of online activities/programmes is not enough to safeguard internationalisation practices that align with civic competencies and provide equitable opportunities for all. The relevant literature suggests that education for democratic citizenship and/or civic education are on the rise thanks to the efforts of knowledgeable teachers who stay connected and collaborate to produce an additional 'multiplier effect' (Dania & Griffin, 2021; Dania & Tannehill, 2022; Koukounaras Liagkis, 2022), and not merely by the introduction or use of novel tools and resources (Kodelja, 2021; Torres-Cladera et al., 2021; van Mol & Perez-Encinas, 2022). According to Watkins (2014), digital users are often 'power users' (meaning that they are frequent users of online media) without necessarily being 'powerful users' (in the sense that they are not able/willing to use digital media as influential users). Thus, when faced with internationalisation at home reforms, teachers should recognise the need to modify their practice in ways such that digitally fuelled connectivity does not pose a 'democracy deficit' threat, especially for participants with limited access or opportunities. This is in line with related research supporting the idea that civic competencies should act as critical enablers of future teachers' action and educational presence (Jackson, 2019) within internationalised at home initiatives (Almeida et al., 2019), so that they develop cross-cultural understandings and practice (Aheer et al., 2020). In alignment with prominent social movements today, we envisage the combination of online and field-based learning practices for civic learning within teacher education programmes as a solution that could support internationalisation at home while also influencing 'democratic decision-making'. Based on our experience from the Erasmus programme, we call this form of online civic learning *participatory internationalisation at home* learning.

## Conclusions

The present study found that internationalisation at home programmes may offer significant support for the pursuit of civic learning within teacher education contexts if such programmes are purposefully designed to facilitate interaction, problem solving, and sharing of opinions and ideas. Future teachers' attraction to online learning seems to align with forms of professional

development that they find compelling and relevant to their needs. However, the study found that pre-service teachers may employ the affordances of internationalisation at home resources to learn at a surface level about democratic values without necessarily being ready or able to engage in a participatory learning culture. As reported, this may pose a threat to the understanding of what civic learning means and how it can be enacted in practice. By remaining mindful of the priorities and contextual requirements of their context, teacher educators need to create digital spaces that can foster the sustained action and commitment that is needed to incorporate civic learning principles in theory and field-based practice. Case-based learning scenarios and a collection of diverse materials and tools are needed to support teachers to navigate effectively within online contexts while taking advantage of opportunities for online dialogue and feedback by teachers and peers. As such, the combination of practicum-based learning with blended forms of curriculum delivery (synchronous and asynchronous instruction) is suggested as a best practice for facilitating future teachers to work effectively within international classrooms.

While the findings of the study certainly provide some evidence concerning the development of future teachers' civic competencies via online learning programmes, some limitations are noted. The study involved academics from five participating institutions in the same country, and thus the findings cannot be generalised across teacher institutions. The SWOT analysis was adopted as a strategy to elicit teacher educators' viewpoints, something that, although being a really valuable reflective activity, is also susceptible to each participant's or team's subjectivity and norms. For this reason, we were very careful in the procedures that we employed for data analysis, following relevant guidelines and recommendations in qualitative data analysis literature. Furthermore, all of the results derived from this analysis were based on entries from the same European programme, and thus cannot be generalised to other similar interdisciplinary programmes. We therefore advocate for future studies in this field that could broaden our analysis through entries from similar programmes, both in European and international contexts.

What we want to make explicit, however, is that we do not adopt a consequentialist perspective (Kodelja, 2021) in our suggestion of internationalisation at home programmes as avenues for *civic learning*. According to Elster (1987, p. 709), consequentialist perspectives are based on the belief that a certain reform will have desirable effects. Such a belief on our part would treat *civic learning* as a medium for improving future teachers' competitiveness and not as something that has intrinsic value itself. Since we cannot know whether or which education reforms are more innovative than others prior to implementing and

evaluating them, the question that we raise at this point is:

> *How can we know if the development of future teachers' civic competencies via internationalisation at home programmes is the right decision for promoting education reform and change*?

With equity, social cohesion and active citizenship still being prevalent goals of education reforms, we believe that it is worthwhile investing in online *civic learning* programmes as a type of reform that would align with the demands and needs of culturally diverse classrooms or contexts, and not as a reform linked with change in a consequentialist sense. We understand that civic learning is by no means the only answer to the question "*How do we support pre-service teachers to (inter)act effectively in the modern world*?" Learning how to be or become a teacher is a continuous process that builds on personal beliefs and professional beliefs with which the teacher may come into contact during the first stages of initial teacher training (Vizek Vidović & Domović, 2019). However, the present study raises the following issues as take-home messages for teacher educators who wish to support their students' *civic learning* as a form of *participatory internationalisation at home* practice:

- The affordances of online learning may well support future teachers to learn about and practise *civic learning*. For this to happen, teacher education institutions must purposefully (re)design their modules to leverage the power of connected learning (via digital media) to the principles of participatory field-based learning.
- School contexts, even those that favour intercultural education and initiatives, may create barriers to the enactment of civic values in practice. Teacher education institutions must develop professional development initiatives that provide schoolteachers with formal and/or informal *civic learning* opportunities. In-service teachers' engagement with civic-oriented blended learning projects such as the present programme may be a wise solution.
- The digital era raises significant concerns related to internationalised teaching and learning. Thus, teachers must be able to reflect on their own positionality before engaging in teaching aimed at *civic learning*. Overall, teachers must not only teach youth about civic competencies, but must help them to connect their efforts with the circumstances of their context.

## Disclosure statement

The authors have no conflict of interest to declare.

## References

Aheer, K., Bauer, K., & Macdonell, C. (2020). Internationalizing the student experience through computing for social good. In *Proceedings of 2020 ACM Conference on Computer Science Education (SIGCSE '20), March 11–14, 2020, USA* (pp. 434–440). https://doi.org/10.1145/3328778.3366853

Ali, M., Han, S. C., Bilal, H. S. M., Lee, S., Kang, M. J. Y., Kang, B. H., Razzaq, M. A., & Amin, M. B. (2018). iCBLS: An interactive case-based learning system for medical education. *International Journal of Medical Informatics*, *109*, 55–69. https://doi.org/10.1016/j.ijmedinf.2017.11.004

Almeida, J., Robson, S., Morosini, M., & Baranzeli, C. (2019). Understanding internationalization at home: Perspectives from the global North and South. *European Educational Research Journal*, *18*(2), 200–217. https://doi.org/10.1177/1474904118807537

Alsaleh, N. (2020). The effectiveness of an instructional design training program to enhance teachers' perceived skills in solving educational problems. *Educational Research and Reviews*, *15*(12), 751–763. https://doi.org/10.5897/ERR2020.4082

Ashby, I., & Exter, M. (2019). Designing for interdisciplinarity in higher education: Considerations for instructional designers. *TechTrends*, *63*(2), 202–208. https://doi.org/10.1007/s11528-018-0352-z

Benzaghta, M. A., Elwalda, A., Mousa, M. M., Erkan, I., & Rahman, M. (2021). SWOT analysis applications: An integrative literature review. *Journal of Global Business Insights*, *6*(1), 54–72.

Bomer, R., & Maloch, B. (2019). Lessons for leaders on the preparation of literacy educators. *Journal of Literacy Research, 51*(2), 259–264. https://doi.org/10.1177/1086296X19833779

Ceballos López, N., Susinos Rada, T., & Saiz Linares, Á. (2016). How can we improve through pupil participation? An infant school experience. *Journal of Research in Special Educational Needs*, *16*, 583–586. https://doi.org/10.1111/1471-3802.12189

Coates, P. W. (2016). To build a culturally sensitive educator: A clinical model highlighting the importance of innovative ESL strategies in early field placement classes teaching ELL middle level students. *Theory and Practice in Language Studies*, *6*(3), 445. http://doi.org/10.17507/tpls.0603.01

Dania, A., & Griffin, L. L. (2021). Using social network theory to explore a participatory action research collaboration through social media. *Qualitative Research in Sport, Exercise and Health*, *13*(1), 41–58. https://doi.org/10.1080/2159676X.2020.1836506

Dania, A., & Tannehill, D. (2022). Moving within learning communities as an act of performing professional wellbeing. *Professional Development in Education*, 1–16. https://doi.org/10.1080/19415257.2022.2081250

de Wit, H., &. Altbach, P. G (2021) Internationalization in higher education: Global trends and recommendations for its future. *Policy Reviews in Higher Education, 5*(1), 28–46. https://doi.org/10.1080/23322969.2020.1820898

de Wit, H., & Deca, L. (2020). Internationalization of higher education, challenges and opportunities for the next decade. In A. Curaj, L. Deca, & R. Pricopie (Eds.), *European higher education area: Challenges for a new decade* (pp. 3–11). Springer, Cham. https://doi.org/10.1007/978-3-030-56316-5_1

Dias, D., & Soares, D. (2018). Civic learning outcomes: A step towards an inclusive higher education. *International Journal of Inclusive Education*, *22*(4), 360–374. http://doi.org/10.1080/13603116.2017.1365956

Elster, L. (1987). Solomonic judgments: Against the best interest of the child. *The University of Chicago Law Review, 54*(1), 1–45. https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=4499&context=uclrev

Fuentes-Moreno, C., Sabariego-Puig, M., & Ambros-Pallarés, A. (2020). Developing social and civic competence in secondary education through the implementation and evaluation of teaching units and educational environments. *Humanities and Social Sciences Communications, 7*(1), 1–12.

Gaber, S., & Tašner, V. (2021). Structural over-determination of education reforms and agency. *Center for Educational Policy Studies Journal, 11*(2), 77–95. https://doi.org/10.26529/cepsj.1107

Gaikhorst, L., Beishuizen, J. J., Korstjens, I. M., & Volman, M. L. (2014). Induction of beginning teachers in urban environments: An exploration of the support structure and culture for beginning teachers at primary schools needed to improve retention of primary school teachers. *Teaching and Teacher Education*, *42*, 23–33. https://doi.org/10.1016/j.tate.2014.04.006

Garcia-Lopez, C., Mor, E., & Tesconi, S. (2020). Human-centered design as an approach to create open educational resources. *Sustainability*, *12*(18), Article 7397. https://doi.org/10.3390/su12187397

Grad, J. M., & van der Zande, I. S. (2022). Cultivating global citizenship through higher education: A reflection on the development from civic to global engagement. *Education Sciences, 12*(11), Article 766. https://doi.org/10.3390/educsci12110766

Han, I., Eom, M., & Shin, W. S. (2013). Multimedia case-based learning to enhance pre-service teachers' knowledge integration for teaching with technologies. *Teaching and Teacher Education*, *34*, 122–129. http://doi.org/10.1016/j.tate.2013.03.006

Hladchenko, M. (2014). SWOT analysis as the first stage of the process of the strategic management of the European higher education institutions. *Euromentor Journal, 5*(1), 47–65.

Hoogveld, A. W., Paas, F., & Jochems, W. M. (2005). Training higher education teachers for instructional design of competency-based education: Product-oriented versus process-oriented worked examples. *Teaching and Teacher Education*, *21*(3), 287–297. http://doi.org/10.1016/j.tate.2005.01.002

Ingersoll, M., Hirschkorn, M., Landine, J., & Sears, A. (2018). Recruiting international educators in a global teacher shortage: Research for practice. *The International Schools Journal*, *37*(2), 92–102.

Inglehart, R., & Welzel, C. (2010). Changing mass priorities: The link between modernization and democracy. *Perspectives on Politics*, *8*(2), 551–567. https://doi.org/10.1017/S1537592710001258

Jackson, L. (2019). *Questioning allegiance: Resituating civic education*. Routledge.

Jennings, B., Gusmano, M. K., Kaebnick, G. E., Neuhaus, C. P., & Solomon, M. Z. (2021). Recommendations for better civic learning: building and rebuilding democracy. *Hastings Center*

*Report*, *51*(S1), S64–S75. https://doi.org/10.1002/hast.1232

Kahne, J., Hodgin, E., & Eidman-Aadahl, E. (2016). Redesigning civic education for the digital age: Participatory politics and the pursuit of democratic engagement. *Theory and Research in Social Education*, *44*(1), 1–35. https://doi.org/10.1080/00933104.2015.1132646

Kerkhoff, S. N. (2017). Designing global futures: A mixed methods study to develop and validate the teaching for global readiness scale. *Teaching and Teacher Education*, *65*, 91–106. https://doi.org/10.1016/j.tate.2017.03.011

Kodelja, Z. (2021). Consequentialist reasons for some education reforms. *Center for Educational Policy Studies Journal, 11*(2), 111–124. https://doi.org/10.26529/cepsj.1061

Koukounaras Liagkis, M. (2022). The socio-pedagogical dynamics of religious knowledge in religious education: A participatory action-research in Greek secondary schools on understanding diversity. *Religions*, *13*(5), Article 395. https://doi.org/10.3390/rel13050395

Koukounaras Liagkis, M., Skordoulis, M., & Geronikou, V. (2022). Measuring competences for democratic culture: Teaching human rights through religious education. *Human Rights Education Review*, *5*(1), 112–135. https://doi.org/10.7577/hrer.4487

Kraska, M., Bourn, D, & Blum, N. (2018). From internationalization to global citizenship: Dialogues in international higher education. In J. Davies, & N. Pachler (Eds.), *Teaching and learning in higher education: Perspectives from UCL* (pp. 85–98). UCL IoE Press. https://discovery.ucl.ac.uk/id/eprint/10052526/

Lawson, T., Cakmak, M., Gunduz, M., & Busher, H. (2015). Research on teaching practicum – A systematic review. *European Journal of Teacher Education*, *38*(3), 392–407. https://doi.org/10.1080/02619768.2014.994060

Lee, S. H., Lee, J., Liu, X., Bonk, C. J., & Magjuka, R. J. (2009). A review of case-based learning practices in an online MBA program: A program-level case study. *Journal of Educational Technology & Society*, *12*(3), 178–190.

Lenz, C., Gebauer, B., Hladschik, P., Rus, C., & Valianatos, A. (2022). *Reference framework of competences for democratic culture: Teacher reflection tool*. Council of Europe.

Longhurst, G. J., Stone, D. M., Dulohery, K., Scully, D., Campbell, T., & Smith, C. F. (2020). Strength, weakness, opportunity, threat (SWOT) analysis of the adaptations to anatomical education in the United Kingdom and Republic of Ireland in response to the Covid-19 pandemic. *Anatomical sciences education, 13*(3), 301–311.

Marks, J., Yeager, C., Gatrell, J., & Bennett, J. (2018). The institutional determinants of internationalization: The cases of study abroad participation and international student enrollment. *Journal of International Students*, *8*(4), 1591–1612. http://jistudents.org/doi:10.5281/zenodo.1467813

Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation*. John Wiley & Sons.

Mittelmeier, J., Rienties, B., Gunter, A., & Raghuram, P. (2020). Conceptualizing internationalization at a distance: A "third category" of university internationalization. *Journal of Studies in International Education, 25*(3), 266–282. https://doi.org/10.1177/1028315320906176

Myers, J. P., & Rivero, K. (2019). Preparing globally competent pre-service teachers: The development of content knowledge, disciplinary skills, and instructional design. *Teaching and Teacher Education*, *77*, 214–225. https://doi.org/10.1016/j.tate.2018.10.008

O'Brien, W., Adamakis, M., O'Brien, N., Onofre, M., Martins, J., Dania, A., Makopoulou, K., Herold, F., Ng, K., & Costa, J. (2020). Implications for European physical education teacher education during the COVID-19 pandemic. A cross-institutional SWOT analysis. *European Journal of Teacher Education*, *43*(4), 503–522. https://doi.org/10.1080/02619768.2020.1823963

Paskevicius, M., & Bortolin, K. (2016). Blending our practice: Using online and face-to-face methods to sustain community among faculty in an extended length professional development program. *Innovations in Education and Teaching International*, *53*(6), 605–615. https://doi.org/10.1080/14703297.2015.1095646

Raiker, A. (2020). Praxis, pedagogy and teachers' professionalism in England. *Center for Educational Policy Studies Journal, 10*(3), 11–30. https://doi.org/10.26529/cepsj.874

Resch, K., & Schrittesser, I. (2021). Using the Service-Learning approach to bridge the gap between theory and practice in teacher education. *International Journal of Inclusive Education, 27*(10), 1118–1132. https://doi.org/10.1080/13603116.2021.1882053

Romero-Gutierrez, M., Jimenez-Liso, M. R., & Martinez-Chico, M. (2016). SWOT analysis to evaluate the programme of a joint online/onsite master's degree in environmental education through the students' perceptions. *Evaluation and program planning, 54*, 41–49.

Sardoč, M. (2021). Citizenship, social change, and education. *Center for Educational Policy Studies Journal, 11*(2), 97–109. https://doi.org/10.26529/cepsj.1093

Schugurensky, D., & Wolhuter, C. (Eds.). (2020). *Global citizenship education in teacher education: Theoretical and practical issues*. Routledge.

Setiani, M. Y., & MacKinnon, A. M. (2015). A community of inquiry-based framework for civic education at Universitas Terbuka, Indonesia. *Distance Education*, *36*(3), 351–363. https://doi.org/10.1080/01587919.2015.1081740

Sharma, D., & Singh, V. (2010). ICT in universities of the Western Himalayan Region of India II: A comparative SWOT analysis. *International Journal of Computer Science Issues, 7*(1), 62–71.

Shuali Trachtenberg, T., Bekerman, Z., Bar Cendón, A., Prieto Egido, M., Tenreiro Rodríguez, V., Serrat Roozen, I., & Centeno, C. (2020). *Addressing educational needs of Teachers in the EU for inclusive education in a context of diversity, Volume 1. Teachers´ Intercultural Competence: Working definition and implications for teacher education*, EUR 30323 EN. Publications Office of the European Union, Luxembourg. https://doi.org/10.2760/533558

Sjøen, M. M. (2023). From global competition to intercultural competence: What teacher-training students with cross-cultural teaching experience should be learning. *Scandinavian Journal of Educational Research*, *67*(1), 140–153. https://doi.org/10.1080/00313831.2021.1990121

Sun, Y., Graham, T., & Broersma, M. (2022). Complaining and sharing personal concerns as political acts: How everyday talk about childcare and parenting on online forums increases public deliberation and civic engagement in China. *Journal of Information Technology & Politics*, *19*(2),

214–228. https://doi.org/10.1080/19331681.2021.1950096

Torres-Cladera, G., Simó-Gil, N., Domingo-Peñafiel, L., & Amat-Castells, V. (2021). Building professional identity during pre-service teacher education. *Center for Educational Policy Studies Journal, 11*(3), 35–54. https://doi.org/10.26529/cepsj.1070

Van Mol, C., & Perez-Encinas A. (2022) Inclusive internationalization: Do different (social) groups of students need different internationalization activities, *Studies in Higher Education, 47*(12), 2523–2538. https://doi.org/10.1080/03075079.2022.2083102

Vizek Vidović, V., & Domović, V. (2019). Development of teachers' beliefs as a core component of their professional identity in initial teacher education: A longitudinal perspective. *Center for Educational Policy Studies Journal*, *9*(2), 119–138. https://doi.org/10.26529/cepsj.720

Watkins, C. (2014, September 22). *Addressing race, inequity issues through social media power.* Connected Learning Alliance. http://dmlcentral.net/blog/s-craig-watkins/addressing-race-inequity-issues-through-social-media-power

Watkins, H., & Smith, R. (2018). Thinking globally, working locally: Employability and internationalization at home. *Journal of Studies in International Education*, *22*(3), 210–224. https://doi.org/10.1177/1028315317751686

## Biographical note

**Aspasia Dania**, PhD, is an Assistant Professor in Physical Education Teacher Education, at the National and Kapodistrian University of Athens, Greece. Her research explores teaching and pedagogy as human centered practice, with a principal focus on equity, equality, diversity, and inclusion. Her interests focus on innovative pedagogies, teacher communities and professional development and qualitative forms of inquiry within the fields of Sport, Physical Education and Health.

**Marios Koukounaras Liagkis** (2BA, MA, PhD, PostDoc) is Associate Professor of Pedagogy and Religious Education at NKUA. His research interests focus on Religious Education, Curriculum, and Teachers' professional development, Human Rights, Inclusive Education and Drama/Theatre in Education. His publications include 11 books and more than 70 articles and chapters. He is currently working on a project on the teaching of Competencies of Democratic Culture, in the RE Curriculum development in Greece and on EWC's 'School for all'-Integration of refugee children in Greek Schools project.

**Agoritsa Gogoulou**, PhD, is a member of the Instructional Laboratory Personnel of the Department of Informatics & Telecommunications (DIT), NKUA, Athens, Greece in the subject of "Didactics of Informatics and ICT in Education". Her research interests include Didactics of Informatics, teachers' professional development, computational thinking, collaborative and adaptive learning environments, learning design, e-learning.

**Evdokia Karavas**, PhD, is Associate Professor in the field of applied linguistics to foreign language teaching and language teacher training and education at the Department of English Language and Literature, National and Kapodistrian University of Athens, Greece. Her main research areas are language teacher training and professional development, curriculum development. evaluation and assessment and more recently, plurilingualism, cross language mediation and refugee language education.

**Kosmas Vlachos**, PhD, is an Associate Lecturer at the National and Kapodistrian University of Athens, specializing in TESOL. With a PhD in Applied Linguistics and Educational Technology, he has contributed to international programs and workshops, emphasizing his commitment to innovative language education. His expertise extends to teaching young learners, and teachers' education.

**Kostas Magos**, PhD, is Professor in the Department of Early Childhood Education of the University of Thessaly in Greece. His scientific interests include the theory and practice of intercultural education, the education of immigrant, refugee and minority children and the teaching and learning Greek as a foreign language. He is scientific coordinator in European Projects focusing on the above subjects and he is the author of many articles about education and especially its intercultural dimension.

**Magda Vitsou** holds a PhD in using Drama techniques in multicultural classrooms and a master's degree in education. Her academic pursuits and published works center on Drama in Education, Puppetry, Bilingualism, and the Social Dynamics of Minority Groups. Dr. Vitsou currently serves as Laboratory Teaching Staff at the Department of Early Childhood Education at the University of Thessaly, where she contributes her expertise to the development of innovative educational practices.

Received: 30 June 2023, Accepted: 21 March 2024,
Published on-line as Recently Accepted Paper: April 2024 DOI: https://doi.org/10.26529/cepsj.1688

# Learning About Sustainability in a Global Context of Digital Transformation in Teacher Education: Exemplary Vignettes of Experience in Webinars

Ann-Kathrin Dittrich*[1], Kgadi Mathabathe[2], Irma Eloff[2] and Evi Agostini[3]

Webinars are a powerful digital tool for learning about sustainability in a global context. The implementation of different technologies in teacher education, such as webinars, is becoming indispensable due to digital transformation and internationalisation processes. In this context, digital competences are described as key to quality education and a sustainable future. In teacher education, there is little evidence on how digital tools can be used for learning about sustainability. Based on the *Teach4Reach* project, a two-year international study on the Sustainable Development Goals in teacher education describes learning experiences in webinars by presenting selected vignettes. The question is how digitisation can support learning on sustainability in a global context of quality education. We conclude that webinars are a digital tool that supports knowledge building and collaborative learning in an international context but that their specific properties need to be recognised. The vignettes exemplify various challenges and opportunities presented by webinars, such as the fundamental role of facilitators, ease of access to the online environment, different behaviours of participants and unknowns about the learning outcomes.

**Keywords:** teacher educators, learning in digital contexts, sustainable development, international webinars, phenomenological vignette research

1 *Corresponding Author. Faculty of Teacher Education, University of Innsbruck, Austria; Ann-Kathrin.Dittrich@uibk.ac.at.
2 University of Pretoria, South Africa.
3 University of Vienna, Austria.

# Učenje o trajnostnosti v globalnem kontekstu digitalne preobrazbe v izobraževanju učiteljev: zgledne vinjete o izkušnjah s spletnimi seminarji

Ann-Kathrin Dittrich, Kgadi Mathabathe, Irma Eloff in Evi Agostini

Spletni seminarji so učinkovito digitalno orodje za učenje o trajnostnosti v globalnem kontekstu. Implementacija različnih tehnologij v izobraževanju učiteljev, kot so spletni seminarji, postaja nepogrešljiva zaradi digitalne transformacije in procesov internacionalizacije. V tem kontekstu so digitalne kompetence opisane kot ključne za kakovostno izobraževanje in trajnostno prihodnost. V izobraževanju učiteljev je malo dokazov o tem, kako je mogoče digitalna orodja uporabiti za učenje o trajnostnosti. Dveletna mednarodna študija o ciljih trajnostnega razvoja v izobraževanju učiteljev, ki temelji na projektu *Teach4Reach*, s predstavitvijo izbranih vinjet opisuje učne izkušnje v spletnih seminarjih. Vprašanje je, kako lahko digitalizacija podpira učenje o trajnostnosti v globalnem kontekstu kakovostnega izobraževanja. Ugotavljamo, da so spletni seminarji digitalno orodje, ki podpira pridobivanje znanja in sodelovalno učenje v mednarodnem kontekstu, vendar je treba prepoznati njihove posebne lastnosti. Vinjete ponazarjajo različne izzive in priložnosti, ki jih predstavljajo spletni seminarji, kot so: temeljna vloga moderatorjev, preprost dostop do spletnega okolja, različno vedenje udeležencev in pomanjkanje podatkov o učnih izidih.

**Ključne besede:** izobraževalci učiteljev, učenje v digitalnih kontekstih, trajnostni razvoj, mednarodni spletni seminarji, fenomenološka raziskava vinjet

## Introduction

One necessary condition for engaging in economic, social, and cultural life is the ability to successfully navigate complex digital environments (OECD, 2015, p. 8). Teacher education has the task of responding to social, economic, and ecological developments such as digital transformation processes (Westa, 2020). Professional digital competences of educational stakeholders, such as teacher educators and teachers, are an essential part of quality education. They must obtain knowledge and expertise in how to effectively implement digital tools and various technologies for teaching and learning (Brevik et al., 2019; Cronje, 2022). Education stakeholders must creatively use technology to improve learning environments and facilitate knowledge production (Cervera & Caena, 2022; UNESCO, 2011).

Technology also plays an important role in meeting growing sustainability needs to achieve the Sustainable Development Goals (SDGs) of Agenda 2030. Here, information and communication technologies are described not only as key resources for quality education (SDG 4), but also as an essential aspect of other areas, such as Gender Equality (SDG 5), Infrastructure (SDG 9), Reduced Inequality (SDG 10), Peace, Justice, and Strong Institutions (SDG 16) and Partnership (SDG 17) (UNESCO, 2011, p. 3). Technologies have the potential to support innovative solutions that enable learners to take part in lifelong opportunities for quality education, to access information and knowledge, and to participate in society (Lebeničnik et al., 2015; UNESCO, 2011). This requires international exchange on global issues in teacher education. Internationalisation in teacher education is currently a well-known trend and is related to the associated process of globalisation. Internationalisation can also be seen as a key strategy for learning in a global context. Global transformation processes have stimulated a wide range of activities in teacher education, such as the internationalisation of curricula, as well as the expansion of curricula, field and internship experiences, and cross-border initiatives (Larsen, 2016, p. 397), which also support overcoming national histories and tradition (Louis & van Velzen, 2021). International dialogue with other stakeholders from different countries can support action for transformation because of the continuous creation of knowledge and can, therefore, support the transformation process. The International Commission on the Futures of Education (2021, p. 146) points out that 'it is by actively engaging in the dialogue and practice to build a new social contract for education that we can renew education to make just, equitable and sustainable futures possible'. Webinars are a tool that enables international exchange in the digital space. They can be described as a format that allows

dynamic interactivity between participants (Robideau & Matthes, 2021). With the help of webinars, learning in digital contexts can take place in the form of collaborative learning (Basmanova et al., 2020).

The project *Teach4Reach* builds on the collaborative value of digital learning contexts and sees webinars as an effective digital tool to engage with international educational stakeholders on the topic of sustainability in teacher education. As part of the project, four international webinars were conducted with the aim of sharing knowledge and experiences on sustainable development through collaborative learning and gaining an international vision of quality education. The rationale for this paper is a critical analysis of these webinars as digital tools in the context of teacher education: their collaborative value, their potential for quality education and possible obstacles and difficulties for international participants' learning in the virtual world. The question is the extent to which webinars are a suitable digital tool to exchange with educational stakeholders around the world on the topic of sustainability in teacher education programmes. In particular, the learning experiences of participants in a global context are in focus and are presented with the help of vignette research. In addition, the experiences of the project team are included in the discussion of the findings. A deeper understanding of lived experiences can potentially contribute to making digital learning environments more fruitful for high-quality teacher education in the future (Eloff et al., 2023).

## Digital competences and sustainability in teacher education

Digitisation is leading revolutionary changes in the world of work and is attended by both challenges and opportunities. Research results indicate its positive effects: the quality of jobs in terms of worker productivity, efficiency and the use of different skills and task management (Blignaut & Trollip, 2003; Peña-Casas et al., 2018; Vuori et al., 2019). Over the past two decades, global transformations have promoted technological change and consequently prompted the internationalisation of teacher education (Larsen, 2016). Internationalisation is currently a vital topic related to teacher professionalisation and teacher competencies (Aydarova & Marquardt, 2016; Romano, 2002; Symeonidis, 2021; Winslade, 2016; Wiseman & Anderson, 2014). Educators must simultaneously operate in a global and digital world (Cervera & Caena, 2022). Various scholars point to the positive impact of international mobility and cultural experiences on teachers' professionalism (Slethaug, 2007). Chavez Chavez and O'Donnell (1987) emphasise the need for professional teachers to have international experiences in order to develop a range of cross-cultural skills, knowledge and competencies. However, a

professional teacher today not only requires knowledge and skills but also needs to be aware of changes and respond professionally to new developments and requirements (Westa, 2020). There is currently little agreement on how to define teacher quality (Flores, 2023) despite the fact that training professional teachers has received international attention (UNESCO, 2021). UNESCO (2011) defines digital competences as a key task for qualified teachers across the globe. The use of different technologies can support their life-long learning process as well as their access to information and knowledge for a sustainable future (UNESCO, 2011). However, there are different definitions and concepts of digital literacy today. Ferrari (2012, p. 3) defines digital competences as a 'set of knowledge, skills, attitudes […] to perform tasks; solve problems; communicate; manage information; collaborate; create and share content'. An important focus is on the confidential, critical, reflective, and effective use of technologies (Ferrari, 2012, p. 3).

Digitisation brings complex and long-term changes to teaching and learning and is described as a creative integration in education (Bosco et al., 2019, p. 55). Therefore, digital competences are considered key competences for teachers and other educational stakeholders, such as teacher educators (Carpenter et al., 2020). Teacher education has a significant impact on the quality of education and must support the acquisition of digital competencies. In this context, Ørnes et al. (2011, p. 42) point out that this is particularly evident in terms of collaboration and communication between students and teachers, easy access to information and literature, and greater diversity in the usage of settings and resources for effective learning. Although digital competences are considered essential, their incorporation into teacher education programmes is still patchy (Ottestad et al., 2014; Carpenter et al., 2020). Gisbert (2022) shows that the expertise of teacher educators in this field varies widely. Educators have knowledge about technology, but they do not know how to effectively incorporate technology into their teaching.

UNESCO (2011) advocates the need for teachers to acquire digital competences for a sustainable future and emphasises the increased personal development of different educational stakeholders through digital environments. In this context, an international, interdisciplinary, and collaborative discourse can be a strategy for knowledge creation and global developments against the backdrop of quality education (Eloff et al., 2023; UN, 2011; UNESCO, 2005). Quality education is essential for a sustainable future, as it can create environmentally responsible individuals and make a difference in education, according to UNESCO (2015). 'Education can create individuals who are more aware, responsible, and have the potential to bring about the meaningful and required change in society' (Kumar, 2020, p. 745).

To achieve the necessary transformation processes, Momtpoint-Galliard (2015, p. 105) also highlights the need for global discussions on education with his argument that 'our vision of education is tied to our vision of society'. To break with old traditions and national ways of thinking and acting and to adopt new global perspectives, a transnational discourse can, therefore, be very valuable. It also supports the fifth pillar of learning from UNESCO (2012), which is to learn to change oneself and society for sustainability. Learning in a global context helps teachers, teacher educators and policymakers to gain insights into other educational frameworks and models and to share their knowledge and expertise in their field (Cervera & Caena, 2022; UNESCO, 2011). A key component of the modernisation of education is the role of various stakeholders in teacher education (European Commission, 2017). Their knowledge and competences fundamentally affect the professional development of (future) teachers (Leicht et al., 2019).

## Learning in a global context through webinars

Webinars are a digital resource that supports learning environments in a global context. Gegenfurtner and Ebner (2019, p. 2) define webinars 'as web-based seminars in which participants and facilitators communicate live over the Internet across distant geographical locations using shared virtual platforms and interact ubiquitously and synchronously in real-time via voice-over IP technology and web camera equipment'. They point to the added value of cross-border networking for collaborative learning. The use of webinars has increased significantly in recent years (Goe et al., 2018; Olson & McCracken, 2015). A not insignificant reason for this was the Covid-19 pandemic, which has given the digital turn a boost (Gegenfurtner et al., 2020). Spatial flexibility is an obvious advantage of webinars. Different interaction possibilities, such as breakaway discussion groups, digital whiteboards, polls, and screens, also support the social and collaborative learning process, in which participants can discuss and interact with each other (Basmanova et al., 2020; Gegenfurtner & Ebner, 2019; Säljö, 2019). Moreover, the dialogue in webinars will take place synchronously and in real time (McKinney, 2017, p. 48).

Webinars require planning in advance: scheduling the time and inviting participants. For participants, taking part seems to be very easy. They only need an internet connection and a digital device such as a laptop, tablet, or mobile phone (Gegenfurtner & Ebner, 2019, p. 2). Various studies point to positive learning experiences through webinars (Cornelius & Gordon, 2013; Gegenfurtner et al., 2018). However, the use of online and digital tools in education at all

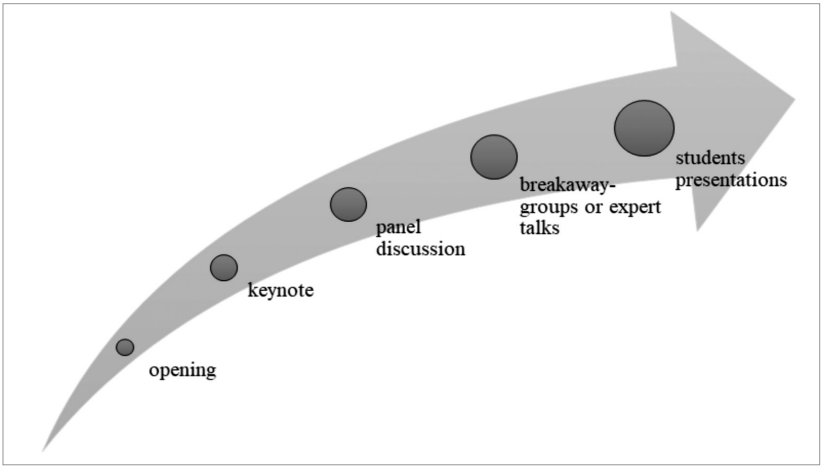
levels urgently needs evidence-based development (Gegenfurtner et al., 2021). Gegenfurtner and Ebner (2019, p. 17) found that participants developed more knowledge and skills when the duration of webinars was longer, and the didactic tools used in the webinar were more variable. They also point out that webinars and face-to-face teaching were comparable in terms of learning effectiveness. Evaluation after each webinar is important for the quality of webinars.

## The *Teach4Reach* webinars: Exploring synergies between teacher education programmes and the Sustainable Development Goals

*Teach4Reach* was a two-year project (May 2021–May 2023) between Austrian and South African partners and funded by Africa UniNet (OeAD). The project positioned teachers and teacher education as crucial for achieving the SDGs of Agenda 2030. Although all 17 global goals are relevant to education, the project focused on four SDGs in particular: Quality Education (SDG 4), Gender Equality (SDG 5), Reducing Inequalities (SDG 10) and Good Health and Wellbeing (SDG 3) (Eloff et al., 2023). The project aimed to raise awareness by constructing forward-looking research agendas, strengthening international collaborative networks, and promoting interdisciplinary scientific knowledge (Eloff et al., 2023).

As part of the project, four international webinars were conducted on SDGs 3, 4, 5, and 10. The aim was to share knowledge on sustainability through collaborative learning processes and to gain an international understanding of how to support quality education. The webinars gave the participants the opportunity to share ideas on how teacher education curricula can be reformed or designed to contribute to achieving the identified SDGs and guarantee high-quality education worldwide (Eloff et al., 2023) . All webinars followed a similar structure (see Figure 1).

**Figure 1**
*Structure of the Teach4Reach webinars*




After an opening and keynote speech from experts in the field of the respective topic and subsequent panel discussions, participants were invited to join between four and six different focus groups. These groups were characterised by the following questions: How can teacher education programmes be leveraged in the future to support Agenda 2030 and the Sustainable Development Goals? In what ways are the SDGs currently featured in teacher education programmes? How can the quality of education be supported and improved through teacher education programmes? What are university settings that implement the SDG, and what are the success stories of supporting the SDGs? (Eloff et al., 2022).

While all breakaway discussions were conducted in English, there were German-speaking and English-speaking rooms for the initial question on the support of Agenda 2030 and the SDGs. Through the online environment and the break-away groups, participants talked about different global sustainability topics and shared their knowledge and experiences on these subjects. In addition, they became acquainted with educational stakeholders from different continents. A facilitator guided the respective discourses in each break-away room. With the help of the facilitator in each group, a structured discussion took place, and a collaborative dialogue evolved. After the focus group discussions, the main findings from each room were presented by the facilitators in the plenary. The webinar concluded with a presentation by doctoral students on a sustainability topic.

### Research problem

Based on the argument that educators need to be professional in a global and digital world and that digital literacy is central for teachers, this article explores how digitalisation can support learning on sustainability in a global context of quality education. As the literature indicates, the use of digital tools in education requires more research and evidence. This article focuses on webinars that enable international exchange and learning in a global context. Using a phenomenological approach, learning experiences are presented, and the extent to which digital environments can contribute to more effective implementation of qualitative teacher education is analysed.

## Method

### Participants

The participants of the webinars were education stakeholders such as pre-and in-service teachers, teacher educators and policymakers from around the world (see Table 1).

**Table 1**
*Overview of participants*

| Countries | Webinar 1 SDG4 | Webinar 2 SDG5 | Webinar 3 SDG10 | Total from each country |
|---|---|---|---|---|
| Africa (South Africa, Uganda, Botswana, Kenya) | 62 | 16 | 15 | 93 |
| Asia (Singapore, United Arab Emirates) | 1 | 1 | 0 | 2 |
| Europe (Germany, Italy, Norway, Spain, Hungary, United Kingdom, France, Austria, Belgium) | 35 | 40 | 37 | 112 |
| North America (Canada) | 1 | 0 | 0 | 1 |
| Missing values | 8 | 0 | 0 | 8 |
| Total number of participants | 107 | 57 | 52 | 216 |

A total of 216 different stakeholders from Europe, Asia, North America, and Africa were involved in the discussions in all four webinars.

### Instrument: Vignette Research

The study is based on phenomenological vignettes (Agostini, 2016a; Agostini et al., 2024), which made it possible to capture and analyse the learning experiences of the participants during the webinars. A total of 28 vignettes were collected online by one to three experienced researchers per breakout group during each of the four webinars (see Figure 1). In the *Teach4Reach* project, the different vignette researchers placed a special focus on the respective SDGs of each webinar. 'Vignette research does not attempt to deliver universally valid insights but rather explores the particular contained within the general. Since situational experiences are unique in their respective contexts, they cannot be generalized' (Agostini et al., 2024, p.2). For this paper, four vignettes from different webinars were selected to illustrate learning experiences in a digital and international context in an exemplary manner. The chosen vignettes bring out the particularity and singularity of learning on sustainability in selected webinars within a certain project while simultaneously providing access to a more general or universal meaning of learning in a global context of digital transformation in teacher education.

Ethical clearance was provided by the Ethics Committee of the Faculty of Education at *Teach4Reach* (EDU049/21). Additional approval for the study was granted by the *Teach4Reach* Survey Coordinating Committee on 4 June 2021. Participants were informed of the study at multiple time points, for example, through webinar invitations, on the webinar programme itself, and during the proceedings. Participants consented to the sessions being recorded and transcribed and to the vignettes being written and analysed. However, all persons depicted in vignettes are anonymised, and the exact contexts are described in such a way that vignettes cannot be traced back to specific places or circumstances.

### Research Design

In the vignette methodology, observational data from co-experiential experiences are condensed into concise descriptions of experiential scenes called phenomenological vignettes. This means that the vignette includes those co-experiential experiences that affect the researchers as co-experiencers. Generally speaking, vignettes are written in situations in which the researchers themselves had experiences and learned from them. The significance of these experiences may elude the researchers, but they become visible in the actions and bodily expressions of the participants in the experiential situation, in their

posture, facial expressions and gestures, their looks and tone of voice. Vignette writers translate these actions, bodily expressions, as well as atmospheres and moods that are significant to an experiential scene into language in an aesthetically concise way. Vignettes are, therefore, selected as dense, aesthetically meaningful descriptions of the researcher's experience of what participants experienced in the field. Vignettes have very specific characteristics (e.g., duration and a particular theoretical understanding of experience as learning; see Meyer-Drawe, 2012) that enrich the text itself.

How is it possible for researchers to access shared experiences when they are not in the same room as the participants? Writing vignettes online risks losing sight of the experience and the research as a responsive event where all participants can gain insight about themselves, each other, and the world due to their physical corporeality. Some participants turned off their cameras and muted themselves during the webinars. Hence, glances no longer met, different statements were not responded to, sounds took on a different tone or faded away, and experiences were not perceived. Nevertheless, experiences do occur in online settings and can be brought into focus with the help of vignettes by making the visible and audible physical articulations of the participants and the noticeable atmospheres and moods perceptible. To make this possible, in addition to the best possible technical conditions, special sensitivity is required on the part of the researchers, a sensitivity that is able to perceive intermediate tones or discords and can express perceived inadequacies. In online settings, however, not all sensory modalities (e.g., smell or touch) come into play. For example, the researcher may be able to see another person's sweat in a virtual room but cannot smell it. When participants switch off their cameras, faces and their different expressions, such as raised eyebrows or movements of the lips, are no longer perceived. However, as people speak, the voice and its tonality do enable the vignette writers' experiences about experiences.

***Vignette 1: Webinar on SDG 4***

'I warmly welcome you to topic 2', trumpets Angelika, the facilitator of the German-language breakaway session, into the Zoom round. She frowns and narrows her eyes before her face relaxes into a broad smile. Her gaze wanders searchingly over the screen before she briefly introduces herself. She welcomes the experts from Austria who had been invited to this session, the two students Lisa and Verena, the teacher educator Sarah, and Lucas, a professor and UNESCO Chair for Global Citizenship Education. Then, after the short welcome, she turns to the other five people present at this session. 'I thought the experts might provide a little round of reflection', Angelika invites. She shares

her screen and shows the audience a promotional video summarising the 2030 Agenda Goals, especially SDG 4. She then gives the floor to the invited experts, saying, 'I would be interested to hear what the four experts have to say'. Almost immediately, Lisa, one of the two students, then student Verena, and thereafter, the teacher trainer Sarah speak up. In addition, the South African professor requests to speak. The discussion revolves around 'lone wolfism' in teacher education, inequalities, and a lack of implementation of the SDGs, even in privileged teacher education programmes. Suddenly, the discussion stops. Lucas clears his throat: 'I'm actually quite happy that I was able to listen to you first,' he says thoughtfully before asking, 'What are the experiences?' He pauses, then continues, 'It's about habitus reflexive action or actions in need of being questioned.' He says with determination, 'It's not just about what doesn't work, but the question is, where can we discern and start?' (Vignette writer 1; Eloff et al., 2022, p. 6).

***Vignette 2: Webinar on SDG 5***

In the online breakout room, Paul has just finished presenting his gender equity success story: how he tries to deconstruct gender stereotypes in his teaching of legal education. His full-screen image zooms back to the ensemble of eight small windows showing seven people, one with a name. As Joan starts speaking, her image zooms to full-screen size, and she responds to Paul: 'This is very cognitive because you can learn later in life that these are the rules in society.' Her still upper body begins to move in rhythm with the flow of speech as she refers to learning through experience in early childhood: 'That is a much more intuitive way of learning who you should be. If we really want to change things, we need to start at that level.' When she continues, 'It is too late …', Paul's image suddenly appears and covers the screen. He is leaning on his right elbow with his hand slowly stroking his moustache as he listens to Joan's account of her study with children. Joan's image appears back on the full screen; she refers to her findings that children already had strong negative perceptions of gender, 'Males more than females … but also the females – they learn that from the day they are born.' After clarifying further details, she pauses. Bridging the silence while waiting for a response, she concludes, 'This is a complicated thing', narrowing her eyes and starting to laugh brightly. Serena, the facilitator of the session, hesitantly breaks the pause by taking over the full screen as she refers to 'This multi-facetted way of learning, looking at gender equity and equality..', gently moving up her arms, '… is making it so complex.' Her whole body follows the upward movements, and she slowly sits back on her chair, her face spreading into a smile, shrugging her shoulders. She concludes the session by

saying, 'We have more questions than when we started!' (Vignette writer 2; unpublished).

***Vignette 3: Webinar on SDG 10***

The computer screen is divided into four rectangular blocks. A face appears in each one. While the faces are not similar, each background predominantly displays white walls. Ilse begins the discussion with the question, 'Which success stories can you share in relation to SDG 10? These can be highlights, problems or challenges.' Thembi starts off by saying that she supports inclusive education. Her body moves slightly as she talks, and her hands move as she speaks. 'When education is provided, more people can contribute to the economy.' The discussion is slow to start. Sarah joins in. Now, there are five individuals in the group. 'Researchers have moved away from monolingual dominance,' she says, moving her hands to make her point. 'There is value in multilingualism and the ability to interact in different languages. The inclusion of different languages includes everyone. No one should feel inferior if they are allowed to use their own language.' The discussion moves on to access to education for the poor and disadvantaged, the availability of feeding schemes in schools and admission criteria, and funding for higher education in South Africa and Botswana. Botswana is Jabu's home country. Jabu, who is actively moving, shares his concern: 'When people get a university education but don't get any job opportunities, they can't repay their student debt. They become idle, which leads to poor outcomes.' As the discussion continues, he shares his belief that children should not be taught in their mother tongue. 'Mother-tongue education causes division between schools. To reduce inequality, everyone should speak the same language.' Thembi gives a slight laugh. 'Language can reduce job opportunities if you do not understand the language of the work environment.' On the topic of inclusion, she noted that 'teachers should be trained in more than the curriculum. They should also be trained in inclusion, disadvantages, and practicalities about teaching.' The discussion ends with Jabu, with a serious voice and the same strong movements: 'Inclusive education – accepting children with disabilities into a general classroom – will never work.' (Vignette writer 3; unpublished).

***Vignette 4: Webinar on SDG 3***

This is the breakaway session shortly after the expert panel discussion on 'Teaching Wellbeing'. Olivia has just been on the panel as one of the well-being experts and is now facilitating this open discussion session. '30 minutes with Dr Olivia Smit' is the title of the session. There are only two video screens open,

showing the people in the small virtual blocks. She and another participant, Livia. Olivia's screen fills most of the large frame with a row of six small blocks lined up underneath it, with arrows on the sides. Except for Livia's, the other small blocks only show the names and anonymous participant icons. There are no videos. Olivia wears soft-coloured pink glasses, and her dark brown wavy hair is tied back. Behind her, the room forms a corner with a large monochrome artwork framed on the left side. She starts the session, smiling straight at the camera. 'Let me hear what you are doing?' she enquires. One participant speaks up. She remains invisible behind her screen, but her name is displayed as 'Jasmin'. There are dogs barking in the background as she speaks. 'You mentioned your study on worthiness earlier', says the participant inquisitively. 'How do you measure that?' Livia now also switches off her video. Olivia starts talking about *Photovoice* and how she has used it in her research. 'I am a feeling person', she says softly. 'I am attracted to arts-based visual things.' She explains that in her work, participants are asked to take pictures of things that they think are valuable and then also pictures expressing vulnerability. She describes the different settings where she conducts her research. Livia now turns her screen back on. She wears white earphones that curl down through her long, brown, wavy hair as she looks down onto the screen through her tortoiseshell glasses. 'I share your view on wellbeing, especially when you said that the more you read, the more difficult it is to define', Livia says. She asks about the ways in which counsellors are trained in South Africa. 'Because in Italy, it is not working', Livia declares. Olivia enthuses, 'I feel so positive about this interaction'. She laughs heartily (Vignette writer 4; unpublished).

***Analysis: Vignette reading***

Vignette readings aim 'to value the fullness and richness of experience articulated in a vignette and to show this abundance in as many facets as possible and in different (Agostini et al., 2024, p.113). In this process of phenomenological analysis (Agostini, 2016b), researchers point to and reveal (Finlay, 2009, p. 11) the different meanings that can be attributed to what they perceive. They do not 'point out' or interpret; that is, they do not give definitive answers or explanations 'behind' or 'beyond' what is happening in the short scenes. Vignette readings start with specific actions or moments that are perceived and experienced: How are they described? How can they be understood? To gain a broader viewpoint, experiences and actions can also be considered from a theoretical perspective. The composition of the experiences is based on the network of actions in the vignette, which frames the experiences and allows something to appear as a particular something. Vignette readings attempt to understand

the potential for learning as experienced by individuals from a distance, differently, or 'anew', at the event (Eloff et al., 2023).

## Results

In the following, the four vignettes of the webinars are analysed to illustrate different learning experiences. They are intended to provide a rich, personal perspective on what facilitates or impedes understanding of the topics discussed during the online sessions. The following questions take centre stage:

What can we learn from a situation when we step back from what we believe to know in order to be able to look at it anew?

What can a situation tell us when we give specific consideration to corporeality and the associated atmospheres and moods that impact and affect us?

In doing so, vignette research uses phenomenological ways of thinking and perceiving to explore the lived experience of quite familiar everyday situations. Vignettes, as well as vignette readings, attempt to make scientific observation accessible by avoiding abstracting linguistically data from the living world. Vignette readings, however, as intellectual generalisations on a meta-level would leave the multifaceted lifeworld of the persons described behind.

The facilitators depicted in the vignettes do not always have an easy time leading the breakout sessions during the webinars; they have to inform and motivate participants at the same time, especially in a (virtual) space that allows the participants to withdraw into invisibility and anonymity at the touch of a button. Dr Olivia Smit from Vignette 4 is in such a situation. Although she is *'attracted to arts-based visual things*', she has to manage almost without pictures in her session (*except for Livia's, the other small blocks show only the names and anonymous participant icons*) and with various background noises (*there are dogs barking in the background as she speaks*). Why did the other participants switch off their cameras during the webinar, or why did noises be heard remain open in the vignette? Is this perhaps due to insecure handling of the digital tool (e.g., turning the sound on or off), lack of equipment (no camera) or lack of self-confidence with the new medium of webinars? Or maybe the person feels insecure about the topic and does not want to participate in the discussion. Olivia does not let this situation discourage her and continues to talk about her research with commitment, describing *the different settings in which she conducts her research.* Livia seems to be affected by this and switches her camera back on after having turned it off briefly. There is an exchange of experiences between counsellors working in South Africa and Italy. The vignette ends with Olivia's statement, '*I feel so positive about this interaction,*' and a hearty laugh.

What exactly was learned (on sustainability) in the scene described remains unclear. However, it seems that within a largely anonymous group, two people have opened up to an exchange of experiences linked to positive emotions, people who might never have crossed paths in physical space.

Online webinars also place high demands on facilitators in that they have to follow and, above all, moderate complex discussions on complex topics. Vignette 3 gives the impression that different participants sometimes address very different topics on SDG 10. Additionally, it appears that participants sometimes take contrary positions or talk past each other. A participant may already have formed a firm opinion from which she no longer wants to deviate. ('*Inclusive education – accepting children with disabilities into a general classroom – will never work.*') This makes it difficult to have a real exchange that challenges previous opinions and allows participants to experience something new and learn from each other. It is questionable whether the online setting favours contrary positions or also makes it possible to honestly express one's own views without having to agree with the other. In any case, when it comes to the quality of teacher education, these discourses should not move only on the surface. In this context, it is especially important for the facilitator to support the discussion professionally in order to bring all the different opinions together into a common framework. It is also important that the various participants, with their different voices, feel heard.

The fact that a person who speaks or (un-)intentionally makes noises is given visual preference on the Zoom online platform is illustrated in vignette 2: *As Joan starts speaking, her image zooms to full screen and reacts to Paul.* This scene also presents two contrasting positions, this time in connection with gender equality: cognitive and intuitive learning. Serena, the facilitator, acts as a mediator who tries to appreciate both positions and underlines the complexity of the issue. By the end of the breakout session, the participants did not arrive at any final answer ('*We have more questions than when we started!*'), but experiences had been shared, and it seemed as if different perspectives had been heard. In online sessions, however, it can also happen that a few people claim the entire virtual space for themselves while others do not have a chance to speak at all. Again, facilitators like Serena have the task of interrupting (awkward) pauses (*Serena, the facilitator of the session, hesitantly breaks the pause by taking over the full screen…*) and dividing the speaking parts among the different participants.

Vignette 1 illustrates in particular that in webinars, very different groups of people (*professors*, *teacher educators*, *students*) with different knowledge can meet in a relatively uncomplicated way and can also communicate on a comparatively

flat level on a common topic. After a short introduction to the topic of the contribution of teacher education programmes in the future, the two students Lisa and Verena immediately participated in the discussion and responded to the questions of the facilitator, Angelika. The participants share different perspectives on different topics. (*The discussion revolves around lone wolfism in teacher education, inequalities, and a lack of implementation of the SDGs, even in privileged teacher education programmes.*) However, webinars can become difficult when interaction suddenly stops. (*Suddenly, the discussion stops.*)

## Discussion and Conclusion

Digitisation has transformed the way we teach and learn and has influenced our understanding of education. Against this background, educational stakeholders, such as teachers and teacher educators, need different knowledge and skills related to the use and implementation of digital tools (Brevik et al., 2019; Ottestad et al., 2014). Sustainable development as a crucial part of education – and of quality education in particular – increases the demand for digital competences (UNESCO, 2021). Digitisation brings new opportunities and challenges for education. It not only changes teaching and learning practices but also opens new ways for personal development and life-long learning processes (UNESCO, 2011). In addition to the required knowledge and skills, digital competences also include a critical, effective, confident, reflective, and ethical approach to technology (Ferrari, 2012). Scholars emphasise that webinars are a digital tool that enhances the learning environment and supports knowledge building in an international context (Cervera & Caena, 2022). In the global discourse on the quality of education, it is becoming increasingly important for education stakeholders to meet current and future requirements (Symeonidis, 2021; Westa, 2020). As the International Commission on the Futures of Education (2021) argues, it supports international dialogue and the transformation process in education. In the *Teach-4Reach* project, webinars were understood as a digital tool that enables international exchange and the creation of new knowledge and collaborative learning (Basmanova et al., 2020; UN, 2011; UNESCO, 2011). The need for global exchange is also pointed out by Chavez Chaves and O'Donell (1998), who highlight the importance of cross-cultural skills, knowledge, and competencies for educational stakeholders. As Gegenfurtner and Ebner (2019) emphasise, a key added value of webinars is international networking and, consequently, collaborative learning opportunities. Webinars enable participants from all over the world to exchange ideas on various topics. With the help of interaction opportunities like breakaway discussions, opinions, and experiences on specific and current topics such as

the SDGs can be discussed in real time in an international dialogue (McKinney, 2017), with few financial resources. They also promote the digital competences of the participants as they learn new techniques and skills for their own teaching (UNESCO, 2011).

Based on the four exemplary descriptions of learning experiences, the vignettes show various success factors, as well as challenges for online learning in an international context. Facilitators play an essential role in conducting webinars professionally. A professional facilitator who can deal with and support technical difficulties, motivate people to talk and participate, bring together options, and summarise discussions well seems to be crucial for successful learning. The vignettes underline that even if the technology is tested in advance, participants often experience technical difficulties, which make the exchange of ideas between them difficult. The vignettes also illustrate how participants dare to speak in the digital space (perhaps more than in the 'real world') in a group with different professions. The option to turn off the camera provides protection and anonymity. However, turning off the camera can also be interpreted as being unwilling to show oneself and may appear passive to other people. As highlighted in the vignettes, it is also often the case that individuals hijack communication and cause other participants to withdraw more.

During the *Teach4Reach* webinars, research members identified other disadvantages and challenges for digital webinars on sustainability that have not been mentioned in any research literature to date. Unlikely, informal and spontaneous conversations take place in virtual spaces. This limits the exchange and focuses it on the essentials. It is precisely in informal conversations that new perspectives can emerge. In addition, conversations at the end of breakout rooms very often have to be interrupted due to time constraints and can not be completed. Here, too, the importance of a facilitator who enables conversations to be structured in such a way that they can be completed within the given timeframe becomes apparent. In addition, it is often helpful to allow adequate time for discussion.

The experiences condensed in the vignettes highlight that webinars are a digital tool that supports knowledge creation as well as collaborative learning processes in a global context. Nevertheless, it is (rather like in a real situation) difficult to state what participants have learned and what information they take away from the discussions. Moreover, it is impossible to predict the actual moment of the learning experience; it can only be reflected in retrospect. However, the vignette is an instrument that helps to capture such an experience with all the senses by co-experiencing it in as much detail as possible in order to grasp its essence. Webinars also help to develop and reflect on the digital skills of

those involved in education. They enable them to apply their knowledge and skills in the digital space, to interact with other people, to exchange opinions and content, to find their role, and to seek solutions to technical problems. It has been shown that the reflective and critical approach of the participants is particularly important for their professional development, both in their use of digital tools and in their handling of the content discussed. The results also show that the quality of webinars also depends on the participants. Participants who are actively involved and motivated to share ideas and connect with others increase the quality of the webinar content. It seems that active participants do not allow themselves to be influenced in their own behaviour by technical errors or passive and invisible people. Interruptions have an impact on time in particular, as technical faults are perceived as very time-consuming.

Through the planning, delivery and subsequent reflection processes of the webinars, the project team gained experience in using this digital tool in the field of teacher education. As Gegenfurtner and Ebner (2019) point out, good organisation in advance increases the quality of the webinars. We experienced that it is important that facilitators are trained in their (new) tasks and that the technology is tested in advance. In this respect, people who are already skilled in the use of digital tools are needed. It turned out that the preparation of these people can be very time-consuming. Professional facilitators need to be meta-reflective about the use of digital tools in terms of pedagogy and means for learners. They should be knowledgeable about the technology used, know how to get help when problems arise and know how to interact with learners. In order to support learning, an understanding of learning and teaching in the digital space is of great importance. Facilitators also need strategies to motivate participants to take an active part in the debate, as well as the skills to lead and guide discussions in a professional manner. A targeted post-webinar evaluation helped the project team to identify conditions for success as well as difficulties with regard to the webinars. After each webinar, the team changed some parts of the webinars to improve their quality. The project team experienced webinars that lasted two or three hours, with contributions from experts and space for participants to dialogue with other participants, offering a structure in which the participants could learn from each other. In general, it is important to give participants clear instructions in advance on how to take part in the webinar and what the technical requirements are (Gegenfurtner & Ebner, 2019). For this purpose, the participants received detailed information on how to register and what technical resources they need.

The use of vignettes as a research tool in the study has proven to be very fruitful in researching selected (learning) experiences. However, one of the

limitations of this approach is represented by the type of writing that requires a mature epistemological posture, as well as an ability to capture the co-experiential experience in written form and through a refined structure and style. Moreover, the raw vignette must be shared by the researcher within a resonance group for the intersubjective validation of it. The challenge that phenomenological vignette research faces is to expand into different and transdisciplinary fields of research and to create a network of researchers who use research to address complex areas and issues while retaining this complexity.

In the *Teach4Reach* project, webinars can be seen as one way of realising quality education in a global context. Quality education means equipping learners with knowledge and skills and accepting and identifying diverse perspectives and backgrounds (UN, 2022; UNESCO, 2021). Addressing specific sustainability issues in the context of quality education helps educational stakeholders to become more aware of this topic and acquire new knowledge, which can subsequently initiate changes in education and society (Kumar, 2020). Digitalisation can support this process. It helps education stakeholders acquire different digital skills and allows digital tools such as webinars to bring together different international stakeholders. These international experts then have the opportunity to reflect on the content, share knowledge and experiences, and acquire new perspectives.

## Disclosure statement

The authors have no conflict of interest to declare.

## References

Agostini, E. (2016a). *Learning in the field of tension between finding and inventing. On the creative genesis of meaning in the course of experience.* Ferdinand Schöningh.

Agostini, E. (2016b). Reading vignettes: Reflective approaches to the experience of learning. In S. Baur & H. K. Peterlini (Eds.), *At the side of learning. Experience protocols from teaching in South Tyrolean schools - a research report.* Erfahrungsorientierte Bildungsforschung Vol. 2 (pp. 55–62). StudienVerlag.

Agostini, E., Schratz, M. & Eloff, I. (2024). *Vignette Research. Research Methods.* Bloomsbury. https://doi.org/10.5040/9781350299412

Aydarova, E., & Marquardt, S. K. (2016). The global imperative for teacher education: Opportunities for comparative and international education. *FIRE: Forum for International Research in Education*, *3*(1). http://preserve.lehigh.edu/fire/

Basmanova, A., Grunina, Y., & Kargovskaya, E. (2020). Digital learning: Students' assessment of

webinars and web conferences as a tool for acquiring knowledge and skills universal. *Journal of Educational Research*, *8*(12), 6960–6966.

Blignaut, A. S., & Trollip, S. R. (2003). Measuring faculty participation in asynchronous discussion forums. *Journal of Education for Business, 78*(6), 347–353.

Bosco, A., Santiveri, N., & Tesconi, A. (2019). Digital making in educational projects. *Center for Educational Policy Studies Journal, 9*(3), 51–73.

Brevik, L., Björk, G. Lund, A., & Stromme T. (2019). Transformative agency in teacher education: Fostering professional digital competence. *Teaching and Teacher Education*, *86,* Article 102875.

Carpenter, J. P., Rosenberg, J. M., Dousay, T. A., Romero-Hall, E., Trust, T., Kessler, A., Krutka, D. G., Morrison, S. A., Fischer, C., & Krutka, D. G. (2020). What should teacher educators know about technology? Perspectives and self-assessments. *Teaching and Teacher Education*, *95*, 1–13.

Cervera, M., & Caena, F. (2022). Teachers' digital competence for global teacher education. European. *Journal of Teacher Education*, *45*(4), 451–455.

Chavez, R., & O'Donnell, J. (1998). *Speaking the unpleasant: The politics of (non)engagement in the multicultural education terrain*. State University of New York Press.

Cornelius, S., & Gordon, C. (2013). Facilitating learning with web conferencing recommendations based on learners' experiences. *Education and Information Technologies*, *18*, 275–285.

Cronje, J. (2022). From face-to-face to distance: Towards flexibility in five dimensions of blended learning: lessons learnt from the Covid-19 pandemic. *Electronic Journal of e-Learning*, *20*(4), 436–450.

Eloff, I., Agostini, E., Dittrich, A.-K. & Mathabathe, K. (2023). Vignettes of Gender Equality, Wellbeing and Teaching. In Mayer, C. H., Vanderheiden, E., Braun-Lewensohn, O., Chen, G., Sueda, K., Mangolothi, B., Safdar, S. & Kim, S. (Eds), *Women Empowerment for a Sustainable Future World: Transcultural Positive Psychology Perspectives.* Springer. https://doi.org/10.1007/978-3-031-25924-1_38

Eloff, I., Mathabathe, K., Agostini, E. & Dittrich, A.-K. (2022). Teaching the Global Goals: Exploring the Experiences of Teacher Educators in an Online-Environment through Vignette Research. *Environmental Sciences Proceedings, 15*(1), Article 5. https://doi.org/10.3390/environsciproc2022015005

European Commission. (2017). *Commission staff working document. Communication on School development and excellent teaching for a great start in life.* European Commission. http://eur-lex.europa.eu/legal-content/FI/TXT/?uri=CELEX%3A52017SC0165

Ferrari, A. (2012). *DIGCOMP: A framework for developing and understanding digital competence in Europe*. Publications Office of the European Union.

Finlay, L. (2009). Debating phenomenological research. *Phenomenology & Practice, 3*(1), 6–25.

Flores, M. (2023). Unpacking quality in teacher education. In J. Madalińska-Michalak (Ed.), *Quality in teaching and teacher education* (pp. 32–49). Schöningh.

Gegenfurtner, A., & Ebner, C. (2019). Webinars in higher education and professional training: A meta-analysis and systematic review of randomized controlled trials. *Educational Research Review*, *28*, Article 100293.

Gegenfurtner A., Narciss, S. Fryer, L., Järvelä, S., & Harachiewicz. J. (2021). Affective learning in digital education. *Frontiers in Psychology*, *11,* Article 630966.

Gegenfurtner, A., Schwab, N., & Ebner, C. (2018). "There's no need to drive from A to B": Exploring

the lived experience of students and lecturers with digital learning in higher education. *Bavarian Journal Applied Sciences, 4*, 310–322.

Gisbert, M. (2022). *Technology ecosystems to rethink universities in the digital age. GUNi world report special issue. New visions for higher education towards 2030*. GUNi.

Goe, R., Ipsen, C., & Bliss, S. (2018). Pilot testing a digital career literacy training for vocational rehabilitation professionals. *Rehabilitation Counseling Bulletin*, *61*, 236–243.

International Commission on the Futures of Education. (2021). *Reimagining our futures together: a new social contract for education.* UNESCO.

Larsen, M. (2016). Globalisation and internationalisation of teacher education: a comparative case study of Canada and Greater China. *Teaching Education*, *27*(4), 396–409.

Lebeničnik, M., Pitt, I., & Starčič, I. (2015). Use of online learning resources in the development of learning environments at the intersection of formal and informal learning: The student as autonomous designer. *Center for Educational Policy Studies Journal, 5*(2), 95–113.

Leicht, A., Heiss, J., & Won J. B. (2018). *Issues and trends in Education for Sustainable Development.* Unesco Publishing.

Luis, K., & van Velzen, B. (2012). *Educational policy in an international context: Political culture and its effects*. Palgrave Macmillan.

Kumar, C. (2020). Scope of education for sustainable development. In W. Leal Filho, A. M. Azul, L. Brandli, P. G. Özuyar, & T. Wall (Eds.), *Quality Education* (pp. 741–752). Springer International Publishing.

McKinney, W. P. (2017). Assessing the evidence for the educational efficacy of webinars and related internet-based instruction. *Pedagogy Health Promotion: The Scholarship of Teaching and Learning,* 3, 47S–51S.

Meyer-Drawe, K. (2012). *Diskurse des Lernens [Discourses of learning]* (2nd ed.). Wilhelm Fink.

Momtpoint-Galliard, P. (2015). Transversal attitudes, skills and knowledge (TASKs) for a democratic culture and intercultural understanding. In F. Arató & A. Varga (Eds.), *Inclusive university: How to increase academic excellence focusing on the aspects of inclusion* (pp. 105–114). Bolko-Print Press.

OECD. (2015). *Students, computers and learning. Making the connection*. OECD Publishing.

Olson, J. S., & McCracken, F. E. (2014). Is it worth the effort? The impact of incorporating synchronous lectures into an online course. *Online Learning, 19*(2). https://doi.org/10.24059/olj.v19i2.499

Ørnes, H., Wilhelmsen, J., Breivik, J., & Solstad, K. J. (2011). *Digital tilstand i høyere utdanning 2011: Norgesuniversitetets monitor* [Digital state of higher education 2011: The Norwegian University Monitor] (vol. nr. 1/2011). Norgesuniversitetet.

Ottestad, G., Kelentrić, M., & Guðmundsdóttir, G. (2014). Professional Digital Competence in Teacher Education. *Nordic Journal of Digital Literacy*, *9*(4), 243–249.

Peña-Casas R., Ghailani D., & Coster S. (2018). *The impact of digitalisation on job quality in European public services. The case of homecare and employment service workers. Final Report.* European Social Observatory (OSE) and European Public Service Union (EPSU).

Robideau, K., & Matthes, K. (2021). Using webinars to teach extension audiences: A rubric to evaluate and improve. *Journal of Human Sciences and Extension, 9*(2), Article 10. https://doi.org/10.54718/WADO4568

Romano, M. (2002). Training teachers for quality education in Europe. *European Journal of Teacher Education*, *25*(1), 11–17.

UN. (2011). *Education for sustainable development. An expert review of processes and learning.* United Nations. https://sdgs.un.org/publications/education-sustainable-development-expert-review-processes-and-learning-17696

UN. (2022). *Transforming education summit.* United Nations. https://www.un.org/en/transforming-education-summit/sg-vision-statement

UNESCO. (2005). *Contributing to a more sustainable future: quality education, life skills and education for sustainable development*. UNESCO.

UNESCO. (2011). *ICT competency framework for teachers*. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000265721

UNESCO. (2012). *Education for sustainable development. Sourcebook. Learning & training tools N°4 – 2012*. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000216383.locale=en

UNESCO. (2021). *Teachers have their say: motivation, skills and opportunities to teach education for sustainable development and global citizenship.* UNESCO.

UNESCO Institute for Statistics. (2021). *SDG 4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.* UNESCO. http://tcg.uis.unesco.org/wp-content/uploads/sites/4/2020/09/Metadata-4

Säljö, R. (2019). Materiality, learning, and cognitive practices: Artifacts as instruments of thinking. In T. Cerrato-Pargman &I. Jahnke (Eds.), *Emergent practices and material conditions in learning and teaching with technologies* (pp. 21–32). Springer.

Symeonidis, V. (2021). *Europeanisation in teacher education. A comparative case study of teacher education policies and practices*. Routledge.

Vuori, V., Helander, N., & Okkonen J. (2019). Digitalization in knowledge work: the dream of enhanced performance. *Cognition, Technology & Work*, *21*(2), 237–252.

Westa, S. (2020). *Professionalisation through internationalisation in teacher education*. The International Project. https://www.frse.org.pl/brepo/panel_repo_files/2021/05/14/bohw30/tepe-tom-1-online-westa-sina.pdf

Winslade, M. (2016). Can an international field experience assist health and physical education pre-service teachers to develop cultural competency? *Cogent Education*, *3*(1), Article 1264172. https://doi.org/10.1080/2331186x.2016.1264172

Wiseman, A. W., & Anderson, E. (2014). *Annual review of comparative and international education 2014*. Emerald Groups Publishing Limited.

## Biographical note

**Ann-Kathrin Dittrich**, PhD, is a Senior Scientist in Teacher Education and School Research at the Faculty of Teacher Education, University of Innsbruck, Austria. Her research interests include international teacher education with a focus on quality education, sustainability, wellbeing and the professional knowledge and actions of educational stakeholders.

**Kgadi Clarrie Mathabathe**, PhD, Is the Director of Student Affairs and an extraordinary lecturer in Chemistry at the University of Pretoria. Her research interests are education for sustainable development, inquiry based science education and pedagogical and student developmental strategies that promote student success.

**Irma Eloff**, PhD, is a professor of Educational Psychology at the University of Pretoria, an adjunct professor at the University of Innsbruck and a registered educational psychologist. Her research focuses on sustainability sciences, especially health and wellbeing and quality education.

**Evi Agostini**, PhD, is Associate Professor at the Department of Teacher Education and the Department of Education at the University of Vienna and coordinator of the International phenomenological Vignette and Anecdote Research Network (VignA). Her main research interests lie in the areas of (Phenomenological) Learning and Teaching Research, Teacher Education and School Development, Aesthetic Education, Pedagogical Ethics and Sustainability.

Received: 3 September 2023, Accepted: 21 March 2024,
Published on-line as Recently Accepted Paper: March 2024
DOI: https://doi.org/10.26529/cepsj.1741

# The Multifaceted Field of Virtual Exchanges in Teacher Education: A Literature Review

Claudia Ingrisch-Rupp*[1] and Vasileios Symeonidis[2]

Virtual exchanges can be seen as a powerful tool in fostering digital-pedagogical, intercultural, and foreign language competences in teacher education. Since the Covid-19 pandemic in 2020, virtual exchanges in teacher education have gained increasing attention both in research and practice. Despite a growing number of publications and various fields and themes covered by research and reports, few publications are concerned with connecting and systematising the discourse on virtual exchanges between 2020-2023. This paper, thus, aims to offer a comprehensive overview of how virtual exchanges are employed in teacher education by adopting a scoping study approach and examining research papers published in this period of time. Our findings cover the planning, implementation, and evaluation of virtual exchanges, as well as some overarching recommendations for improving the delivery of virtual exchanges in teacher education as they are provided in the research papers. Virtual exchanges in teacher education are a multifaceted field since it has multiple aims, usages, and impacts, which largely depend on the (mostly voluntary) work of teacher educators, the institutional framework within which the exchanges take place, and student teachers' motivation to participate. The future of virtual exchanges in teacher education would benefit by opening up beyond foreign language teacher education and combining small-scale with large-scale studies to better inform research and practice.

**Keywords:** internationalisation, literature review, teacher education, professional development, virtual exchange

1 *Corresponding Author. Faculty of Education at the University of Education Freiburg, Germany; claudia.ingrisch-rupp@ph-freiburg.de.

2 Faculty of Education at the University of Education Freiburg, Germany.

# Večplastno področje virtualnih izmenjav v izobraževanju učiteljev: pregled literature

Claudia Ingrisch-Rupp in Vasileios Symeonidis

Virtualne izmenjave lahko obravnavamo kot močno orodje za spodbujanje digitalno-pedagoških, medkulturnih in tujejezikovnih kompetenc v izobraževanju učiteljev. Od pandemije covida-19 leta 2020 so virtualne izmenjave v izobraževanju učiteljev deležne vse večje pozornosti v raziskavah in praksi. Kljub naraščajočemu številu publikacij ter različnim področjem in temam, ki jih zajemajo raziskave in poročila, se le malo publikacij ukvarja s povezovanjem in sistematizacijo diskurza o virtualnih izmenjavah v obdobju 2020–2023. Namen tega prispevka je ponuditi celovit pregled uporabe virtualnih izmenjav v izobraževanju učiteljev, in sicer s pristopom študije obsega in pregledom raziskovalnih člankov, objavljenih v tem obdobju. Naše ugotovitve zajemajo načrtovanje, izvajanje in vrednotenje virtualnih izmenjav ter nekatera osrednja priporočila za izboljšanje izvajanja virtualnih izmenjav v izobraževanju učiteljev, kot so navedena v raziskovalnih člankih. Virtualne izmenjave v izobraževanju učiteljev so večplastno področje, saj imajo več ciljev, uporab in učinkov, ki so v veliki meri odvisni od (večinoma prostovoljnega) dela izobraževalcev učiteljev, institucionalnega okvira, v katerem izmenjave potekajo, in motivacije študentov, bodočih učiteljev, za sodelovanje. Za prihodnost virtualnih izmenjav v izobraževanju učiteljev bi bilo koristno, če bi se jih razširilo še na druga področja zunaj izobraževanja učiteljev tujih jezikov in združilo manjše študije z obsežnimi, da bi bolje informirale raziskave in prakso.

**Ključne besede:** internacionalizacija, pregled literature, izobraževanje učiteljev, profesionalni razvoj, virtualna izmenjava

## Introduction

Virtual exchanges (VEs) in teacher education (TE) carry great potential. They can enhance student teachers' (STs) professional development, support the internationalisation strategy of TE institutions, and promote digital transformations in TE. VE-related research emerged in the early 1990s and found a growing interest towards the beginning of the 2000s in higher education (O'Dowd, 2023, pp. 23–24). In recent years, there has been an even greater interest in VE in both practice and research (for higher education, see Jager et al. (2021), Dovrat, 2022, p. 194, Barbosa and Ferreira-Lopes, 2023; O'Dowd, 2023; for TE, see Hauck et al., 2020, p. 5). Dovrat (2022, p. 195) even speaks of an 'explosion in VE course development and research', which could be traced back to the outbreak of the Covid-19 pandemic and the shift to online teaching (Jager et al., 2021, p. 25). To date, research in VE covers a broad field of academic disciplines and topics. Or, as the Stevens Initiative puts it: 'Virtual exchange is viewed as an innovative and new pedagogical technique that is being implemented across a variety of academic fields' (Stevens Initiative, 2020a, p. 5).

The use of VE in TE is not novel, and TE seems to be understood as a fundamental and transversal theme in VE literature (Barbosa & Ferreira-Lopes, 2023, p. 574). Nevertheless, a limited number of papers present a comprehensive overview of the field of VE in education (Steven Initiatives, 2020). As a result, certain challenges arise: 'Few resources describe this research landscape holistically, so practitioners and scholars can be isolated from other research and findings' (Stevens Initiative, 2020a, p. 3).[3] Since 2020, various literature reviews have been published, for example, in the field of higher education by Dovrat (2022) or Barbosa and Ferreira-Lopes (2023). These reviews report on literature published before 2020 and are not specific to TE.

In the field of TE, the anthology of Hauck and Müller-Hartmann (2020) offers insights into the multifaceted field of research and practice of VE. In the field of language TE, Wu (2021, 2022) published two systematic reviews on how telecollaboration is used in language TE. The former publication is concerned with themes inherent to the integration of telecollaboration in language TE and focuses on outcomes from 2009 to 2019. The latter publication refers to methodologies and pedagogical applications that were used in language TE from 2010 to 2020.

3 For an overview of literature reviews published before 2020, see Barbosa & Ferreira-Lopes, 2023, p. 559; Dovrat (2022, p. 195); Wu (2022, pp. 282–283); for more recent publications that are not literature reviews but take a broader stance on VE, see Dooly and Vinagre (2022), Hagley and Wang (2020); Helm and Beaven (2020); Jager et al. (2021); O'Dowd (2023); Stevens Initiative (2020a); UNICollaboration (2023)).

We can thus argue that little has been covered by literature reviews in TE for the period between 2020 and 2023, following the outbreak of the pandemic and the surge of VE-related literature. Moreover, the few reviews that currently exist tend to be framed within a language TE context, overlooking the potential of VE for general TE across various disciplines. Against this background, the present study aims to provide a comprehensive review of the literature on the field of VE in TE at large, considering studies that have been developed in the three years since the outbreak of the pandemic (2020–2023). In doing so, we aim to inform contemporary discourses about the role of VE in TE and, specifically, the way that VE can be planned, implemented, and evaluated in the context of TE.

## Virtual exchange and teacher education: a conceptual clarification

In the following, we outline our understanding of VE and TE. VE may also be referred to as telecollaboration, cooperative online international learning (COIL) or teletandem, to name just a few terms (for an overview, see Dooly and Vinagre, 2022, pp. 392–394; O'Dowd, 2023, pp. 8–10). These terms are occasionally used interchangeably but can sometimes refer to a specific approach. Thus, the Stevens Initiative (2020a, pp. 4–5) suggests the need for standardised terminology. In our paper, we use O'Dowd's commonly employed definition of VE. According to O'Dowd (2023),

> [VE] is an umbrella term which refers to the numerous online learning initiatives and methodologies which engage learners in sustained online collaborative learning and interaction with partners from different cultural backgrounds as part of their study programmes and under the guidance of teachers or trained facilitators. (p. 11)

Crucial to VE is that learners collaborate online with other learners from another cultural background during a higher education course. In the context of TE, this collaboration implies that STs engage in an online learning occasion with STs from different cultural backgrounds. In O'Dowd's definition, it remains open whether these are synchronous (e.g., video conferencing) or asynchronous encounters (e.g., e-mail exchanges). Another definition, provided by the EVOLVE (Evidence-Validated Online Learning through Virtual Exchange; 2020) project, proves to be quite similar but adds that 'interaction takes place between individuals or groups who are geographically separated and/or from different cultural backgrounds'. These complementary definitions

are useful for the purposes of our study since they help us to conceptualise VE in a broad way that includes multiple ways of communication and takes place across different nations; specifically, the VE involves two or more countries.

In this paper, we focus on VE in initial TE, which is a central part of initial teacher preparation (see OECD, 2019). According to the OECD (2019), initial teacher preparation includes 'pre-service education and preparation during the first year of teaching' (p. 18). Our focus lies on initial TE programs, meaning formal teacher education that leads to a diploma or degree that is needed for teaching in public schools. We do not distinguish between various courses, degrees, or educational levels. The term 'ST' is used to refer to students at a higher education institution who follow courses to become teachers. They are not yet fully qualified. The first phase of TE often comprises practical training, subject-related studies, subject-related didactics, and educational science. However, TE may vary across different countries, and even within countries, various forms of TE can be found (Symeonidis, 2021). Despite this variety, VE in TE seems to be structured in ways similar to those of the EVALUATE Group (Evaluating and upscaling telecollaborative teacher education; Evaluate Group, 2019, p. 2) states. Roughly speaking, the VE is initiated and organised by teacher educators, including curriculum and task designs and assessments. During the VE, the STs collaborate, 'discussing issues related to their curricula and collaborating to create educational materials and activities' (EVALUATE Group, 2019, p. 2). Throughout the exchange, the STs' learning process is supported. In the context of TE, VE is commonly used to support STs' professional development in various fields. For instance, to develop teaching skills, including digital teaching skills, the improvement of subject-specific skills, such as foreign language learning and teaching or intercultural learning. Some VEs are also organised as a form of practical training.

Our research process is guided by the five-stage framework proposed by Arksey and O'Malley (2005). We commenced by *identifying the research question (stage one)*: How is VE being employed in TE, according to research papers published from 2020-2023? Considering that any intervention includes different stages before it produces concrete outcomes, we focused on the stages of planning, implementation, and evaluation. To refine our analysis, we thus formulated three complementary research questions:

1. How is VE in TE being planned and implemented?
2. How is VE in TE being evaluated?
3. Which overarching recommendations for improvement are provided by the authors of the publications?

## Method

To provide a comprehensive overview of the role of VE in TE spanning from 2020 to 2023, we draw on the scoping study method outlined by Arksey and O'Malley (2005). To improve the reporting quality of our study, we also applied the PRISMA Extension for Scoping Reviews' checklist (see Tricco et al., 2018). A scoping study is a type of literature review.[4] It 'can be undertaken as stand-alone projects in their own right, especially where an area is complex or has not been reviewed comprehensively before' (Mays et al., 2001, p. 194). As outlined before, this is the case in the field of VE in TE.

### Sample

To *identify the relevant studies (stage two),* meaning to gather data, we selected the electronic databases Academic Search Premier (*n*=3), Education Source Ultimate (*n*=16) and Education Resources Information Center (ERIC; *n*=29). In the electronic databases, we applied the following keyword string: 'virtual exchange' or 'virtual exchanges' or 'telecollaboration' or 'telecollaborative' or 'COIL' and 'teacher education' or 'teacher training' or 'pre-service'. We used VE as it is an established umbrella term; we also added 'telecollaboration' and 'COIL' as these two terms are also frequently used to relate to VE (see O'Dowd, 2023, pp. 8–11; Barbosa & Ferreira-Lopes, 2023, p. 570). For TE, we did not use 'teacher preparation' as this term proved not specific to TE. Additionally, hand-searching was applied for the Journal of Virtual Exchange (UNICollaboration; *n*=35) due to its relevance and despite not being included in the selected databases.

To identify relevant data, we focused our search on peer-reviewed, empirical, and original research papers published in journals and written in the English language. We explicitly chose peer-reviewed and original papers listed in professional electronic databases to ensure the quality of the research papers, as the scoping study method does not evaluate the quality of research done in the field (see also Arksey and O'Malley, 2005, pp. 21–22). We focus on papers published between March 2020 and August 2023. As mentioned above, to our

4 Arksey and O'Malley (2005) state that there are many different types of literature reviews. They explicitly differentiate between a systematic literature review and a scoping: 'First, a systematic review might typically focus on a well-defined question where appropriate study designs can be identified in advance, whilst a scoping study tends to address broader topics where many different study designs might be applicable. Second, the systematic review aims to provide answers to questions from a relatively narrow range of quality assessed studies, whilst a scoping study is less likely to seek to address very specific research questions nor, consequently, to assess the quality of included studies" (p. 20).

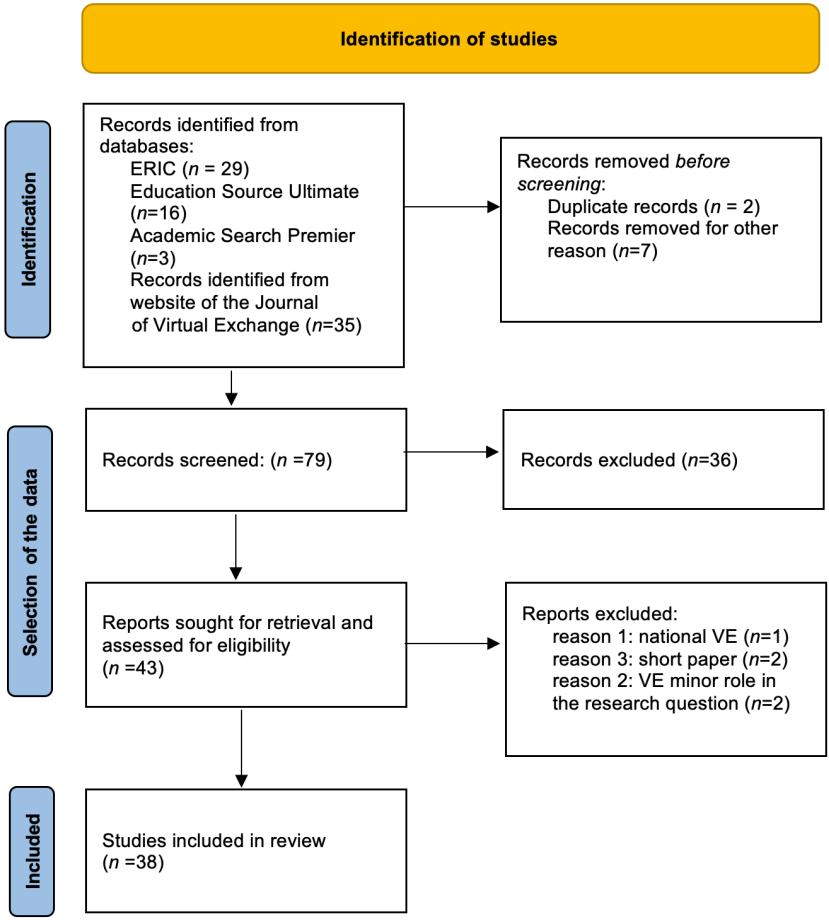
knowledge, two literature reviews have been published by Wu (2021, 2022) on how telecollaboration is used in language TE for this specific period of time. Additionally, since the beginning of the worldwide Covid-19 pandemic in 2020, VEs seemed to gain a greater attention (Jager et al., 2021, p. 25; for a more general reflection on education during the pandemic see Pešikan et al. 2021).

In total, we retrieved 88 publications. We subsequently proceeded *to select the studies (stage three)*. *Specifically*, we selected the data as follows: having excluded doubled research papers (*n*=2), practice reports and papers which were published in a language other than English (*n*=7), we read through the titles and abstracts of all papers and excluded papers that did not meet our aforementioned definition of VE and TE (*n*=36). Papers that discussed, for instance, tele-tandems, in-service-teacher education, or teacher educator's professional development were excluded. We read through 43 papers and excluded five more research papers for the following reasons: one research paper reported on a VE on a national level. In two research papers, the VE played a minor role; for example, it was just a small part of a greater research question, and too little information was offered for our analysis. Two research papers were short papers and offered (due to their nature) too little information about the contexts and empirical data. In the end, we selected 38 papers, which we included in our data analysis. In Figure 1, we summarise our process of selecting the studies by using the PRISMA 2020 flow diagram.

### Data analysis

Our refined research questions helped us in *charting the data (stage four)*. We decided to use a descriptive and analytical systematisation based on our research questions. We then *collated, summarised*, and developed a systematisation to *report* our results *(stage five*). We chose a thematic analysis to present our findings on the implementation and evaluation of VE and the overarching recommendations provided by the authors. We used software for qualitative data analysis (MAXQDA). Following our three research questions, we coded the research papers employing both inductive and deductive reasoning, specifically developing codes from the data and from theoretical concepts and models. As the development of the systematisation is specific to each research question and closely related to our findings, we will explain them at the beginning of each section of the following chapter.

**Figure 1**
*PRISMA 2020 flow diagram*




## Results

### Planning and implementation of virtual exchange in teacher education

To answer our first research question about how VE is planned and implemented in TE, a combined inductive and deductive reasoning process helped to discern the following aspects: establishing the partnership for the VE; integrating the VE in the TE curriculum; designing the tasks for the STs;

utilising technology; defining the role of teacher educators; and evaluating STs' performance. Some of these aspects have previously been identified by the EVALUATE Group (2019) and O'Dowd (2023) as the necessary steps to carry out a VE in TE.

Before undertaking the VE, *establishing a partnership* is crucial to helping teacher educators agree and plan their work. Partnerships are commonly established between teacher educators (rather than their institutions) in two different countries, who either have previously become acquainted with each other or have found each other through VE finder tools. Institutions might provide support in implementing the VE (e.g., allowing integration in the curriculum), but often, teacher educators undertake such activity themselves on a voluntary basis or in the context of a funded (research) project. The duration of the VE is usually designed to last six weeks, with some studies reporting a minimum of three weeks (Jaramillo Cherrez & Gleason, 2022; Gleason & Jaramillo Cherrez, 2021) and others lasting a 16-week semester (Dietrich, 2022). A commonly cited challenge is aligning the course calendars in the different institutions, which is not always possible, so some institutions limit their synchronous interactions to a few meetings. In cases in which the partnership was well established and uninterrupted for years, meetings would take place regularly over the semester (Dooly & Sadler, 2020). The number of STs participating in the VE has also differed between the partners (e.g., 37 STs in one partner and 14 in the other Dooly & Sadler, 2020), although a balance was generally sought.

A crucial issue in the process of planning is *the integration of the VE into the TE curriculum*. We observe that only on a few occasions has a joint curriculum been developed by the partners, culminating in the development of a new jointly offered course, even if it is not officially named as such (e.g., Dooly & Sadler, 2020). In most cases, teacher educators attempt to integrate the VE as an add-on to an already existing course. The mode of STs' participation in the VE (i.e., compulsory or voluntary) differed among studies, while sometimes it differed even among partners conducting the same VE together. In the study of Bilki et al. (2023), for example, one university introduced the VE as an extracurricular activity in which STs could voluntarily participate, while the partner university made participation in the VE a course requirement. When VE is a required component of the course, it is also evaluated as part of STs' course grades and STs are offered ECTS credits. However, in the study of Jørgensen et al. (2022), the VE was integrated into existing modules of TE programs in both partner countries but was formally assessed only in one of them, leading some of the participants to think that the absence of assessment had reduced their motivation.

*Designing the tasks for STs* is also a key aspect of the successful implementation of the VE. Across the examined studies, the tasks were designed as collaborative activities including STs from different cultural backgrounds and often included the development of a joint product as the final output (e.g., Garcia-Esteban et al., 2021; Rets et al., 2023; Symeonidis & Impedovo, 2023). The tasks were often designed to develop STs' subject-specific and teaching competences (mostly foreign language teaching), while some tasks also focused on STs' values and attitudes as teachers, as will be detailed in the following section. The nature of the tasks varied across studies, but several studies integrated tasks particularly relevant for TE, such as the design of lesson plans (Garcia-Esteban, 2020; Hilliker & Yol, 2022; Rets et al., 2023), the delivery of 'mini-lessons' for classmates (Dooly & Sadler, 2020), the development of a learning journal (Gleason & Jaramillo Cherrez, 2021; Hilliker, 2020; Madden, 2022; Yang, 2020a), and video recording for reflection of STs' teaching methodologies (Hilliker, 2020; Hilliker et al., 2021; Lenkaitis, 2020; Lenkaitis et al., 2020). The tasks often required STs to undertake some research (e.g., Garcia-Esteban, 2020) and fostered the comparison and analysis of cultural practices and teaching philosophies (Hilliker & Yol, 2022; Lenkaitis, 2020; Rets et al., 2023; Symeonidis & Impedovo, 2023).

To implement the VE, teacher educators rely heavily on *the use of technology*. For synchronous communication, most studies refer to Zoom as the preferred videoconferencing platform (with Skype, WhatsApp and Facebook/Messenger also mentioned), while for asynchronous communication, several platforms were utilised, including Moodle, Edmodo, TEAMMATES, Blackboard, and Google Docs. The vast majority of studies included a combination of synchronous and asynchronous means of communication, with emphasis given to student-led synchronous meetings as more motivating and immersive for STs. In a few VEs, teacher educators opted for a predominantly asynchronous mode of communication (Orsini-Jones et al., 2020; Üzüm et al., 2020; Üzüm et al., 2022). Despite teacher educators planning for the technology to be used, some studies indicated that STs often chose their own way of communication with each other, which helped to overcome communication difficulties and implied that teacher educators had to show flexibility (e.g., Symeonidis & Impedovo, 2023). The use of technology is essential for the VE, but it is not always a given. For example, Dietrich (2022) reports on the challenges of participants in conflict-affected societies, such as Afghanistan, who did not have internet at home and had to travel to access computers at educational centres.

*The role of teacher educators* as initiators of the VE and mentors of STs is also discussed across studies. Specifically, teacher educators often adopt the

role of facilitator rather than instructor during the VE, introducing STs to their tasks, providing them with explanations when needed and generally supporting STs' communication with each other. Teacher educators tend to promote STs' self-directed learning and autonomy (e.g., Dooly & Sadler, 2020). However, in a few studies, teacher educators appear to maintain the control they normally exert and fail to draw on the online practices of their students, leading to a mismatch between teacher educators' and STs' goals (Jørgensen et al., 2022).

Finally, *evaluating STs' performance* largely depends on whether the VE was offered as a voluntary or compulsory activity. In studies reporting the VE as a voluntary activity, there was no formal assessment and STs' received no ECTS (e.g., Rienties et al., 2022). When VE was a required course component, then active participation in the VE (Dooly, 2022), written reflections (Gleason & Jaramillo Cherrez, 2021; Hassan et al., 2021; Üzüm et al., 2020), and/or the final STs' joint product (Symeonidis & Impedovo, 2023) were considered as part of STs' final course evaluation. Several studies also connected STs' evaluation with an official evaluation of the VE, gathering STs' written reflections, surveys, and materials as evidence for the impact of the VE.

## Evaluation of virtual exchange in teacher education

How is VE in TE evaluated? To answer this second research question, we start by offering a descriptive overview of research strategies. We then turn to the results, which can be grouped into two categories: either the authors focus on approaches developed for the VE in TE or they concentrate on STs' professional development.

Our literature review revealed that *research on VE* in TE includes mostly qualitative studies that adopt a (primarily descriptive) case study research design. Ethnography, grounded theory, and design-based research are also research designs that some of the studies adopt to evaluate the impact of VEs or to help design an intervention and analyse its results. Three studies include a mixed-methods approach, and only one report undertaking a large-scale quantitative study. Although VEs include international cooperation among TE institutions in different countries, a comparative research perspective is only mentioned in three of the examined studies, indicating that comparative studies, paradoxically, hold a marginal role in this field of research. An explanation for overlooking the comparative dimension could lie in the fact that these small-scale studies tend to consider VE participants as a homogeneous group of learners who participate in the same experience without always acknowledging the rather diverse socio-cultural background of different learner groups,

which would imply an in-depth examination of STs' TE contexts. Of course, there are also a few studies focusing on intercultural learning, which advise taking STs' prior knowledge, personal interests, and socio-cultural background into consideration (e.g. Rienties et al., 2022; Yang, 2020b).

The small-scale nature of these studies is also becoming apparent when these studies choose to include only a part and not all of the exchange partners as research participants for reasons that have to do with 'practicalities' and 'data protection laws'. Like previous studies examining the impact of VEs in TE (e.g., EVALUATE Group, 2019; Rienties et al., 2022), we could also observe that there are few evidence-based and large-scale studies with a well-argued choice of variables. One should not overlook the practical value that research for TE has for those directly involved in it, namely teacher educators and STs (Symeonidis, 2024). Our study shows that, in the vast majority of the examined studies, the teacher educators who initiated the VE are also the researchers who evaluate the outcomes of their work. As such, most of the studies could be characterised as self-study, implying that researchers also reflect, for instance, on their own professional learning or ways of knowledge generation. However, this involvement in both research and practice is not always clearly documented and reflected upon on a methodological level.

Most of the examined studies focus solely on foreign language TE, with only six studies exploring the potential of VEs to develop STs' knowledge, skills, and attitudes in other subjects. Recurring themes of study include (a) the impact of VEs on developing (foreign language) STs' content knowledge, pedagogical content knowledge (especially technological), and pedagogical knowledge; (b) the impact of VEs on developing (foreign language) STs' professional attitudes and skills, (e.g., intercultural competence, critical reflection, democratic attitude); and factors influencing the design process of VEs (particularly task development). To explore these topics, the authors employ research methods commonly used in qualitative research, such as (individual and/or group) interviews, surveys with open-ended questions, reflective journals or essays, portfolios, written evaluations, email communication, and video recordings, while some studies report utilising quantitative surveys. The data analysis consequently includes a form of content analysis (e.g., Mayring's qualitative content analysis), thematic analysis, discourse analysis for qualitative data and statistical analysis for quantitative survey data.

The *results* of the VE in TE are reported commonly, either with a focus on STs' professional development or a specific approach. Many authors concentrate on STs' development. However, some authors also present a specific way of implementing a VE in TE. Before we outline the results concerning

STs' professional development, we will briefly describe the specific approaches adopted by the authors. We use the term 'approach' as an umbrella term to refer to a specific way of obtaining a goal. Where the authors used a more specific terminology, we refer to it. Overall, we can categorise the approaches as follows:

Predominantly, approaches revolve around the promotion of *specific attitudes and/or values*. Bartsch et al. (2021) assess how consumer and sustainability goals can be developed. Their approach seems to be beneficial for developing consumer and sustainability competences. Rauschert and Cardetti (2022) construct a teaching concept on democratic competences and align it with principles of intercultural citizenship education. They positively evaluate it, stating that 'students successfully engaged in intercultural dialogue, addressed local and global issues and used their creative writing skills to promote democratic values as well as to raise awareness of biased perspectives' (Rauschert & Cardetti, 2022, p. 38). Symeonidis and Impedovo (2023) also provide a positive evaluation of their approach, which aims to foster STs' professional awareness as European teachers.

A *critical approach* is adopted by Gleason and Jaramillo Cherrez (2021) and by Jaramillo Cherrez and Gleason (2022). They employ a critical cosmopolitan framework for (one and the same) VE, which is reflected through different perspectives in both research papers. Furthermore, we identified two approaches which stand out as *they combine VE with other learning formats.* Dooly and Sadler (2020) demonstrate the potential of an approach that they call 'FIT', which stands for flipped materials, in-class instruction, and telecollaboration. It aims to promote learner responsibility or dialogic learning. Orsini-Jones et al. (2020) analyse a project called 'Blending Massive Open Online Courses in English Teacher Education with Telecollaboration' (BMELTET). As the acronym suggests, the authors combine a VE with MOOCS. Apparently, this project supports STs' use of technology in their teaching and increases digital critical literacy development.

Researchers evaluating *STs' professional development* present a wide array of results. To structure the results, we used the COACTIV Model of Teachers' Professional Competence[5] by Baumert and Kunter (2013) as a heuristic. According to the COACTIV model, professional knowledge comprises (drawing back on Shulman's approach to structure teachers' knowledge) pedagogical

5 The COACTIV model is an empirically and theoretically tested concept of professionalism; it is a generic model used by the authors in international comparative research and is specialized to teachers' professional competence in mathematics. The acronym COACTIV stands for 'Cognitive Activation in the mathematics classroom and professional competence of teachers'.

knowledge, content knowledge and pedagogical content knowledge. Organisational knowledge and counselling knowledge are added. Furthermore, Baumert and Kunter (2013) point out that beliefs, values, goals, motivational orientation and self-regulation are also relevant to teachers' professional competence. We expanded and refined this model to provide a systematic overview of the findings. For instance, results pertaining to pedagogical content knowledge all referred to (foreign) language learning and teaching, as revealed during our analysis. To group the findings with the utmost precision, we opted to use the latter term to categorise these findings. TPACK (Technological Pedagogical Content Knowledge) is another example. It encompasses several knowledge forms and plays a crucial role in evaluating VEs. Thus, we introduced this category as a separate one. For similar reasons, we established intercultural communicative competences, interactions, and transversal competences as further categories. Organisational knowledge, counselling knowledge and self-regulation are not evaluated separately by the authors. Consequently, these knowledge forms could not be covered in our systematisation. In the following, we focus on the main results reported in the papers, specifically, the answer to the research question provided by the authors.

VE can be beneficial for the development of *TPACK*, as demonstrated by Hauck et al. (2020) and Rets et al. (2023). However, Rienties et al. (2022) illustrate that STs who participated in the VE did not seem to gain greater TPACK skills than the students who participated in the control group. However, if the students already possessed greater TPACK skills before they participated in the VE, this appeared to positively influence the acquisition of their foreign language (Rienties et al., 2022, p. 577).

The results of four other papers can be linked to TPACK. Hassan et al. (2021) illustrate how STs engage in a VE with undergraduate language students. Dietrich (2022) details gains in 'teaching online' (Dietrich, 2022, p. 34). Yang (2020a) also describes the benefits of STs' development with regard to digital literacy skills. Bilki et al. (2023) refer to critical digital literacy and provide an illustration of how this term is conceptualised in the context of a VE in TE.

*Foreign language teaching and (foreign) language learning* are often intertwined. For instance, Hilliker (2020) describes a study in which STs learn about linguistics in an English as a second language/English as a foreign language course and apply their knowledge in a VE with students who want to learn English. Similarly, Hilliker and Yol (2022), Hilliker et al. (2021) and Lenkaitis et al. (2020) report on positive results from combining (foreign) language learning with foreign language teaching, specifically applying subject and pedagogical knowledge in teaching practice in the form of a VE. Wach et al. (2022) and Yang

(2020a) focus on foreign language teaching and Yang (2020b) describes foreign language learning.

*Beliefs, values and motivational orientation* are individually evaluated in some papers. STs can become aware of stereotypes (Hilliker, 2020), develop their professional ethos (Hassan et al., 2021) or acquire more favourable self-perceptions (Viáfara González, 2020). Yang (2020b) describes STs growing confidence and motivation for using a foreign language, while Wach et al. (2022) highlight that STs valued the VE and were ready to integrate into their future career.

The development of *intercultural communicative competence (ICC)* is assessed by Yang (2020a) and Üzüm et al. (2020). Eren (2023a, 2023b) also analyses positive results for ICC development; the former focuses on positive results for the STs' identity orientation, and in the latter, Eren centres on STs' critical cultural awareness. Although the following authors do not explicitly mention ICC, their findings can be integrated here. For instance, Yang (2020b) describes improved intercultural competence. The study of Dietrich (2022) shows that STs learned more about the foreign country and acknowledged as well as valued cultural differences.

*Interactions* in VEs are also subject to evaluation, for example, by Drixler (2022) who describes foreign language interactional competences used in the VE, these comprise 'multilingual and epistemic resources as well as the organisation of turn-taking' (p. 85). Furthermore, mediations between participants and a teacher are examined by Fuchs et al. (2022), and translingual negotiations are analysed by Üzüm et al. (2022). From their analysis of intercultural learning moves, Sardegna and Dugartsyrenova (2021) developed successful combinations of discussion questions that increased the students teachers' intercultural learning..

*Transversal competences and themes* describe results that take a more holistic perspective on STs' professional competence and tend to be less subject specific. Kopish and Marques (2020) illustrate the potential of VE centred on promoting global competences and the use of technology for learning. Pu and Weng (2023) evaluate global teaching competences, and Madden (2022) reports on the development of 'glocal' competence. The influence of the pandemic on ST's perceptions as well as their development of 21st century skills are assessed by Hilliker and Loranc (2022). STs' agency for social justice is assessed by Üzüm et al. (2022). Garcia-Esteban (2020) illustrates the development of Sustainability Development Goals and how these may enhance civic competences. Lenkaitis (2020a, 2020b) examines STs' reflections on their professional development.

## Overarching recommendations for implementing virtual exchange in teacher education

The following recommendations stem from the authors of the research papers. Overall, they express a positive disposition towards VEs. Many of them suggest conducting a VE in TE, even though these endeavours might pose challenges at times. As our aim is to provide practical guidance, we include only recommendations that are more general and can be transferred to other VEs. This entails reporting recommendations that authors themselves identify as broader or if authors across various research papers offer similar advice.

Authors recommend *preparation* from various perspectives: educators should consider various factors before initiating a VE. STs should be adequately prepared, for instance, regarding their expectations towards the VE (Rets et al., 2023), as well as addressing sensitive issues that may arise during the VE (Madden, 2022). Teacher educators should be prepared for different STs' competences and related challenges as this helps to provide suitable strategies. Additionally, it is helpful to know STs' interests to relate to suitable tasks (Yang, 2020b), while the specific needs and interests of STs could be taken into consideration for the preparation (Rets et al., 2023). Another part of the course preparation could be that students are provided with time to become acquainted with each other, for example, through ice-breaking methods, as Eren (2023a) suggests. Furthermore, Viáfara González (2020) observed that STs found it easier to initiate the VE by chatting rather than video calling. In addition, assessment and credits for the workload completed by the students should be considered and should be similar for all participants (Bartsch et al., 2021; Madden, 2022).

Recommendations regarding the *time* and *planning* of a VE are also provided. Different time zones or term schedules should be accounted for when scheduling synchronous encounters (Yang, 2020a). Different time zones might also be influential on the choice of synchronous or asynchronous communication. Üzüm et al. (2020) propose planning for a duration of two semesters, provided the groups remain the same. Furthermore, planning, conducting, organising, and evaluating a VE can be time intensive. Thus, it is essential to allocate sufficient time for the entire VE project (Gleason & Jaramillo Cherrez, 2021; Jaramillo Cherrez & Gleason, 2022), which should include teacher educators' workload and semester breaks (Eren, 2023a).

Support for *communication* among students is also necessary. Drixler (2022) recommends addressing interactional strategies that students could employ for the first meeting, for example, presenting their surroundings via webcam. If the STs communicate in a foreign language, they should be encouraged

to adhere to it. Bartsch et al. (2021, p. 66) suggest integrating language learning and subject-matter learning, particularly if the VE is not part of a foreign language course. To facilitate group discussions, Üzüm et al. (2020) propose the existence of facilitators. Sardegna and Dugartsyrenova (2021) provide guidelines for discussion questions aimed at intercultural learning. Rets et al. (2023, p. 1239) advise 'explicit discussions of home group organisation and the implications of task work'.

## Discussion and conclusions

A plethora of research studies employing VE in TE has been published in recent years, while an acceleration in the production of such studies can be witnessed following the outbreak of the Covid-19 pandemic. Our study set out to explore the way that VE is employed in TE-related literature between 2020 and 2023, focusing on its planning, implementation, and evaluation, as well as recommendations for improvement. We could generally argue that VE in TE appears to be a multifaceted field since it has multiple aims, usages and impact, which largely depend on the (mostly voluntary) work of teacher educators, the institutional framework within which the VE takes place, and STs' motivation to participate.

With regard to planning and implementation, we agree with the EVALUATE Group's (2019) stages of carrying out a VE in TE, although it becomes clear that developing a joint curriculum for the exchange beyond what is already stipulated in the existing TE curriculum, proves challenging and time intensive. As a result, teacher educators tend to integrate the VE as an add-on in existing courses without being able to ensure the sustainability of the exchange component in that way. Nevertheless, teacher educators' resourcefulness and learning persistence can lead them to innovative and sustainable solutions, shifting the VE from the periphery to the centre of the learning process by engaging the participating institutions to officially recognise the specific teaching approach (Dooly & Sadler, 2020). VE cannot be an isolated experience, so its integration into TE programmes is necessary to move beyond a mere add-on approach.

Our findings also indicate that the successful implementation of the VE in TE requires the establishment of a functioning partnership in advance. The design of tasks should include themes relevant to TE, focusing on the achievement of learning outcomes that not only relate to STs' content knowledge and pedagogical content knowledge but also to STs' pedagogical knowledge and professional attitudes. This would imply that TE is not limited to foreign language teaching but expands to other TE components (Symeonidis & Impedovo,

2023). It would also imply that VE in TE adopts a more critical approach which considers cultural practices and perspectives, addressing social and political issues in an increasingly polarised world (O'Dowd, 2021), in view of developing teacher agency for inclusion and social justice. To engage STs' active participation in the VE, collaborative tasks, a synchronous mode of communication, and flexibility on the side of teacher educators are important. A combination of intrinsic and extrinsic motivation is needed, meaning that STs should be receiving recognition (e.g., ECTS) for their work.

The evaluation of VE in TE highlights its successful implementation, although it becomes clear that more large-scale studies about impact are needed to inform both research and practice. VE in TE may support STs' professional development regarding TPACK, (foreign) language learning and teaching, or ICC. As our review of the evaluation shows, authors also assess interactions, motivational orientations, beliefs, values, and transversal competences such as democratic competences, global competences, or civic competences. Firstly, these findings show that a broad range of approaches and results concerning STs' professional development continues to be established in various fields of TE. O'Dowd (2016) observes similar trends, which are confirmed by Barbosa and Ferreira-Lopes (2023) a few years later. Secondly, what Dovrat (2022, p. 205) states for higher education also seems to be true for TE: 'The VE field has moved beyond asking if VE works as a pedagogy to asking which learning approaches best deliver the desired student outcomes'. Large-scale assessments could be helpful in defining the most effective learning approach. It could also be interesting to examine how a carefully designed approach (e.g., aiming at global competences) might be developed 'around the globe' in various TE contexts. Thirdly, even though the pandemic seemed to serve as a catalyst for the research and practice of VEs in TE, it is rarely addressed in the research papers. There is only one publication, by Hilliker and Loranc (2022), that considers the influence of the pandemic on ST's perceptions. It is probably too early to expect broad research results, as research and publishing can be time-intensive. However, it would be valuable for researchers and practitioners alike to gain a better understanding of the possible influences of the pandemic on planning, implementing, and evaluating VE in TE. Particularly, longitudinal studies would be needed to trace possible developments over time, for example, before, during, and after the pandemic.

More up-to-date evaluations can also help to shed light on VE in TE. As our findings suggest, organisational knowledge, counselling knowledge or self-regulation are rarely addressed separately. Evaluations of institutional or political framings – including higher education institutions' internationalisation

strategies – have rarely come into view over the past three years. One reason for this might be that even though the pandemic served as a catalyst for VE in higher education, 'actions for implementing VE on a more structural basis are still in a pioneering, experimental stage in several institutions' (Jager et al., 2021, p. 24). Explorative studies in this field might help to integrate VE in TE with a solid, long-term perspective.

Despite these general conclusions on the evaluation, a more detailed comparison amongst the various results might be challenging. This is due to the sometimes confusing way of referring to VEs and their often highly context-specific implementations. Our literature review focuses on providing an overview of VEs in TE from 2020 to 2023. Thus, we focus on general and rather broad aspects of VE, specifically planning, implementation and evaluation of VE general recommendations as they are presented by the authors of the research papers. Future research could consider a more finely grained and comparative approach, for example, to compare various lengths of a VE project with regard to achieved results in various national contexts of teacher education systems. It could be interesting to understand how the broader aspects of VEs in TE are recontextualised in specific countries and across various cultural backgrounds.

More general recommendations are also echoed in publications concerning higher education. For instance, the significance of students' preparation before a VE or allocating enough time for a VE is also advocated (amongst other recommendations) in the Stevens' Initiative annual reports (2020b, pp. 11–12; 2023, pp. 20–21).

Our literature review has two main limitations: Firstly, the scoping study method does not evaluate the quality of publications. We attempted to ensure the high quality of the research publications by selecting peer-reviewed and original research listed in professional electronic databases. Secondly, we did not include research papers published in languages other than English, potentially missing out on national discourses. We also want to underscore the relevance of literature not covered in our review, such as studies before 2020, contributions in anthologies or practical reports. However, our literature review showcases how VE in TE can be planned, implemented, and evaluated, providing overarching recommendations. A major strength lies in its general overview of the field concerning the planning and implementation, evaluation, and overarching recommendations of VE in TE from 2020 to 2023. Due to its general perspective, it may encourage communication and cooperation between researchers and practitioners engaged in the growing field of VE in TE.

## Disclosure statement

The authors have no conflict of interest to declare.

## References

### Research Papers Included for Literature Review

Bartsch, S., Kittirath, P., Müller, H., & Youyabouth, C. (2021). Inquiry-based learning and digital storytelling in virtual exchange: an approach for reflecting on food consumption in the Global South and Global North. *Journal of Virtual Exchange*, *4 (SI-IVEC2020)*, 47–69. https://doi.org/10.21827/jve.4.37152

Bilki, Z., Satar, M., & Sak, M. (2023). Critical digital literacy in virtual exchange for ELT teacher education: An interpretivist methodology. *ReCALL*, *35*(1), 58–73. https://doi.org/10.1017/S095834402200009X

Dietrich, S. E. (2022). Unexpected affordances of virtual exchange as teacher education: learning about, with, and from students in a conflict country. *Journal of Virtual Exchange*, *5(SI-IVEC2021)*, 24–41. https://doi.org/10.21827/jve.5.38345

Dooly, M., & Sadler, R. (2020). "If you don't improve, what's the point?" Investigating the impact of a "flipped" online exchange in teacher education. *ReCALL*, *32*(1), 4–24. https://doi.org/10.1017/S0958344019000107

Drixler, N. (2022). Features of Online second language interactional competence in a German-Israeli Virtual exchange. *TESOL in Context*, *30*(2), 65–95. https://doi.org/10.21153/tesol2022vol30no2art1568

Eren, Ö. (2023a). Negotiating pre-service EFL teachers' identity orientations through telecollaboration. *Innovation in Language Learning & Teaching*, *17*(2), 469–484. https://doi.org/10.1080/17501229.2022.2085280

Eren, Ö. (2023b). Raising critical cultural awareness through telecollaboration: insights for pre-service teacher education. *Computer Assisted Language Learning*, *36*(3), 288–311. https://doi.org/10.1080/09588221.2021.1916538

Fuchs, C., Snyder, B., & Tung, B. (2022). The value of mediation for task design and implementation in a US-China virtual exchange. *Journal of Virtual Exchange*, *5 (SI-IVEC2021)*, 1–23. https://doi.org/10.21827/jve.5.38197

Garcia-Esteban, S. (2020). Telecollaboration for Civic Competence and SDG Development in FL Teacher Education. *European Journal of Education (EJE)*, *3*(2), 129–141.

Garcia-Esteban, S., Villarreal, I., & Bueno-Alastuey, M. C. (2021). The effect of telecollaboration in the development of the Learning to Learn competence in CLIL teacher training. *Interactive Learning Environments*, *29*(6), 973–986. https://doi.org/10.1080/10494820.2019.1614960

Gleason, B., & Jaramillo Cherrez, N. (2021). Design thinking approach to global collaboration and empowered learning: virtual exchange as innovation in a teacher education course. *TechTrends: Linking*

*Research & Practice to Improve Learning*, *65*(3), 348–358. https://doi.org/10.1007/s11528-020-00573-6

Hassan, X., Eardley, A., & Combe, C. (2021). *Internationalisation at home through virtual exchange: An encounter between distance language learners and trainee language teachers*. In N. Zoghlami, C. Brudermann, C. Sarré, M., Grosbois, L. Bradley, & S. Thouësny (Eds.), *CALL and professionalisation: short papers from EUROCALL 2021* (pp. 112–118). Research-publishing.net. https://research-publishing.net/publication/978-2-490057-97-9.pdf

Hauck, M., Müller-Hartmann, A., Rienties, B., & Rogaten, J. (2020). Approaches to researching digital-pedagogical competence development in VE-based teacher education. *Journal of Virtual Exchange*, *3*(SI), 5–35. https://doi.org/10.21827/jve.3.36082

Hilliker, S. M. (2020). Virtual exchange as a study abroad alternative to foster language and culture exchange in TESOL teacher education. *The Electronic Journal of English as a Second Language*, *23*.

Hilliker, S. M., Lenkaitis, C. A., & Ramirez, A. (2021). expanding teacher candidate linguistic knowledge: Analysing Recorded virtual exchange sessions. *The EUROCALL Review*, *29*(1), 19–26.

Hilliker, S. M., & Loranc, B. (2022). Development of 21st century skills through virtual exchange. *Teaching & Teacher Education*, *112.* https://doi.org/10.1016/j.tate.2022.103646

Hilliker, S. M., & Yol, O. (2022). Virtual Exchange in Teacher Education: Focus on L2 Writing. *ELT Journal*, *76*(1), 11–19.

Jaramillo Cherrez, N., & Gleason, B. (2022). A virtual exchange experience: Preparing pre-service teachers for cultural diversity. *Journal of Digital Learning in Teacher Education*, *38*(3), 126–138. https://doi.org/10.1080/21532974.2022.2083732

Jørgensen, M., Mason, A., Pedersen, R., & Harrison, R. (2022). The transformative learning potential in the hybrid space between technology and intercultural encounters. *Journal of Studies in International Education, 26*(3), 318–333. https://doi.org/10.1177/1028315320976030

Kopish, M., & Marques, W. (2020). Leveraging technology to promote global citizenship in teacher education in the United States and Brazil. *Research in Social Sciences and Technology*, *5*(1), 45–69.

Lenkaitis, C. A. (2020a). Recorded video meetings in virtual exchange: a new frontier for pre-service teacher reflection. *Journal of Virtual Exchange*, *3*, 39–58. https://doi.org/10.21827/jve.3.35750

Lenkaitis, C. A. (2020b). Teacher candidate reflection: Benefits of using a synchronous computer-mediated communication-based virtual exchange. *Teaching & Teacher Education*, *92*. https://doi.org/10.1016/j.tate.2020.103041

Lenkaitis, C. A., Hilliker, S. M., & Roumeliotis, K. (2020). teacher candidate reflection and development through virtual exchange. *IAFOR Journal of Education*, *8*(2), 125–139.

Madden, O. N. (2022). Fostering foreign language student teachers' "glocal" competence through telecollaboration. *Australian Journal of Applied Linguistics*, *5*(3), 1–21.

Orsini-Jones, M., Cerveró Carrascosa, A., & Zou, B. (2020). *The trouble with telecollaboration in BMELTET*. Research-publishing.net.

Pu, C., & Weng, S. (2023). Developing teacher candidates' global teaching competence through virtual exchange. *Asia-Pacific Journal of Teacher Education*, 1–22. https://doi.org/10.1080/1359866X.2023.2235304

Rauschert, P., & Cardetti, F. (2022). Fostering democratic competences in learners: An interdisciplinary international experience. *Iranian Journal of Language Teaching Research*, *10*(3), 29–41.

Rets, I., Rienties, B., & Lewis, T. (2023). Transforming pre-service teacher education through virtual exchange: a mixed-methods analysis of perceived TPACK development. *Interactive Learning Environments*, *31*(3), 1229–1241. https://doi.org/10.1080/10494820.2020.1826983

Rienties, B., Lewis, T., O'Dowd, R., Rets, I., & Rogaten, J. (2022). The impact of virtual exchange on TPACK and foreign language competence: reviewing a large-scale implementation across 23 virtual exchanges. *Computer Assisted Language Learning*, *35*(3), 577–603. https://doi.org/10.1080/09588221.2020.1737546

Sardegna, V. G., & Dugartsyrenova, V. A. (2021). Facilitating pre-service language teachers' intercultural learning via voice-based telecollaboration: The role of discussion questions. *Computer Assisted Language Learning*, *34*(3), 379–407. https://doi.org/10.1080/09588221.2020.1871028

Symeonidis, V., & Impedovo, M. A. (2023). Where internationalisation and digitalisation intersect: designing a virtual exchange to enhance student teachers' professional awareness as European teachers. *European Journal of Teacher Education, 46*(5), 821–839. https://doi.org/10.1080/02619768.2023.2243644

Üzüm, B., Akayoglu, S., & Yazan, B. (2020). Using telecollaboration to promote intercultural competence in teacher training classrooms in Turkey and the USA. *ReCALL*, *32*(2), 162–177. https://doi.org/10.1017/S0958344019000235

Üzüm, B., Yazan, B., Akayoglu, S., & Mary, L. (2022). Pre-service teachers' translingual negotiation strategies at work: Telecollaboration between France, Turkey, and the USA. *Language and Intercultural Communication*, *22*(1), 50–67. https://doi.org/10.1080/14708477.2021.1981360

Üzüm, B., Yazan, B., Mary, L., & Akayoglu, S. (2022). Teacher agency for social justice in telecollaboration: locating agentive positioning in virtual language interaction. *Language Learning Journal*, 1–17. https://doi.org/10.1080/09571736.2022.2080857

Viáfara González, J. J. (2020). Prospective English teachers re-examining language ideologies in telecollaboration#. *Computer Assisted Language Learning*, *33*(7), 732–754. https://doi.org/10.1080/09588221.2019.1590419

Wach, A., de Zhang, & Nichols-Besel, K. (2022). Grammar instruction through multinational telecollaboration for pre-service teachers. *ReCALL*, *34*(1), 4–20. https://doi.org/10.1017/S0958344021000112

Yang, S. J. (2020a). Affordances and challenges of telecollaboration for pre-service teachers. *Language Learning & Technology*, *24*(3), 30–41.

Yang, S. J. (2020b). Perceived benefits of using telecollaboration for pre-service English teachers. *English Teaching*, *75*(3), 109–131.

## Publications Included as References

Arksey, H., & O'Malley, L. (2005). Scoping studies: towards a methodological framework. *International Journal of Social Research Methodology*, *8*(1), 19–32. https://doi.org/10.1080/1364557032000119616

Barbosa, M. W., & Ferreira-Lopes, L. (2023). Emerging trends in telecollaboration and virtual exchange: a bibliometric study. *Educational Review*, *75*(3), 558–586. https://doi.org/10.1080/00131911.2021.1907314

Baumert, J., & Kunter, M. (2013). The coactive model of teachers' professional competence. In M. Kunter, J. Baumert, W. Blum, U. Klusmann, S. Krauss, & M. Neubrand (Eds.), *Cognitive activation in the mathematics classroom and professional competence of teachers* (pp. 25–48). Springer US. https://doi.org/10.1007/978-1-4614-5149-5_2

Dooly, M., & Vinagre, M. (2022). Research into practice: Virtual exchange in language teaching and learning. *Language Teaching*, *55*(3), 392–406. https://doi.org/10.1017/S0261444821000069

Dovrat, L. (2022). Systematic literature review on the utilization of theoretical underpinnings in virtual exchange research. *Journal of Virtual Exchange*, *5*, 193–212. https://doi.org/10.21827/jve.5.38444

EVALUATE Group. (2019). *Evaluating the impact of virtual exchange on initial teacher education: a European policy experiment*. Research-publishing.net. https://doi.org/10.14705/rpnet.2019.29.9782490057337

Hagley, E., & Wang, Y. (Eds.) (2020). *Virtual exchange in the Asia-Pacific: research and practice*. Research-publishing.net. https://doi.org/10.14705/rpnet.2020.47.9782490057788

Hauck, M., & Müller-Hartmann, A. (Eds.) (2020). *Virtual exchange and 21st century teacher education: short papers from the 2019 EVALUATE conference*. Research-publishing.net. https://doi.org/10.14705/rpnet.2020.46.9782490057801

Helm, F., & Beaven, A. (Eds.) (2020). *Designing and implementing virtual exchange – a collection of case studies*. Research-publishing.net. https://doi.org/10.14705/rpnet.2020.45.9782490057726

Jager, S., Peng, H., Duran, J. A., & Oggel, G. (2021). *Virtual exchange as innovative practice across Europe: Awareness and use in higher education: EVOLVE project monitoring study 2020*. University of Groningen. http://hdl.handle.net/11370/80666684-9024-466a-9968-d13b335cfb6a

Mays, N., Roberts, E., & Popay, J. (2001). Synthesising research evidence. In N. Fulop, P. Allen, A. Clarke, & N. Black (Eds.), *Studying the organisation and delivery of health services: Research methods*. Routledge.

O'Dowd, R. (2016). Emerging trends and new directions in telecollaborative learning. *CALICO Journal*, *33*(3). https://doi.org/10.1558/cj.v33i3.30747

O'Dowd, R. (2021). What do students learn in virtual exchange? A qualitative content analysis of learning outcomes across multiple exchanges. *International Journal of Educational Research*, *109*, Article 101804. https://doi.org/10.1016/j.ijer.2021.101804

O'Dowd, R. (2023). *Internationalising higher education and the role of virtual exchange*. Routledge. https://doi.org/10.4324/9781315393704

OECD. (2019). *A flying start: Improving initial teacher preparation systems*. OECD Publishing. https://www.oecd-ilibrary.org/content/publication/cf74e549-en

Pešikan, A., Niemi, H., & Devetak, I. (2021). Education in the Covid-19 era – "We will find a way or we will make it": Facing the challenges of the pandemic in education. *Center for Educational Policy Studies Journal,* 11(Sp.Issue), 7–15. https://doi.org/10.26529/cepsj.1306

Stevens Initiative. (2020a). *Annotated bibliography on virtual exchange research*. The Aspen Institute. https://www.stevensinitiative.org/wp-content/uploads/2020/02/2020-Annotated-Bibliography-on-Virtual-Exchange-Research.pdf

Stevens Initiative. (2020b). *Virtual exchange impact and learning report 2020.* The Aspen Institute. https://www.stevensinitiative.org/wp-content/uploads/2020/12/ASP-ImpactLearningReport_WebSingle_FINAL.pdf

Stevens Initiative. (2023). *Virtual exchange impact and learning report 2023*. The Aspen Institute. https://www.stevensinitiative.org/wp-content/uploads/2023/02/2023-Virtual-Exchange-Impact-and-Learning-Report.pdf

Symeonidis, V. (2021). *Europeanisation in teacher education. A comparative case study of teacher education policies and practices*. Routledge. https://doi.org/10.4324/9781003013969

Symeonidis, V. (Ed.) (2024). *Enhancing the value of teacher education research: Implications for policy and practice.* TEPE Book Series, Key Issues in Teacher Education: Policy, Research and Practice, Vol. 3. Brill-Sense. https://brill.com/display/title/69609

Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., . . . Straus, S. E. (2018). Prisma extension for scoping reviews (PRISMA-ScR): Checklist and explanation. *Annals of Internal Medicine*, *169*(7), 467–473. https://doi.org/10.7326/M18-0850

UNICollaboration. (2023). VE and telecollaboration in Zotero. https://www.unicollaboration.org/index.php/zotero-bibliography/

Wu, S. (2021). Unpacking themes of integrating telecollaboration in language teacher education: a systematic review of 36 studies from 2009 to 2019. *Computer Assisted Language Learning*, 1–23. https://doi.org/10.1080/09588221.2021.1976800

Wu, S. (2022). Methodologies and pedagogical applications of integrating telecollaboration in language teacher education: A synthesis of 56 studies from 2010–2020. *CALICO Journal*, *39*(3), 281–305. https://doi.org/10.1558/cj.23991

## Biographical note

**Claudia Ingrisch-Rupp**, PhD, is a tenured faculty member of the Faculty of Education at the University of Education Freiburg, Germany. Her research focuses on teacher professionalism, the governance of education systems, international comparative education, and qualitative research methodologies. Currently, she is exploring the impact of digitalization on education.

**Vasileios Symeonidis**, PhD, is a Visiting Professor at the University of Education Freiburg, Germany and a Postdoctoral Researcher at the University of Graz, Austria. His research interests include teacher education policy and practice, teacher professionalism in an international and comparative context, teachers' professional status, and experiential dimensions of teacher and student learning.

Received: 1 July 2023, Accepted: 11 April 2024,
Published on-line as Recently Accepted Paper: May 2024
DOI: https://doi.org/10.26529/cepsj.1690

# Digital-Inclusive Transformation and Teacher Preparedness for Foreign Language Education – A Bilateral German-Norwegian Perspective

Solveig Chilla*[1], Gerard Doetjes[2], Karin Vogt[3], Lina Abed Ibrahim[4] and Dina Tsagari[5]

Digitalisation and inclusion can be understood as transversal topics in pre- and in-service teachers' professional development. Both topics have attracted considerable research activity. However, questions of digital-inclusive transformation have only rarely been discussed within the field of foreign language teaching. Researchers in the field state a pressing need to increase digital-inclusive transformation uptake in foreign language teacher education programmes to develop a transformation 'mindset' in (educational) stakeholders and (future) teachers. Transformation processes in education, however, interact with preparedness for digitalisation and inclusion among pre- and in-service teachers, since the attitude and the willingness of teachers to adapt to digital reality play a decisive role in improving the quality of (digitally enhanced) teaching and learning. Currently, little is known about the interrelationship between the preparedness to use digital technology for foreign language teaching and learning and the preparedness to include foreign language learners with diverse learning needs (DLN) in the digital-inclusive classroom. To this end, this bilateral cross-country study investigates factors that constitute an attitudinal component of foreign language teachers' perceived preparedness for using digital technology with learners with diverse learning needs in Germany and Norway. The Teacher of English Preparedness to Diverse Learning Needs in the digital inclusive classroom questionnaire was administered to 221 participants. The results show a fresh perspective on preparedness for digitally enhanced inclusive teaching linked to educational system requirements for foreign language teaching. Importantly, confidence when using digital technology

1 *Corresponding Author. Europa-Universität Flensburg, Germany; solveig.chilla@uni-flensburg.de.
2 Norwegian National Centre for English and other Foreign Languages in Education, Halden, Norway.
3 University of Education Heidelberg, Germany.
4 Europa-Universität Flensburg, Germany.
5 Oslo Metropolitan University, Norway.

in the inclusive classroom is decisive. For teacher education, it is vital that the attitudinal component of teacher preparedness receives more attention throughout teacher training. It should be related to previous experience of teachers with DT in digital-inclusive environments and be part of a heuristic conceptualisation of teacher preparedness for digital-inclusive contexts.

**Keywords:** digital-inclusive concept, digital transformation, foreign language teaching, inclusion, teacher preparedness

# Digitalnoinkluzivna transformacija in pripravljenost učiteljev za poučevanje tujih jezikov – dvostranska nemško-norveška perspektiva

Solveig Chilla, Gerard Doetjes, Karin Vogt, Lina Abed Ibrahim in Dina Tsagari

Digitalizacijo in inkluzijo lahko razumemo kot prečni temi v strokovnem razvoju bodočih in zaposlenih učiteljev. Obe temi sta pritegnili veliko raziskovalne dejavnosti, vendar so bila vprašanja digitalno-inkluzivne transformacije le redko obravnavana na področju poučevanja tujih jezikov. Raziskovalci na tem področju ugotavljajo, da je nujno treba povečati uporabo digitalnoinkluzivne transformacije v programih izobraževanja učiteljev tujih jezikov, da bi pri (izobraževalnih) deležnikih in (bodočih) učiteljih razvili »miselnost« transformacije. Procesi transformacije v izobraževanju pa se prepletajo s pripravljenostjo na digitalizacijo in inkluzijo med bodočimi in zaposlenimi učitelji, saj imata odnos in pripravljenost učiteljev, da se prilagodijo digitalni resničnosti, odločilno vlogo pri izboljšanju kakovosti (digitalno nadgrajenega) poučevanja in učenja. Trenutno je malo znanega o medsebojni povezanosti med pripravljenostjo na uporabo digitalne tehnologije za poučevanje in učenje tujih jezikov ter pripravljenostjo na vključevanje učencev tujega jezika z različnimi učnimi potrebami v digitalnoinkluzivni razred. V ta namen ta dvostranska meddržavna študija raziskuje dejavnike, ki predstavljajo odnosno komponento zaznane pripravljenosti učiteljev tujih jezikov za uporabo digitalne tehnologije pri učencih z različnimi učnimi potrebami v Nemčiji in na Norveškem. Vprašalnik o pripravljenosti učiteljev angleščine na različne učne potrebe v digitalnem inkluzivnem razredu je bil posredovan 221 udeležencem. Izsledki kažejo nov pogled na pripravljenost na digitalno podprto inkluzivno poučevanje, povezano z zahtevami izobraževalnega sistema za poučevanje tujih jezikov. Pomembno je tudi to, da je pri uporabi digitalne tehnologije v inkluzivnem razredu odločilna samozavest. Za izobraževanje učiteljev je ključno, da se odnosni komponenti pripravljenosti učiteljev posveča več pozornosti med celotnim usposabljanjem učiteljev. Povezati jo je treba s predhodnimi izkušnjami učiteljev z digitalno transformacijo v digitalnoinkluzivnih okoljih in jo vključiti v hevristično konceptualizacijo pripravljenosti učiteljev za digitalnoinkluzivna okolja.

**Ključne besede:** digitalnoinkluzivni koncept, digitalna transformacija, poučevanje tujih jezikov, inkluzija, pripravljenost učiteljev

## Introduction

Digital transformation processes have had a considerable impact on society and its forms of knowledge, science, and education (Stalder, 2016). Media and computer literacy have long become indispensable in modern societies. At the same time, the development of societies towards (more) inclusion has been noted in education systems in general and in language education specifically to provide equity, value diversity and ensure inclusion across educational contexts (Kefallinou et al., 2020). Inclusive education systems, as stated by the OECD (2023), support a diverse student population and reflect on the different goals and uses of financial resources, among others. Norway and Germany are geographically, culturally, and politically close and comparatively prosperous, but the countries' educational systems differ strongly with respect to inclusive and digitally enhanced teaching and learning. What the two contexts have in common, though, is the need to digitally transform teacher education for inclusive education. Teachers, language teachers included, have to be prepared to use digital technology (DT) for inclusive foreign language teaching. The purpose of this study, that was carried out as a part of the DINGLE project, is to explore language teacher students' perceived preparedness to use DT for inclusive purposes in the different international contexts of Norway and Germany, thus combining digital technology and inclusive language education into a digital-inclusive approach to language education. It investigates the attitudinal component of a concept of teacher preparedness for digital-inclusive foreign language teaching and contributes to a model of teacher preparedness for digital-inclusive contexts.

### Background to the study

As a critical incident (Tian et al., 2021), Covid-19 has certainly been a catalyst for digital transformation, particularly regarding the forced professionalisation processes of staff and students in educational contexts (cf. Symeonidis, 2018). The Covid-19 restrictions and its subsequent Emergency Remote Teaching (ERT) arrangements (Hodges et al., 2020) represented a challenge for educational systems worldwide but also forced the professionalisation of staff and digital upskilling across the board, university teacher education included (Blume, 2020; Vogt & Tsagari, 2023). Affordances like new digital forms of collaboration for students and staff alike (e.g., Tian et al., 2021) accelerated digital transformation processes (e.g., Chilla & Filk, 2021).

Digital technology (DT) includes communication (e.g., chat), construction (e.g., web authoring software), and entertainment (e.g., DVDs, streaming

apps) technologies. In the inclusive classroom, they appear as 'school technologies' (Ching et al., 2005, p. 232) that include 'all items that might typically be used in an educational context'. DT plays a vital role in education for inclusion on several levels, from assistive technology to implementing new digital genres in teaching. It is seen by Hajok (2018) as an agent of socialisation, particularly in inclusive contexts in education. In the German context, the term 'diclusion' (#diklusion) has been coined to express the close relationship between DT and inclusion (Abels & Stinken-Rösner, 2022; Schulz et al., 2022). However, the degree to which DT is deployed in education in Germany clearly falls behind expectations (Eickelmann et al., 2019), with foreign language education being no exception. At the same time, foreign language teacher education needs to reflect societal digital transformation processes using DT for inclusive purposes.

In this respect, we need to understand how digitally enhanced inclusive education is conceptualised and what theoretical frameworks are appropriate to ensure high-quality schooling. On the one hand, off-campus teaching environments and digitalised learning outside the physical boundaries of schools can raise accessibility for diverse learning groups and would hence be more inclusive. On the other, Covid-19 ERT unearthed various excluding practices that deepened the digital divide (e.g., van de Werfhorst et al., 2022). Limited access to DT for some students, teachers' limited experience with DT, and disadvantageous ad-hoc solutions for learners with special needs in Germany and limited learning outcomes, lower motivation, and a lower degree of social inclusion in Norway (Berente & Seidel, 2022; Damsa et al., 2021; NOKUT, 2022; van Dijk, 2020) constitute only a few examples of this divide.

This study questions the internationally inconsistent terminology concerning terms like inclusion or Special Educational Needs (SEN) to characterise the student body (Chapman & Ainscow, 2022). In Norway and Germany, the term 'inclusion' is mostly used as a policy imperative aiming at promoting education and the provision of resources for learners identified as having SEN and/or at risk of being excluded from learning. The demands and implementation of inclusive teaching greatly diverge since legislation and the implementation of mainstream education for learners with SEN are disparate in different educational contexts across Europe, for example, the 'tilpasset opplæring' (differentiated instruction) principle for all pupils in Norway vs a special needs education system and parallel inclusive schooling in Germany. However, neither Norway nor Germany differ in the percentage of students with SEN, nor do they display variations in the incidence and the types of learning needs (D'Alessio & Watkins, 2009). Hence, instead of limiting specific learning needs to, for example, a medically diagnosed spectrum of disorders and syndromes, we use a term that encompasses the various

manifestations of heterogeneity and diversity, namely 'diverse learning needs' (DLN) (Chilla et al., 2021; Vogt, 2023). DLN is used as a broader term which includes various backgrounds, developmental stages, skills and abilities, identities, and general physiological and psychological features of learners that might affect the current learning process or hinder the accessibility of content. As said above, the digital divide, for example, does not only affect students with (diagnosed) disabilities but also low-income students. Such a practical resource limitation, for example, hinders students from using learning platforms that request phone contracts with large data amounts (Vassilakopoulou & Husted, 2023).

Taken together, digital technology and diverse learning needs offer affordances for digital-inclusive learning and teaching settings that are of particular relevance for the 'digital life worlds' (Giesecke, 2002) of people and of inclusive-digital educational settings (see Vogt & Chilla, 2021). However, in practice, the intersection between digital teaching and inclusive education is rather under-researched. If the potential of digital-inclusive foreign language education is to be exploited to cater for learners' DLN, stakeholders in foreign language teacher education in Germany and Norway and, indeed, throughout Europe must be ready to engage in the innovative transformation processes for digital-inclusive foreign language education (Filk, 2019).

Digitalisation and DT have considerable potential for adaptive and individualised learning processes in (teacher) education (Haleem et al., 2022). They are of specific relevance for teaching and learning (see Petretto et al., 2021) and challenge higher education policies (Rüscher et al., 2022). Having said that, preparing foreign language teachers to navigate transformative digital processes in education and striving for inclusion necessitates a certain degree of preparedness from (pre-service) teachers in teacher education (Hay et al., 2001; Røkenes & Krumsvik, 2016). Digitalisation and inclusion are, therefore, transversal issues in foreign language teacher education and language teachers' professional development (Nadrljanski et al., 2022).

Focusing on foreign language education in a European context, we also need to understand how teaching is in line with the requirements of the Council of Europe recommendations on language education, as, for example, reflected in the Companion Volume to the CEFR (Council of Europe, 2020). In foreign language classrooms, students' different linguistic and cultural backgrounds are important aspects contributing to the diversity of learning needs. For example, teachers need to cater for students who do not have the language of schooling as their first language. With respect to teacher professionalisation and the internationalisation of teacher education, preparedness for the digital-inclusive transformation is a highly relevant aspect of teacher competence. Teacher competence is

related to the subjective theories of (prospective) teachers, specifically their attitude and willingness to respond to the current needs and abilities of learners with diverse learning needs using digital technology in the foreign language classroom (e.g., Rovai & Pfingsthorn, 2022, for the German context).

There seems to be a pressing need to increase DT uptake in foreign/second language teacher education programmes in both Norway (Røkenes & Krumsvik, 2016) and Germany (Marci-Boehncke & Blume, 2022) to develop a transformation 'mindset' in (educational) stakeholders and (future) teachers (McCarthy et al., 2023). For the German context, Drossel et al. (2019) found that only 25% of the teachers in the international ICLS- survey reported that DT had been part of their initial teacher training, with low self-reported confidence levels regarding the use of DT. As a result, German teachers feel underprepared for the systematic integration of DT to cater for their learners' DLN, something which became particularly obvious during the pandemic (Blume, 2020). Norwegian foreign language teachers report a higher sense of preparedness (Vold, 2017). Hence, the concept of teacher preparedness seems to be central for teachers feeling capable of and willing to plan and implement teaching environments for digital-inclusive foreign language classrooms.

Considering inclusive education, Hay et al. (2001) define teacher preparedness as a 'state of readiness' of a teacher for inclusive education (p. 214). The major focus is on questions such as 'Has the teacher been prepared regarding skills and the cognitive and emotional level for the anticipated inclusive education?' (Hay et al., 2001, p. 214). Previous studies report on (pre-service) language teachers' beliefs or mindsets relating to inclusive foreign language teaching (Blume et al., 2021; Dose, 2019), while others focus on the use of DT and (pre-service) teachers' preparedness to use DT (see Røkenes & Krumsvik, 2016). For example, Venkatesh et al. (2003) empirically validated and put forward the Unified Theory of Acceptance and Use of Technology (UTAUT), which captures the following essential elements: (1) performance expectancy, (2) effort expectancy, (3) social influence, (4) intention and facilitating conditions (Venkatesh et al., 2003, pp. 446–453). UTAUT provides a useful tool to assess the likelihood of success for new technology introductions and helps understand the drivers of acceptance to proactively design interventions (including training, etc.). However, it is neither geared to (foreign language) teachers as an important stakeholder group nor concerned with aspects of teachers' preparedness for the use of digital technology for students with DLN in the (foreign language) classroom.

In a study on the preparedness of in-service teachers regarding digital technology, in particular, the use of tablets, Kim and Kim (2017) conceptualised

teacher preparedness as mainly related to confidence, more precisely, self-confidence in deploying DT in the classroom. In the research instrument used, self-confidence was operationalised as the perceived ability to use digital tools such as tablets, electronic boards, or interactive solutions and as the ability to troubleshoot while the relevant DT is in use in the classroom. Viberg et al. (2020) examined teachers' preparedness to use digital technology in education. Their study offers a validated self-reported instrument that can be used to gauge teachers' preparedness. Their instrument is based on the following factors: (1) abilities to use digital learning technology, (2) social influence and support, (3) intention of use, (4) usefulness and efficiency, (5) limitation awareness, (6) pedagogical potential, and (7) assistance awareness (Viberg et al., 2020, pp. 46-47). Again, a knowledge ('abilities') component can be discerned in the model alongside elements that are associated with attitudes (e.g., usefulness and efficiency, social influence, assistance awareness, etc.). However, while these and other components have been included in Viberg et al. 's (2020) model, previous experience is only implicitly represented; for example, limitation awareness could be based on previous trials of DT in instructional language contexts. The researchers caution that further validation is needed of the proposed instrument on larger samples of teachers in various cultural contexts, as the proposed model may work differently when applied to other cultures and that the instrument is aimed to be used both as a starting point and to evaluate the effect of interventions (Viberg et al., 2020, p. 38). The authors conceptualise teacher preparedness in connection with digital technology or digital learning technology as a motivator for change towards integrating digital learning technology into teaching. Thus, teacher preparedness becomes 'a constituent component of digital competence touching upon attitudes or dispositions' (Viberg et al., 2020, p. 38). Moreover, troubleshooting competence seems to be particularly relevant for teachers since they are usually left to their own devices while teaching, and seems to represent an attitudinal part of a model of teacher preparedness. While a confident attitude towards DT seems to be vital, it cannot be the only element that constitutes (foreign language) teacher preparedness.

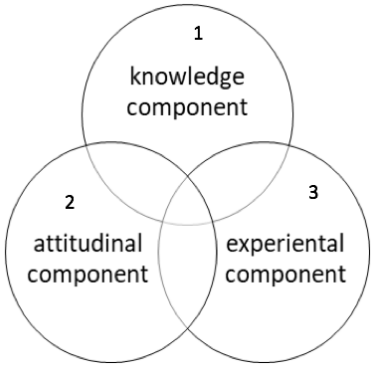
With reference to English as a Second Language, Røkenes and Krumsvik (2016) proposed a theoretical model of teacher preparedness in their study of pre-service ESL teachers in the Norwegian context. They distinguish between practical proficiency aspects and elements of the participants' self-awareness. In their questionnaire study, they included (1) the mastery of digital tools for various purposes, (2) the digital learning strategies pre-service teachers deployed, (3) the ethical aspects involved in the development of digital competence from an educational point of view, and (4) their overall digital competence for

instructional purposes. So, it seems that the aspects of self-perceived knowledge and competence play a vital role in the preparedness of language teachers to use digital technology to provide for their learners' learning needs.

As to aspects of inclusive education in the English as a Foreign Language (EFL) classroom, in their study with Cypriot, Greek, and Polish EFL teachers, Nijakowska et al. (2018) focused on teachers' preparedness for inclusion of dyslexic learners in the mainstream classroom. They surveyed 546 respondents from the three countries, using a questionnaire study to gauge teachers' preparedness to include dyslexic learners in their EFL classrooms and to investigate their training needs in this area. The findings highlight the significance of teachers' experience relating to teaching dyslexic EFL learners. Their personal involvement in inclusion activities, direct contact, and teaching experience with dyslexic learners rather than overall teaching experience seemed to enhance their preparedness (Nijakowska et al., 2018).

Against the background presented above, this study adds to the development of a new concept of teacher preparedness for digital-inclusive education and transformation in the foreign language classroom. The pre-conception of teacher preparedness presented here takes both digital technology and diverse learning needs into account and can be visualised as a componential model that consists of (1) a *knowledge* component, (2) an *attitudinal* component, and (3) an *experiential* component (Figure 1). The components are interrelated. For this model, we synthesised and expanded features from Viberg et al. (2020) and Røkenes and Krumsvik (2016) for knowledge about DT and from Viberg et al. (2020) and Kim and Kim (2017) for attitudes towards digital technology. As experience seemed to be a vital factor, we considered Nijakowska et al. (2018), with their perspective on dyslexia, to align with the diverse learning needs in the classroom. Subsequently, we collated the latter components into the TEP-DLN (Teacher of English Preparedness to Diverse Learning Needs in the digital inclusive classroom) questionnaire examined in the DINGLE study. The various parts of the questionnaire will be further detailed in the methods section.

**Figure 1**
*Model of teacher preparedness in the DINGLE study (own illustration)*




The *knowledge component* (1) relates to foreign language teachers' (perceived) ability and skills to use digital technology (DT) with foreign language learners with diverse learning needs (DLN), an aspect which is relevant for foreign language teacher education. It also concerns their overall digital competence for teaching learners with DLN, in tandem with their (perceived) ease of using DT for teaching learners with DLN, their knowledge about the characteristics of the learner group they teach, and the DLN to be addressed in this group.

The *attitudinal component* (2) of the DINGLE teacher preparedness model is characterised by the teachers' self-confidence in using DT with Foreign Language Learners (FLL) with DLN, their attitudes, positive or sceptical, towards integrating and using DT in their foreign language teaching, and their self-perceptions relating to their professional self-concept as (future) foreign language teachers. Additionally, their performance expectation, specifically the expectations that they have about the potential performanceof DT in their teaching to learners with DLN, forms part of this attitudinal component.

The final component is *experience* (3) related to attitudes, such as the strategies teachers choose to use in DT-embedded foreign language learning scenarios and the self-reflected and/or evaluated implementation of DT in foreign language classrooms with learners with DLN. This also includes their troubleshooting experience (Kim & Kim, 2017) and their effort expectancy, specifically the perceived ease of using DT in inclusive FL. Note, however, that pre-service teachers did not have access to a comparable experience in terms of teaching and designing learning environments. Thus, the experiential

component is based on expectations and perceptions rather than actual experience in using DT in inclusive foreign language classrooms. In this study, 'Digital Technology – DT' refers to digital media and their respective applications to reach the goals of foreign language teaching and learning.

Taken together, although some studies addressed the aspect of teachers' preparedness in different contexts, to date, little is known about the interrelationship between preparedness to use digital technology for foreign language teaching and learning and the preparedness to include foreign language learners with DLN in the digital-inclusive classroom. The study has two objectives, namely, to investigate the concept of teacher preparedness for digital-inclusive FLT and to contribute to a model of teacher preparedness for digital-inclusive contexts.

This study aims to explore language teacher students' perceived preparedness to use DT for inclusive purposes in different international contexts to foster inclusive language learning environments in Norway and Germany. One relevant and unresearched aspect of digital transformation is the attitudinal component of teacher preparedness and the self-confidence of (future) teachers to use digital technology and to understand DT as a supportive tool in the (inclusive) classroom and since attitudes are likely to be seen as a key factor to digital competence and self-confidence (Štemberger & Čotar Konrad, 2021). Moreover, the attitude and the willingness of teachers to adapt to digital reality seem to be crucial to improving the quality of education at universities (Yureva et al., 2020).

The study investigates the perceived preparedness of German and Norwegian English as a Foreign Language pre-service and in-service teachers to include digital technology in the inclusive foreign language classroom, focusing on the *attitudinal scale* of the TEPDLN questionnaire. That scale assesses perceptions and expectations of the use of digital technology practices in the inclusive classroom. The research questions of this study can be formulated as follows:

RQ1 What is the factorial structure of the TEPDLN attitudinal scale? What are the factors that constitute the attitudinal component of the foreign language teachers' preparedness for using digital technology with learners with diverse learning needs in Germany and Norway?

RQ2 How do (theoretically driven) demographic variables, such as level of foreign language teaching training, study year, level of education, overall teaching experience and teaching experience with students with DLN, relate to the pre- and in-service EFL teachers' attitudes towards using digital technology in the inclusive classroom?

## Method

### Participants

Data was collected from 221 pre-service and in-service EFL teachers in Germany and Norway who responded to the TEPDLN online questionnaire survey. As shown in the participant overview in Appendix B, the overall sample featured 116 respondents from Germany and 105 from Norway, suggesting a balanced sample, with 76% identifying as female ($n$=167), 23% as male ($n$=52) and 1% identifying as other ($n$=2). The gender distribution in the sample can be considered typical for EFL teachers in both contexts. The sample predominantly consisted of prospective EFL teachers (94% of the overall sample): around 6% were EFL in-service teachers, 82% were pre-service teachers, and 12% were completing their post-graduate probationary training in Germany (*Referendariat*). As to the level of education, 31% of the respondents held a B.A. degree, 42 % an M.A., and 3% a PhD. Most of the participants (57%) had no teaching experience, whereas 34% had some teaching experience, and only 9% had more than six years of teaching experience. As to experience with students with diverse learning needs (DLN), more than half of the respondents (52%) had teaching experience in regular classes with some students with DLN, whereas 11% of the participants reported no experience with DLN students or opted for the category 'not applicable' (26%). Of the entire sample, 8% have taught in special classes for students with DLN, and only 3% reported conducting one-to-one sessions with DLN learners.

Descriptive statistics revealed a rather homogeneous corpus both for Norway and Germany. Chi-square goodness-of-fit tests were performed to determine whether the distributions for each of the demographic variables were equal between the two countries. No significant differences emerged between the two countries for the variables 'level of training', 'age', 'overall teaching experience', and 'experience in teaching students with DLN'. The distributional patterns, however, differed by the variables 'gender' ($\chi 2$ (2) = 18.568; $p < .000$) with a higher rate of male participants in Norway relative to Germany, and by 'FLT training', specifically study year at university ($\chi 2$ (6) = 73.869; $p < .001$) with a significant proportion of 1st-year students relative to higher study years (62% in the 1st year) in Norway versus a rather equal distribution of participants across study years in Germany. Concerning the completed level of the EFL teachers' education, 81% have completed secondary school/B.A. studies in Norway versus 66% in Germany. Here, 25% hold an M.A. degree compared to 6% in Norway, leading to a significant difference between the countries

($\chi 2$ (4) = 24.638; $p < .001$). A further significant distributional difference between countries concerned the school type and age of future students, which is intricately related to the school type. In this respect, the participants in the Norwegian sample work more often in secondary schools than those of the German group, 73% vs 43%, respectively ($\chi 2$ (5) = 29.848; $p < .001$) and are more likely to work with older students (13-15 years; $\chi 2$ (5) = 24.997; $p < .001$) compared to the German participants who were more likely to work with younger students aged 6 to 12 years (64% vs 41%).

### Instrument

In the search for instruments that have investigated teachers' digital-inclusive preparedness, we considered Viberg et al.'s (2020) questionnaire with a focus on digital competences and the study conducted by Nijakowska et al. (2018) in the field of English as a foreign language (EFL) and more specifically teachers' preparedness to include dyslexic learners in mainstream classrooms (see also Nijakowska et al., 2020) to reflect the knowledge, experience, and attitude components of our model of preparedness and to incorporate digital-inclusive teaching experience, 'leveraging technology as an enabler' (McCarthy et al., 2023). Although not specifically focusing on digital competences, Nijakowska et al. (2018) used a questionnaire to examine the effect of demographic variables on the preparedness of teachers to include students with dyslexia.

The Teacher of English Preparedness to Diverse Learning Needs in the digital inclusive classroom questionnaire (TEPDLN, see Appendix A) employed in our study is thus an extended and model-wise revised version of the DysTEFL-Needs Analysis Questionnaire (Nijakowska, 2014; Nijakowska et al., 2018) and gauges the pre- and in-service EFL teacher knowledge, attitudes and experience related to their preparedness to include digital technology in the classroom addressing the relevant target group, namely foreign language learners with DLN. Parts A and B of TEPDLN were adapted from the Nijakowska et al. (2018) questionnaire and expanded to DLN, and Parts C and D synthesise Viberg et al.'s (2020) questionnaire items related to DT. The TEPDLN expands the understanding of dyslexia and aspects of learning needs to the construct of DLN.

The new TEPDLN questionnaire verifies foreign language teachers' respondents' degrees of preparedness regarding the use of DT for foreign language learners with diverse learning needs (DLN), digitalisation and inclusive instructional practices. The entire scale comprises four parts. Part A includes background questions about demographic variables related to the participants'

age, gender, level of training, academic degree, the country where they teach or study to become teachers, overall teaching experience, type of experience in teaching students with diverse learning needs, and their prospective students' age (more than one answer could be selected to the last three questions). Part B addresses EFL teachers' beliefs about their preparedness to include learners with DLN in the EFL classroom and was operationalised on accommodating the learning needs of FLL with DLN consisting of 18 items measured on a 5-point Likert scale (1 = completely disagree and 5 = completely agree). Part C, which is the focus of the current study, comprises 21 questions relating to the attitudinal component of the teachers' preparedness model, namely perceptions and expectations of the use of digital technology practices. Finally, Part D, with 12 items, focuses on resources and collaboration in the digital-inclusive EFL classroom that are intricately related to the knowledge and experience components of the teacher preparedness model.

To ensure the instrument's reliability and validity, five external evaluators, who were experts in the field of DLN, speech and language education, media didactics, foreign language didactics, and inclusive education, were asked to evaluate the appropriateness of the instrument. The online questionnaire went through two cycles of piloting: a first cycle with all researchers who commented on redundancy, order of statements and item clarity. In a second cycle with fellow colleagues teaching the courses, the respondents attended to comment on the comprehensibility, length, and clarity of instructions, among others. After the evaluators' comments, several changes were made that led to a reduced number of items and a more reader-friendly instrument. Following this, the questionnaire was piloted (Cohen et al., 2018) with 30 experienced and pre-service EFL teachers who did not take part in the subsequent study (30% in Norway and 70% in Germany). Finally, the questionnaire was administered online using the Nettskjema platform. The sample was a convenience sample for which the project consortium activated various networks ranging from personal and professional contacts to calls for participation on social media. Participation in the study was voluntary, and written consent was obtained from all participants. All personal data was anonymised. Respondents took between 15 and 20 minutes to answer the questions.

### Data Analysis

SPSS 27 was used for statistical analyses. Only complete data sets were considered for statistical analyses. First, the data were cleaned and screened for missing data points and univariate outliers and coded accordingly. Although a

total of 221 participants provided responses to the demographic questions under Section A, there were one to three participants (depending on the question) who did not provide responses to all of the questions of Section C, which is the focus of the current study. Cases with missing values were deleted listwise in the MANOVA analyses. The actual number of participants for each MANOVA test is indicated by the degrees of freedom provided for each statistic (number of participants = $df$ +1). Initial teacher training in the German context is slightly different from Norway in that it comprises a university degree and a subsequent practical phase at school called *Referendariat*. These two phases of initial teacher training were subsumed under one category for statistical analyses.

## Results

### Factor analyses on TEPDLN - Section C (perceptions and expectations of the use of digital technology practices)

The first research question of the current study asked about the factorial structure of Section C (attitudinal component) of the teacher preparedness scale. To address this question, the factorability of the 21 scale items in Section C ('experiences/perceptions and expectations of the use of digital technology') was examined in detail, employing a Principal Component Analysis (PCA), which was initially run for each country separately. The PCA of the responses to the questionnaire items across the German and Norwegian samples showed that the factorial structure of the subsections of the questionnaire was almost identical for both groups, and Cronbach's α coefficients for the three factors were 0.883 for Norway and 0.726 for Germany indicating good internal consistency for each of the countries. Additionally, no significant differences emerged between the two countries in terms of the distributional proportions of the responses to the questions featured in Section C of the TEPDLN. Hence, the German and the Norwegian samples were collapsed for the PCA. The minimum amount of data for factor analysis was satisfied, with a final sample size of at least 221 participants, with over six cases per variable (cf. Table 2). As a rotation measure, Direct Oblimin was chosen due to the inter-correlation between the items. The Kaiser-Meyer-Olkin measure of sampling adequacy was at .879, and the determinant value of Bartlett's test of sphericity was significant ($\chi^2$ (220) = 1613.9, $p < .001$), indicating clusterability.

By performing a principal component analysis on all data across the two samples, a three-factor solution was derived that explains 48.2% of the variance in Section C. We labelled the factors as follows: (a) 'confidence in using

digital technology with DLN students', (b) 'understanding of digital technology', and (c) 'expectations related to usage of digital technology'. The three attitudinal factors relate to (a) teachers' beliefs about possessed knowledge of diverse learning needs and self-efficacy in using digital technology with diverse learners in the EFL classroom, to (b) teachers' presuppositions with respect to digital technology and use in the inclusive classroom (c) teachers' behaviour and expectations with respect to use digital technology in the EFL inclusive classroom. The factor analysis also revealed that question C14 (see Appendix A) had to be excluded from the factor analysis due to serious collinearity issues, while item C1 did not have significant loadings. The remaining 19 items were considered for the factor analysis in our bilateral sample. The initial eigenvalues showed that the first factor explained (confidence in using DT with DLN) was 34.5%, the second factor (understanding of DT) was 7.2%, and the third 6.6% (DT-usage-related expectations) of the variance. As can be seen in Table 1, some factors had cross-loadings. Except for C18, the primary loadings of the questions were considered.

**Table 1**

*Factor loadings for TEPDLN - Section C items (experiences/perceptions and expectations of the use of digital technology practices)*

| Section C items with significant loadings (>.3) | | 3-Factor solution | | |
|---|---|---|---|---|
| | | (F1) confidence | (F2) understanding | (F3) usage-related expectations |
| (F1) | C3. I believe I can use digital technology with FLL with DLN without much effort. | .871 | | |
| | C20. I feel comfortable about using digital technology when teaching FLL with DLN. | .761 | | |
| | C15. I find digital technology easy to use to meet the needs of FLL with DLN. | .676 | | |
| | C11. It would be easy for me to become adept at using new digital technology/ tools with FLL with DLN. | .591 | | |
| | C7. I find it easy to learn how to use digital technology with FLL with DLN. | .546 | | |
| | C4. I understand the potential of digital technology and how this can be used differently when working with FLL with DLN. | .409 | .302 | |
| | C18. I believe I can use these digital tools when I teach FLL with DLN. | .447 | .481 | |
| | C2. I understand digital technologies as instruction tools. | .327 | | |

| Section C items with significant loadings (>.3) | | 3-Factor solution | | |
|---|---|---|---|---|
| | | (F1) confidence | (F2) understanding | (F3) usage-related expectations |
| (F2) | C17. I understand digital technologies as inclusive language learning environments. | | .749 | |
| | C10. I understand digital technologies as language learning environments. | | .689 | |
| | C12. I am aware of the possibilities and limitations of digital technology with FLL with DLN and how it may affect my pedagogical approach. | | .514 | |
| | C21. Digital technology facilitates learning of FLL with DLN. | | .493 | .378 |
| | C16. Digital technology helps FLL with DLN achieve their learning goals. | | .484 | .314 |
| | C6. I understand digital technologies as cultural techniques. | | .406 | .333 |
| (F3) | C9. Digital technology means that I can do my work faster when I teach FLL with DLN. | | | .804 |
| | C5. I have found that digital technology is useful when I teach with FLL with DLN. | | | .622 |
| | C13. Digital technology increases my productivity when I teach FLL with DLN. | | | .572 |
| | C8. I am actively looking for a digital technology that I can use to cater for FLL with DLN, e.g., in differentiated FL teaching. | | | .475 |
| | C19. Digital technology facilitates my way to assess the learning of FLL with DLN. | | | .449 |

## Effects of demographic variables on EFL teachers' attitude towards using DT with students with DLN

The second research question investigated the influence of several theoretically driven demographic variables (Section A of the TEPDLN, cf. Table 1) on the EFL teachers' attitudes towards using DT with students with DLN. To this end, composite scores were computed for each of the three factors (F1: confidence in using digital technology with DLN students; F2: understanding of digital technology; F3: expectations related to usage of digital technology) based on the mean of the items which had their primary loadings on each PCA-derived factor. Subsequently, a series of one-way multivariate analyses (MANOVAs) were conducted, followed by univariate analyses of variance (ANOVAs) and post hoc LSD tests for MANOVA tests with significant results as indicated by the Wilks' λ value.

The investigated demographic variables were country, FLT training, level of training, teaching experience (no more than 10 years), experience with DLN, level of education (secondary-PhD), type of future school to work in (primary-college/university) and age of future students (<5 - >19)). First, we conducted the analyses, splitting the data set by country to examine within-country effects. Since no significant results emerged for each of the countries separately (see Appendix B), we proceeded by collapsing the German and Norwegian data sets in alignment with the PCA analyses, as this would increase statistical power. Here, we report only on demographic variables yielding significant results for Section C when participants from both countries are collapsed together (see Appendix C).

First, a one-way MANOVA was employed to examine whether the Norwegian and German samples differ from each other (country-level effects) in their attitudes towards using digital technology with diverse learners in the EFL classroom, specifically in their confidence, understanding, and DT-related use expectations. Although a significant Box's M value emerged, non-significant Levene's test results indicated that the homogeneity of variance-covariance matrix assumption was not violated. A statistically significant MANOVA effect was obtained as a function of country (Wilks' $\lambda$ =.845, $F$ (3, 217) = 13.28, $p < .001$, partial $\eta^2 = .155$). The multivariate effect size implies that 15.5% of the variance across the three factors was accounted for by country level. Univariate ANOVAs for each factor were conducted as follow-up tests to the MANOVA, indicating that the first and third factors were significantly different for the German and the Norwegian participants: $F$ (1, 219) = 15.45, $p < .001$, $\eta^2 = .066$, $F$ (1, 219) = 24.88, < .001, $\eta^2 = .102$, respectively. Thus, the Norwegian participants significantly differ from the German ones in their (a) 'confidence in using digital technology with DLN students' and (c) 'expectations related to usage of digital technology'. In this respect, despite not reaching statistical significance, descriptive statistics showed that Norwegian participants with more teaching experience appear to be more confident and show a better understanding and higher expectations of the use of digital technology compared to their compatriots with less teaching experience, a trend which is not observed for the German sample (cf. Appendix C). Moreover, regardless of the level of training reached, Norwegian pre- and in-service teachers are more likely to agree more strongly with positive confidence and expectations of the use of DT. In contrast, the German (student) teacher sample is less willing to agree.

MANOVA conducted on the remaining demographic variable revealed no significant effects, except for marginally significant effects for the level of teacher training (FLT vs. Training to be FLT), explaining a rather negligible proportion

of the overall variance in Section C. The participants' level of training explained only 3.3% of the variance (Wilks' $\lambda = .967$, $F$ (3, 217) = 2.48, $p = .062$, partial $\eta^2 = .033$). Univariate follow-up ANOVAs showed that the second and third factors were significantly different for participants who are in teacher training compared to those working as professionals in schools, namely the factors (2) 'understanding of digital technology' ($F$ (1, 219) = 4.79, $p < .05$, $\eta^2 = .021$), and (3) 'expectations related to usage of digital-technology', ($F$ (1, 219) = 6.69, $p < .05$, $\eta^2 = .03$). Post Hoc tests were not possible due to having only two levels. When means are compared (cf. Appendix C), one can see that FLTs are more likely to agree than those who are training to be FLTs, so more experience in teacher training appears to be positively associated with understanding and expectation of DT use in the inclusive classroom.

Concerning the informants' study year, a marginally statistically significant MANOVA effect was obtained: Wilks' $\lambda = .881$, $F$ (18, 632) = 1.53, $p = .075$, partial $\eta^2 = .041$. The multivariate effect size implies that only 4.1% of the variance in the dependent variables was accounted for by year of teacher training. Univariate ANOVAs for each factor were conducted as a follow-up, indicating that it was the first factor ('confidence in using digital technology with DLN') that was relevant for such effects: $F$ (6, 221) = 1.99, $p = .068$, $\eta^2 = .053$. The observed trend was that students in their first year of studies were likely to feel slightly more confident about using digital tools with DLN students compared to fifth- and sixth-year students in both Norway and Germany (see Appendix C).

## Discussion

The purpose of the study was to investigate teachers' perceived preparedness for digital-inclusive language teaching in two European contexts based on a theoretically motivated pre-conception of teacher preparedness. To this end, we focused on the interrelationship between the preparedness to use digital technology (DT) for foreign language teaching and learning and the preparedness to include foreign language learners with diverse learning needs (DLN) in the digital-inclusive classroom.

With an emphasis on the attitudinal component of teacher preparedness and the self-confidence of (future) teachers to use digital technology and to understand DT as a supportive tool in the (inclusive) classroom, this study investigated the perceived preparedness of German and Norwegian English as a Foreign Language (EFL) pre-service and in-service teachers to include digital technology in the inclusive foreign language classroom focusing on the *attitudinal* scale of the TEPDLN questionnaire. With the attitudinal scale of the

TEPDLN, we assessed perceptions and expectations of the use of digital technology practices in the inclusive classroom of 221 (student) teacher participants in Norway and Germany.

The first research question addressed the factorial structure of the TEPDLN attitudinal scale. The study identified three factors that underlie the attitude component of the TEPDLN, namely (a) 'confidence in using digital technology with DLN students', (b) 'understanding of digital technology', and (c) 'expectations related to the usage of digital technology'. The PCA of the responses to the questionnaire items across the German and Norwegian samples showed that the factorial structure of the subsections of the questionnaire was almost identical for both groups. By performing a principal components analysis on all data across the two samples, a three-factor solution was derived that explains 48.2% of the variance in Section C. We labelled the factors as follows: (a) 'confidence in using digital technology with DLN students', (b) 'understanding of digital technology', and (c) 'expectations related to usage of digital technology'. Thus, the attitudinal component of the EFL (student) teachers' preparedness to use digital technology with learners with diverse learning needs in Germany and Norway relates to (a) teachers' beliefs about knowledge they possess of diverse learning needs and self-efficacy in using digital technology with diverse learners in the EFL classroom, to (b) teachers' presuppositions with respect to digital technology and use in the inclusive classroom (c) teachers' behaviour and expectations with respect to use digital technology in the EFL inclusive classroom. Note that the first factor ('confidence in using DT with DLN') explained 34.5% of the variance.

The second research question investigated the influence of several theoretically driven demographic variables (Section A of the TEPDLN, cf. Appendix 1) on the EFL teachers' attitudes towards using DT with students with DLN. Note that the analyses splitting the data set by the country to examine within-country effects were conducted first, with no significant results emerging for each of the countries separately. To increase statistical power, we then conducted data analyses by collapsing the German and Norwegian data sets in alignment with the PCA analyses. In a second step, we investigated whether the Norwegian and German samples differ from each other (country-level effects) in their attitudes towards using digital technology with diverse learners in the EFL classroom, specifically in their confidence, understanding, and DT-related use expectations.

Our analyses showed that Norwegian participants significantly differed from the German ones in their (a) 'confidence in using digital technology with DLN students' and (c) 'expectations related to usage of digital technology'.

Referring to descriptive statistics, one could interpret that Norwegian, but not German, participants with more teaching experience appear to be more confident and show a better understanding and higher expectations of the use of digital technology compared to their compatriots with less teaching experience. Norwegian pre- and in-service teachers are more likely to agree more strongly with positive confidence and expectations of the use of DT than (student) teacher participants in the German group. This is of high importance since Viberg et al. (2020) point to the fact that knowledge and attitudes are associated. Note that DT troubleshooting is highly relevant for (experienced) teachers (Kim & Kim, 2017). Germany is a country with a poor digital infrastructure in schools (Schuknecht & Schleicher, 2020), and teachers are usually left to their own knowledge and skills when using DT in the foreign language classroom. Inclusion and DLN are thus often seen as an additional obstacle (Hartung et al., 2021). Based on descriptive statistics, it becomes evident that more experience in teacher training appears to be positively associated with understanding and expectation of DT use in the inclusive classroom. Importantly, students in their first year of studies were more likely to feel slightly more confident about using digital tools with DLN students compared to fifth- and sixth-year students in both Norway and Germany (see Appendix C). The waning interest in DT for digital-inclusive EFL teaching seems to be tied to the level of training and study year as important mediating factors, even though the marginal effects explain a small proportion of the variance. The more experience language teachers have accumulated in their respective teaching contexts, the less favourable their attitudes towards the use of DT for inclusive EFL purposes. This finding does not differ in the respective educational contexts in our bilateral study.

Experiential knowledge seems to be an important mediator in interacting with attitudes. Since attitudes are likely to be seen as a key factor to digital competence and self-confidence (Štemberger & Čotar Konrad, 2021), it is an alarming tendency when more practical experience with DLN classrooms leads to a more pessimistic view about using digital tools with DLN students. Our findings demonstrate the importance of confidence in using DT with DLN as an attitudinal component in a heuristic conceptualisation of teacher preparedness. Respondents confirmed a positive attitude by stating that DT helped learners with DLN achieve their learning goals. They also reported that they could use DT and felt comfortable with its use. The mainly positive attitudes teachers voiced at the beginning of their studies, expressed by high confidence levels, changed during their studies, which comes with teaching experience, for example, in teaching practice or through substitute teaching. The more practical experience teachers have garnered in general, with DT and with students

with DLN, the less prepared the respondents were to engage in digital-inclusive language teaching. This finding applied to teachers in both countries and might refer to the key role of teachers' perceived usefulness and perceived ease of DT use already stated in Teo (2009) for computer use. It must be interpreted with caution because we can only speculate about the reasons for it due to the lack of qualitative supportive data. Students could be frustrated by the lack of infrastructure and the lack of support to use DT for DLN learners, and thus, their confidence (Kim & Kim, 2017) and/or their performance expectancy (Venkatesh et al., 2003) of DT for inclusive purposes might decrease. This is crucial to the question of how language teacher education, including language teacher professional development, must adapt to digital transformation in various international contexts. Since attitude and the willingness of teachers to adapt to digital reality seem to be crucial to improving the quality of education at universities (Yureva et al. 2020), (future) foreign language teachers need supportive structures to build onto their preparedness for using DT in the DLN classroom.

Considering the theoretically motivated model of teacher preparedness proposed here, the importance of confidence for perceived preparedness as measured with the attitudinal scale of the TEPDLN is highly relevant. Therefore, confidence in using DT as an attitudinal factor is a vital prerequisite for digital-inclusive EFL teaching. This finding resonates with Viberg et al. (2020) in that teacher preparedness touches on attitudes (see also Rovai & Pfingsthorn, 2022). The confidence level of teachers regarding the use of DT tends to align more strongly with teaching experience in the Norwegian subsample compared to the German one. Many other results, however, are similar across educational contexts. It is only the bilateral perspective induced by a cross-country approach that highlights these interesting features. The attitudinal component of teacher preparedness seems to have a prominent function. For teacher education, it is vital that the attitudinal component of teacher preparedness receives more attention throughout teacher training. It should be related to teachers' previous experience with DT in digital-inclusive environments. Intraprofessional comparison of experience, practices and policies across educational contexts might be a decisive factor for a change of perspectives. This can be brought about by international exchange and collaboration on a European level, which are the keys to change management for digital-inclusive teaching. Even in apparently similar countries, differences and their collaborative reflection on them can represent a catalyst for awareness-raising and the integrated development of digital-inclusive teacher preparedness. Therefore, European teacher education programmes need to include collaborative initiatives as ways of bringing together teacher-students from different educational contexts, as in our project.

Further study will report on another subset of the data, i.e., focus group interviews with teachers from both contexts.

It becomes clear that the conceptualisation of teacher preparedness as a model of digital teacher preparedness (Viberg et al., 2020) does not suffice to map the complexities of digital-inclusive teacher preparedness. Earlier heuristics like Hay et al. (2001) point to the importance of attitudes and beliefs in digital-inclusive teacher preparedness but exclude the digital component, which represents the knowledge-based part of teacher preparedness, among others. The findings in our study corroborate Kim and Kim (2017) in that confidence in teachers is a vital aspect of the attitudinal component of teacher preparedness. However, for teacher preparedness in societies transforming digitally and inclusively, our findings point to attitudes having to be emphasised in our model of digital-inclusive teacher preparedness. Digital and inclusive transformation are inseparable in the context of FLT and hence cannot be treated as separate entities but as one. Although we only investigated the attitudinal component, the DINGLE model proposed here still allows for the assumption that there must be interdependencies between the three components that should be further explored. It is possible that future studies show no equality between the components, as attitudes are key to digital-inclusive preparedness and a precondition sine qua non (Blume et al., 2021). For transformation concepts, cross-sectional studies engaging students from several European countries are necessary. Finally, the teacher preparedness conceptualisation and modelling need to be adapted accordingly.

## Conclusion

The purpose of this study was to explore language teacher students' perceived preparedness to use DT for inclusive purposes in different international contexts and to foster inclusive language learning environments in Norway and Germany. The study had two objectives: to investigate the attitudinal component of a concept of teacher preparedness for digital-inclusive FLT and to contribute to a model of teacher preparedness for digital-inclusive contexts. The attitudinal component of teacher preparedness is predominant and represents a precondition for digital-inclusive teacher preparedness. For teacher education, it is vital that the attitudinal component of teacher preparedness receives more attention throughout teacher training. Attitudes towards DT use for DLN learners, however, change in a negative way across the European contexts involved in our study as respondents have a less favourable attitude and lower confidence and self-efficacy levels towards digital-inclusive EFL teaching the more teaching

experience they have gained. In our view, this development could be countered with European language teacher education containing collaborative elements in which (pre-service) teachers compare and reflect on their digital-inclusive knowledge, attitudes, and experience against the background of their respective educational contexts. Further study should be related to previous experiences of teachers with DT in digital-inclusive environments and be part of a heuristic conceptualisation of teacher preparedness for digital-inclusive contexts.

## Disclosure statement

The authors have no conflict of interest to declare.

## Acknowledgements

The authors are grateful to all participants and to the DINGLE collaborators Christian Filk, Astrid Gillespie, Lukas Lepelt, Sarah Odenwald and Tanyasha Yearwood. This research was carried out within the Digital and Inclusive Challenges for Norwegian and German Learning and Education (DINGLE) project, financed by the Norwegian Research Council (NFR) and the German Academic Exchange Service (DAAD Project-ID: 57524954).

## References

Abels, S., Stinken-Rösner, L. (2022). „Diklusion" im naturwissenschaftlichen Unterricht – Aktuelle Positionen und Routenplanung ["Diclusion" in teaching and learning of science – current positions and future routes]. In E.M. Watts, & C. Hoffmann (Eds.), *Digitale NAWIgation von Inklusion* (pp. 5–20). Springer.

Berente, N. & Seidel, S. (2022). Digital technologies: Carrier or trigger for institutional change in digital transformation? In T. Gegenhuber, C.R. Hinings, & D. Logue (Eds.), *Digital transformation and institutional theorizing: Consequences, opportunities and challenges* (pp. 197–209). Emerald Publishing.

Blume, C. (2020). German teachers' digital habitus and their pandemic pedagogy. *Postdigital Science and Education, 2*(3), 879–905. https://doi.org/10.1007/s42438-020-00174-9

Blume, C., Gerlach, D., Roters, B., & Schmidt, T. (2021). Mindsets and reflection in teachereducation for inclusive language classrooms. *Zeitschrift für Fremdsprachenforschung, 32*(1), 25–46.

Chapman, C. & Ainscow, M. (2022). *Educational equity: Pathways to success*. Routledge.

Chilla, S., Doetjes, G. Vogt, K., Filk, C., Gillespie, A., Odenwald, S., Tsagari, D., & Yearwood, T. (2021, April). *International perspectives on teacher training for inclusive foreign language learning: The DINGLE project.* [Presentation]. Lunchtime Meetings, Flensburg, Germany.

Chilla, S., & Filk, C. (2021). Inklusiv-digitale Sprachenbildung – Ein interdisziplinärer Ansatzfür die Bildung von Lehrkräften [Inclusive-digital language education – an interdisciplinary approach to teacher education]. *Medienimpulse, 59*(4).

Ching, C.C., Basham, J.D., & Planfetti, E.S. (2005). Technology in education, technology in life. In C. Vrasidas & G.V. Glass (Eds.), *Current perspectives on applied information technologies: Preparing teachers to teach with technology* (pp. 225–240). Information Age Publishing.

Cohen, L., Manion, L., & Morrison, L. (2018). *Research methods in education.* Routledge.

Council of Europe. (2020). *Common European Framework of Reference for languages:Learning, teaching, assessment. Companion Volume*. Cambridge University Press.

D'Alessio, S. & Watkins, A. (2009). International comparisons of inclusive policy and practice: Are we talking about the same thing? *Research in Comparative and International Education Journal*, *4*(3), 233–249.

Damsa, C., Langford, M., Uehara, D., & Scherer, R. (2021). Teachers' Agency and Online Teaching in Times of Crisis. *Computers in Human Behavior*, *121*, Article 106793.

Dose, J. (2019). *Inklusiver Englischunterricht. Eine Studie zum Status Quo in derSekundarstufe I* [Inclusive English as a foreign language teaching. A status quo study on secondary schools]. Springer.

Drossel, K., Eickelmann, B., & Vennemann, M. (2019). Digitalisierung und Bildungsgerechtigkeit. Die schulische Perspektive [Digitalization and educational justice. A school perspective]. *Die Deutsche Schule, 111*(4), 391–404.

Eickelmann, B., Bos, W., Gerick, J., Goldhammer, F., Schaumburg, H., Schwippert, K., Senkbeil, M., & Vahrenhold, J. (Eds.). (2019). *ICILS 2018 #Deutschland. Computer- und informationsbezogene Kompetenzen von Schülerinnen und Schülern im zweiten internationalen Vergleich und Kompetenzen im Bereich Computational Thinking* [ICILS 2018 #Germany. Student´s computer- and information technology competencies. A second international comparison and computational thinking competencies]. Waxmann.

Filk, C. (2019). 'Onlife' participation for everyone! – A plea for inclusive digital education. In O. A. Burow (Ed.), *School digital – how does it work? How the digital revolution ischanging us and the school* (pp. 62–82). Beltz.

Giesecke, M. (2002). *Von den Mythen der Buchkultur zu den Visionen derInformationsgesellschaft.* Suhrkamp.

Haleem, A., Javaid, M., Quadri M.A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers, 3,* 275–285. https://doi.org/10.1016/j.susoc.2022.05.004

Hajok, D. (2018). Heranwachsen mit digitalen Medien – ein neuer Sozialisationstypus? Perspektiven auf Kindheit und Jugend heute [Growing up with digital media – a new type of socialization? Perspectives on current childhood and youth]. *tv diskurs – Verantwortung in audiovisuellen Medien*, *22*(2), 20–25.

Hartung, J., Zschoch, E., & Wahl, M. (2021). Inklusion und Digitalisierung in der Schule. Gelingensbedingungen aus der Perspektive von Lehrerinnen und Lehrern sowie Schülerinnen und

Schülern [Inclusion and digitalization in schools. Teacher's and student's perspectives on conditions]. *MedienPädagogik, 41, (Inklusive digitale Bildung),* 55–76.

Hay, J. F., Smit, J., & Paulsen, M. (2001). Teacher preparedness for inclusive education. *South African Journal of Education, 21*(4), 213–218.

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020, 27 March). *The difference between emergency remote teaching and online learning.* Educause Review. https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching- and-online-learning

Kefallinou, A., Symeonidou, S. & Meijer, C.J.W. (2020). Understanding the value of inclusive education and its implementation: A review of the literature. *Prospects*, *49*, 135–152.

Kim, H.J. & Kim, H. (2017). Investigating teachers' pedagogical experiences with tablet integration in Korean rural schools. *Asia-Pacific Education Researcher, 26*(1–2), 107–116.

Marci-Boehncke, G. & Blume, C. (2022). „Digital Backbone" – inklusive digitale Medienbildung im Fachcurriculum Lehramt ["Digital Backbone" – inclusive digital media education in teacher education curricula]. In B. Standl (Ed.), *Medien in der Wissenschaft:Bd. 80, Digitale Lehre nachhaltig gestalten* (pp. 156–160). Waxmann.

McCarthy, A.M., Maor, D., McConney, A. & Cavanaugh, C. (2023). Digital transformation in education: Critical components for leaders of system change. *Social Sciences & Humanities Open*, *8*(1).

Nadrljanski, Đ., Nadrljanski, M., & Pavlinović, M. (2022). Digitalization of education. In: Ivanović, M., Klašnja-Milićević, A., Jain, L.C. (Eds.), *Handbook on intelligent techniques in the educational process. Learning and analytics in intelligent systems* (vol. 29). Springer.

Nijakowska, J. (2014). Dyslexia in the European EFL teacher training context. In M. Pawlak & L. Aronin (Eds.), *Essential topics in applied linguistics and multilingualism* (pp. 129–154). Springer.

Nijakowska, J., Tsagari, D., & Spanoudis, G. (2018). English as a foreign language teacher training needs and perceived preparedness to include dyslexic learners: The case of Greece, Cyprus, and Poland. *Dyslexia: An International Journal of Research and Practice, 24*(4), 357–379.

Nijakowska, J., Tsagari, D., & Spanoudis, G. (2020). Cross-country comparison of EFL teacher preparedness to include dyslexic learners: Validation of a questionnaire. *Studies in Second Language Learning and Teaching, 10*(4), 779–805.

NOKUT. (2022). *Studiebarometeret 2021 – Hovedtendenser* [Student evaluation 2021 – main findings]. NOKUT.

OECD. (2023). *Equity and inclusion in education: Finding strength through diversity*. OECD Publishing.

Petretto. D.R., Carta. S.M., Cataudella. S., Masala, I., Mascia, M.L., Penna, M. P., Piras, P., Pistis, I., & Masala, C. (2021). The use of distance learning and e-learning in students with learning disabilities: A review on the effects and some hint of analysis on the use during COVID-19 outbreak. *Clinical Practice and Epidemiology in Mental Health, 17*, 92–102.

Røkenes, F.M. & Krumsvik, R.J. (2016). Prepared to teach ESL with ICT? A study of digital competence in Norwegian teacher education. *Computers and Education, 97*, 1–20.

Rovai, A. & Pfingsthorn, J. (2022). Good foreign language teachers pay attention to heterogeneity: Conceptualizations of differentiation and effective teaching practice ininclusive EFL classrooms by German Pre-Service Teachers. *Languages, 7*(3), Article 162.

Rüscher, A., Buchminskaia, E., Chilla, S., & Filk, C. (2022). Digitale Barrierefreiheit und die Hochschule. STUDYasU - ein proaktiver Ansatz für barriere-sensible digitale Hochschullehre [Digital accessibility and universities. STUDYasU – a proactive approach to accessible higher education teaching and learning]. In S. Voß-Nakkour, L. Rutsemeier, M. Möhring, A. Deitmer, S. Grimminger (Eds.), *Digitale Barrierefreiheit in der Bildung weiter denken* (pp. 90–100). Goethe-Universität Frankfurt am Main.

Schuknecht, L., & Schleicher, A. (2020). Digitale Herausforderungen für Schulen und Bildung [Digital challenges for education and schools]. *ifo Institut Leibniz-Institut für Wirtschaftsforschung an der Universität München, ifo Schnelldienst, 73(5),* 68–70.

Schulz, L., Krstoski, I., Lüneberger, M., & Wichmann, D. (Eds.) (2022). *DiklusiveLernwelten. Zeitgemäßes Lernen für alle Schüler:innen* [Diclusive learning environments. Contemporary learning for all students]. Visual Books.

Stalder, F. (2016). *Kultur der Digitalität* [Digital culture]. Suhrkamp.

Symeonidis, V. (2018). Revisiting the European teacher education area: the transformation ofteacher education policies and practices in Europe. *Center for Educational Policy Studies Journal, 8*(3), 13–34.

Štemberger, T. & Čotar Konrad, S. (2021). Attitudes towards using digital technologies in education as an important factor in developing digital competence: The case of Slovenian student teachers. *International Journal of Emerging Technologies in Learning*, *16*(14), 83–98.

Teo, T. (2009). The Impact of subjective norm and facilitating conditions on pre-service teachers' attitude toward computer use: A structural equation modeling of an extended technology acceptance model. *Journal of Educational Computing Research*, *40*(1), 89–109.

Tian, W., Louw, S., & Khan, M. K. (2021). Covid-19 as a critical incident: Reflection on language assessment literacy and the need for radical changes. *System, 103,* Article 102682. https://doi.org/10.1016/j.system.2021.102682

van Dijk, J. (2020). *The digital divide*. Polity.

van de Werfhorst, H. G., Kessenich, E., & Geven, S. (2022). The digital divide in online education: Inequality in digital readiness of students and schools. *Computers and Education, 3,* Article 100100.

Vassilakopoulou, P. & Hustad, E. (2023). Bridging digital divides: A literature review and research agenda for information systems research. *Information Systems Frontiers, 25*, 955–969.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3), 425–478.

Vold, E.T. (2017). Qualifying foreign language teachers: Is teacher training enough? *International Journal of Educational Research, 82*, 40–53.

Viberg, O., Mavroudi, A., Khalil, M., & Bälters, O. (2020). Validating an instrument to measure teachers 'preparedness to use digital technology in their teaching. *Nordic Journal of Digital Literacy, 15*(1), 38–54. https://doi.org/10.18261/issn.1891-943x-2020-01-04

Vogt, K. & Chilla, S. (2021). Freies Format 4: Inklusiver Fremdsprachenunterricht in Zeitendigitaler Transformation – Möglichkeiten und Herausforderungen [Free Format 4: Inclsuive foreign language teaching and digital transformation – opportunities and challenges]. In M. Eisenmann & J. Steinbock (Eds.), *Sprache, Kulturen, Identitäten: Umbrüche durch Digitalisierung*? (pp. 355–358). Schneider Verlag Hohengehren.

Vogt, K., & Tsagari, D. (2023, June 8). *Emergency remote language assessment (ERLA): The impact of Covid-19 on language assessment in higher education*. [Poster presentation]. 44th Language Testing Research Colloquium (LTRC), New York, USA.

Vogt, K. (2023, 16 June). *Universal design for learning in classroom-based language assessment.* [Keynote address]. Final SCALED Conference, Warsaw, Poland.

Yureva, O.V., Burganova, L.A., Kukushkina, O.Y., Myagkov, G.P. & Syradoev, D.V. (2020). Digital transformation and its risks in Higher Education: Students' and teachers' attitude. *Universal Journal of Educational Research*, *8*(11b), 5965–5971.

## Appendix A

**TEPDLN Online Questionnaire - link:**
**https://nettskjema.no/a/182447**

**Teacher preparedness to use technology to cater for foreign language learners with diverse learning needs – DLN**

Dear Participant,

This survey is part of an international project, DINGLE (Digital and Inclusive Challenges for Norwegian and German Learning and Education). DINGLE is intended for pre- and in-service teachers who are working with foreign language learners (FLL) with 'diverse learning needs' (DLN).

When we use Diverse Learning Needs (DLN) we refer to the learning needs which reflect various elements of the diversity encountered by learners, e.g., socio-economic background, developmental stage, physical/cognitive abilities, cultural, sexual orientation, gender, ethnic group etc.

This research project aims to:

1. gain an understanding of whether (future) educators feel ready to accommodate the needs of foreign language learners with DLN;
2. find out to what extent (future) educators from various institutions and sectors feel ready to accommodate them and
3. to work out how and to what extent digital technology could support foreign language learners with DLN.

*Please note:

- Participation in the project is voluntary.
- Your responses will be fully confidential, and your participation will remain completely anonymous.
- The survey will take between 15–20 minutes to complete.
- You will be asked questions about your teaching experiences with foreign language learners with DLN.
- The data collected will be analysed by the researchers mentioned below and only for research purposes related to FLL with DLN.

Please feel free to share this questionnaire with other foreign language pre- and in-service teachers.

We appreciate your input and time in responding to the survey questions.

*The DINGLE project team.*

I have read the above guidelines and agree to take part in this study

a. Yes, I have read the above information and agree to participate in the study

b. No, I do not wish to participate in the study

**Part A. General information.**

Please tick the statements that describe you best. In some questions more than one answer is possible

*A1. I am:*

(A1.1) training to be a foreign language (FL) teacher.

(A1.2) a foreign language (FL) teacher

(A1.3) in teacher training 'Referendariat' (for German participants)

*(A1.4) If you are training to be a foreign language (FL), please choose from the list below:*

(A1.4.1) I am in my first year (first/second semester) of studies.

(A1.4.2) I am in my second year (third/fourth semester) of studies.

(A1.4.3) I am in my third year (fifth/sixth semester) of studies.

(A1.4.4) I am in my fourth year (seventh/eighth semester) of studies.

(A1.4.5) I am in my fifth year (ninth/tenth semester) of studies.

(A1.4.6) I am in my sixth year (eleventh/twelfth semester) of studies.

*A2. I teach / I am training to be a teacher in:*

(A2.1) Norway

(A2.2) Germany

*A3. I am:*

(A3.1) – male.

(A3.2) – female.

(A3.3) – diverse / choose not to say

*A4. My age is:*

(A4.1) – 17–20 years.

(A4.2) – 21–25 years.

(A4.3) – 26–35 years.

(A4.4) – 36–45 years.

(A4.5) – 46–55 years.

(A4.6) – 56 years and above.

*A5. I have:*
(A5.1) – no teaching experience.
(A5.2) – 1–5 years of teaching experience.
(A5.3) – 6–10 years of teaching experience.
(A5.4) – more than 10 years of teaching experience.

*A6. I (will) primarily teach at a … …*
(A6.1) – kindergarten.
(A6.2) – primary school.
(A6.3) – lower-secondary school.
(A6.4) – upper-secondary school.
(A6.5) – special school (special needs)
(A6.6) – college, university.
(A6.7) – language school.
(A6.8) – not applicable.

*A7. Most of my (future) learners are primarily aged … … :*
(A7.1) – under 5 years.
(A7.2) – 6–12 years.
(A7.3) – 13–15 years.
(A7.4) – 16–19 years.
(A7.5) – older than 19.
(A7.6) – not applicable.

*A8. My highest level of education completed so far is:*
(A8.1) – Secondary School.
(A8.2) – Bachelor's Degree.
(A8.3) – Master's Degree/first state exam.
(A8.4) – PhD.
(A8.5) – Other

*A9. I have taught (e.g., during teaching practice placements) …*
(A9.1) – classes where there are no learners with DLN.
(A9.2) – classes where there are some learners with DLN.
(A9.3) – special classes for learners with DLN.
(A9.4) – one-to-one sessions for learners with DLN.
(A9.5) – not applicable.

**Part B. Accommodating the learning needs of Foreign Language Learners (FLL) with Diverse Learning Needs (DLN).**

Please consider the statements below referring to teaching FLL with DLN and indicate to what extent the following statements are true to you.

I believe that ...

1. completely disagree
2. disagree
3. neither agree nor disagree
4. agree
5. completely agree

B1. teachers should modify the way teaching materials are presented to accommodate individual FLL with DLN.

B2. it is important for teachers to collaborate with parents and families of FLL with DLN.

B3. teachers should provide differentiated instruction to cater for the individual needs of FLL with DLN.

B4. FLL with DLN benefit from attending regular classes in mainstream education.

B5. FLL learners with DLN need adjustments in the mainstream language classroom.

B6. teachers should foster autonomy in FLL with DLN.

B7. developing self-determination in FLL with DLN is important.

B8. teachers should personalize assessment techniques to evaluate the progress of FLL with DLN.

B9. teachers should differentiate tasks/assignments to cater for individual learning needs of FLL with DLN.

B10. teachers should be familiar with the difficulties FLL with DLN experience in foreign language learning.

B11. teachers should help FLL with DLN to develop effective learning strategies.

B12. teachers should differentiate their approach to FLL with DLN.

B13. collaborative teamwork with a range of educational professionals is important for teachers of FLL with DLN.

B14. teachers should be familiar with the accommodations that FLL with DLN are entitled to when planning language exams and other types of assessment.

B15. teacher behaviour in a language classroom influences FLL with DLN self-esteem.

B16. teachers should have high expectations for their FLL with DLN.
B17. teachers should manage the classroom environment to cater for the individual learning needs of FLL with DLN.
B18. teachers should give feedback to FLL with DLN in such a way that it boosts their self-esteem.

*Parts C and D focus on 'Digital Technology - DT', which, in the context of FL teaching and learning, refers to digital media and their respective applications to reach the goals of FL teaching and learning.*

*In the following parts, we would like to know more about your experiences and expectations of the use of DT.*

**Part C. Digital Technology (DT)**

Please consider the statements below referring to teaching and digital technology and indicate to what extent the following statements are true to you.

1. completely disagree
2. disagree
3. neither agree nor disagree
4. agree
5. completely agree

C1. I believe that the digital technology that I have been introduced to, supports my pedagogical ideas.
C2. I understand digital technologies as instruction tools.
C3. I believe I can use digital technology with FLL with DLN without much effort.
C4. I understand the potential of digital technology and how this can be used differently when working with FLL with DLN.
C5. I have found that digital technology is useful when I teach with FLL with DLN.
C6. I understand digital technologies as cultural techniques.
C7. I find it easy to learn how to use digital technology with FLL with DLN.
C8. I am actively looking for digital technology that I can use to cater for FLL with DLN, e.g., in differentiated FL teaching.
C9. Digital technology means that I can do my work faster when I teach FLL with DLN.
C10. I understand digital technologies as language learning environments.
C11. It would be easy for me to become adept at using new digital technology/tools with FLL with DLN.

C12. I am aware of the possibilities and limitations of digital technology with FLL with DLN and how it may affect my pedagogical approach.
C13. Digital technology increases my productivity when I teach FLL with DLN.
C14. I understand digital technologies as inclusive learning environments.
C15. I find digital technology easy to use to meet the needs of FLL with DLN.
C16. Digital technology helps FLL with DLN achieve their learning goals.
C17. I understand digital technologies as inclusive language learning environments.
C18. I believe I can use these digital tools when I teach FLL with DLN.
C19. Digital technology facilitates my way to assess the learning of FLL with DLN.
C20. I feel comfortable about using digital technology when teaching FLL with DLN.
C21. Digital technology facilitates the learning of FLL with DLN.

**Part D. Resources and Collaboration**

Please consider the statements below referring to resources and collaborations in digital technology and indicate to what extent the following statements are true for you.

1. completely disagree
2. disagree
3. neither agree nor disagree
4. agree
5. completely agree

D1. I have access to the necessary resources to be able to use digital technology when I teach FLL with DLN.
D2. Colleagues or fellow students affecting my work think I should use digital technology with FLL with DLN.
D3. I know where I can get help if I encounter a problem with digital technology when I teach FLL with DLN.
D4. I intend to use digital technology with FLL with DLN in the coming year.
D5. The school(s) I am familiar with has supported the use of digital technology with FLL with DLN.
D6. I believe that there are limitations to what the available digital technology can be used when I teach FLL with DLN.
D7. I plan to use digital technology with FLL with DLN in the coming year.

D8. If I run into problems with digital technology when I teach FLL with DLN, I get help within a reasonable time.
D9. I believe that the available supply of digital technology supports my teaching FLL with DLN.
D10. I can find useful digital tools that can be easily integrated into my teaching when I work with FLL with DLN.
D11. I believe that digital technology can limit representations of knowledge content for teaching FLL with DLN.
D12. I can influence which digital tools I use in my teaching when I work with FLL with DLN.

Do you have any further comments you would like to add? If yes, please write them here.

_____

Thank you very much for your participation!!

# Appendix B

*Participant overview*

| Variable | Germany | | Norway | | Both countries | |
|---|---|---|---|---|---|---|
| | *N*= 116 | Total% | *N*=105 | Total% | *N*= 221 | Total% |
| **Level of training** | | | | | | |
| FLT | 6 | 5 | 7 | 7 | 13 | 6 |
| Training to be FLT | 83 | 72 | 98 | 93 | 181 | 82 |
| Referendariat | 27 | 23 | 0 | 0 | 27 | 12 |
| **Gender** | | | | | | |
| Male | 14 | 12 | 38 | 36 | 52 | 24 |
| Female | 102 | 88 | 65 | 62 | 167 | 76 |
| Other | 0 | 0 | 2 | 2 | 2 | 1 |
| **Age (years)** | | | | | | |
| 17–20 | 11 | 9 | 23 | 22 | 34 | 15 |
| 21–25 | 60 | 52 | 53 | 50 | 113 | 51 |
| 26–35 | 30 | 26 | 14 | 13 | 44 | 20 |
| 36–45 | 9 | 8 | 10 | 10 | 19 | 9 |
| 46–55 | 5 | 4 | 4 | 4 | 9 | 4 |
| 56 and above | 1 | 1 | 1 | 1 | 2 | 1 |
| **Level of education (degree)** | | | | | | |
| Secondary school | 50 | 43 | 43 | 41 | 93 | 42 |
| Bachelor's degree | 27 | 23 | 42 | 40 | 69 | 31 |
| Masters degree/ 1. State Exam | 29 | 25 | 6 | 6 | 35 | 16 |
| PHD | 5 | 4 | 1 | 1 | 6 | 3 |
| Other | 5 | 4 | 13 | 12 | 18 | 8 |
| **Overall teaching experience** | | | | | | |
| No teaching experience | 60 | 52 | 66 | 63 | 126 | 57 |
| 1-5 years | 45 | 39 | 31 | 30 | 76 | 34 |
| 6-10 years | 3 | 3 | 1 | 1 | 4 | 2 |
| More than 10 years | 8 | 7 | 7 | 7 | 15 | 7 |
| **Experience teaching students with Diverse Learning Needs (DLN)** | | | | | | |
| Classes without students with DLN | 15 | 13 | 10 | 10 | 25 | 11 |
| Classes with some students with DLN | 62 | 53 | 52 | 50 | 114 | 52 |
| Special classes for students with DLN | 15 | 13 | 3 | 3 | 18 | 8 |
| One-to-one sessions with children DLN | 3 | 3 | 4 | 4 | 7 | 3 |
| Not applicable | 21 | 18 | 36 | 34 | 57 | 26 |

| Variable | Germany | | Norway | | Both countries | |
|---|---|---|---|---|---|---|
| | *N*= 116 | Total% | *N*=105 | Total% | *N*= 221 | Total% |
| **Level of school teachers work at** | | | | | | |
| Primary school | 37 | 32 | 28 | 27 | 65 | 29 |
| Lower secondary school | 25 | 22 | 46 | 44 | 71 | 32 |
| Upper secondary school | 24 | 21 | 27 | 26 | 51 | 23 |
| Special school (special needs) | 25 | 22 | 1 | 1 | 26 | 12 |
| College, University | 3 | 3 | 2 | 2 | 5 | 2 |
| Not applicable | 2 | 2 | 1 | 1 | 3 | 1 |
| **Age of students (in years)** | | | | | | |
| Under 5 years | 0 | 0 | 1 | 1 | 1 | 0 |
| 6–12 years | 48 | 41 | 25 | 24 | 73 | 33 |
| 13–15 years | 43 | 37 | 67 | 64 | 110 | 50 |
| 16–19 years | 11 | 9 | 11 | 10 | 22 | 10 |
| older than 19 | 3 | 3 | 1 | 1 | 4 | 2 |
| Not applicable | 11 | 9 | 0 | 0 | 11 | 5 |
| **FLT_Training** | | | | | | |
| 1st year | 14 | 12 | 65 | 62 | 79 | 36 |
| 2nd year | 15 | 13 | 4 | 4 | 19 | 9 |
| 3rd year | 17 | 15 | 10 | 10 | 27 | 12 |
| 4th year | 13 | 11 | 11 | 10 | 24 | 11 |
| 5th year | 12 | 10 | 10 | 10 | 22 | 10 |
| 6th year | 14 | 12 | 0 | 0 | 14 | 6 |
| NA | 31 | 27 | 5 | 5 | 36 | 16 |

*Effect of demographic variables on TEPDLN Section C factors – data set split by country.*

| Variable | | Level | F1 Confidence | | F2 Understanding | | F3 Expectations | | *F* |
|---|---|---|---|---|---|---|---|---|---|
| | | | Mean | *SD* | Mean | *SD* | Mean | *SD* | |
| Level of Training | Nor | Training to be FLT | 3.72 | 0.53 | 3.64 | 0.56 | 3.51 | 0.55 | 1.41 |
| | | FLT | 4.06 | 0.22 | 4.04 | 0.24 | 3.94 | 0.56 | |
| | Ger | Training to be FLT | 3.47 | 0.50 | 3.61 | 0.46 | 3.15 | 0.53 | 0.84 |
| | | FLT | 3.57 | 0.61 | 3.83 | 0.51 | 3.52 | 0.70 | |
| Teaching experience | Nor | No experience | 3.68 | 0.45 | 3.59 | 0.49 | 3.44 | 0.54 | 1.52 |
| | | 1-5 years | 3.81 | 0.63 | 3.74 | 0.65 | 3.67 | 0.55 | |
| | | 6-10 years | 5.00 | - | 5.00 | - | 4.20 | - | |
| | | > 10 years | 3.98 | 0.38 | 3.88 | 0.28 | 3.80 | 0.61 | |
| | Ger | No experience | 3.48 | 0.54 | 3.58 | 0.47 | 3.15 | 0.47 | 1.22 |
| | | 1-5 years | 3.46 | 0.40 | 3.69 | 0.44 | 3.15 | 0.58 | |
| | | 6-10 years | 2.96 | 0.51 | 3.11 | 0.34 | 2.80 | 0.72 | |
| | | > 10 years | 3.63 | 0.75 | 3.79 | 0.51 | 3.55 | 0.63 | |
| Experience with DLN | Nor | Classes without DLN | 3.74 | 0.44 | 3.65 | 0.44 | 3.58 | 0.50 | 1.32 |
| | | Classes with some DLN | 3.68 | 0.51 | 3.63 | 0.51 | 3.57 | 0.52 | |
| | | Special classes for DLN | 3.92 | 0.94 | 3.88 | 0.96 | 3.73 | 0.75 | |
| | | One-to-one DLN | 4.08 | 0.30 | 4.37 | 0.28 | 3.90 | 0.47 | |
| | | Not applicable | 3.79 | 0.54 | 3.63 | 0.59 | 3.43 | 0.62 | |
| | Ger | Classes without DLN | 3.65 | 0.54 | 3.85 | 0.48 | 3.14 | 0.56 | 0.84 |
| | | Classes with some DLN | 3.43 | 0.52 | 3.58 | 0.44 | 3.13 | 0.54 | |
| | | Special classes for DLN | 3.37 | 0.41 | 3.55 | 0.52 | 3.22 | 0.57 | |
| | | One-to-one DLN | 3.74 | 0.71 | 3.88 | 0.76 | 3.46 | 0.92 | |
| | | Not applicable | 3.51 | 0.48 | 3.61 | 0.42 | 3.23 | 0.45 | |
| Variable | | Level | F1 Confidence | | F2 Understanding | | F3 Expectations | | *F* |
| | | | Mean | *SD* | Mean | *SD* | Mean | *SD* | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **FLT Training** | Nor | 1st year | 3.77 | 0.49 | 3.65 | 0.51 | 3.52 | 0.51 | 1.13 |
| | | 2nd year | 4.16 | 0.56 | 4.12 | 0.59 | 3.95 | 0.37 | |
| | | 3rd year | 3.77 | 0.41 | 3.66 | 0.74 | 3.58 | 0.62 | |
| | | 4th year | 3.72 | 0.71 | 3.74 | 0.71 | 3.54 | 0.76 | |
| | | 5th year | 3.25 | 0.42 | 3.31 | 0.33 | 3.30 | 0.51 | |
| | | NA | 4.13 | 0.21 | 4.00 | 0.16 | 3.88 | 0.67 | |
| | Ger | 1st year | 3.61 | 0.48 | 3.58 | 0.51 | 3.08 | 0.48 | 0.88 |
| | | 2nd year | 3.44 | 0.64 | 3.56 | 0.38 | 3.18 | 0.53 | |
| | | 3rd year | 3.43 | 0.35 | 3.61 | 0.46 | 3.23 | 0.44 | |
| | | 4th year | 3.47 | 0.58 | 3.71 | 0.56 | 2.92 | 0.50 | |
| | | 5th year | 3.68 | 0.50 | 3.63 | 0.63 | 3.40 | 0.46 | |
| | | 6th year | 3.46 | 0.53 | 3.65 | 0.45 | 3.24 | 0.63 | |
| | | NA | 3.29 | 0.41 | 3.58 | 0.45 | 3.05 | 0.57 | |

## Appendix C

*Effect of demographic variables on TEPDLN Section C factors – collapsed data set.*

| Variable | Level | F1 Confidence | | F2 Understanding | | F3 Expectations | | *F* |
|---|---|---|---|---|---|---|---|---|
| | | Mean | *SD* | Mean | *SD* | Mean | *SD* | |
| **Country** | Norway | 3.75 | 0.52 | 3.66 | 0.55 | 3.54 | 0.56 | 13.28** |
| | Germany | 3.47 | 0.51 | 3.62 | 0.46 | 3.17 | 0.54 | |
| **Level of Training** | Training to be FLT | 3.59 | 0.53 | 3.62 | 0.51 | 3.32 | 0.57 | 2.48 |
| | FTL | 3.86 | 0.47 | 3.95 | 0.37 | 3.76 | 0.63 | |
| **Level of Education** | Secondary school | 3.56 | 0.51 | 3.56 | 0.46 | 3.27 | 0.51 | 1.25 |
| | BA | 3.66 | 0.54 | 3.70 | 0.53 | 3.47 | 0.62 | |
| | MA/ 1. State Exam | 3.47 | 0.45 | 3.66 | 0.41 | 3.20 | 0.56 | |
| | PHD | 3.90 | 0.72 | 3.83 | 0.56 | 3.56 | 0.75 | |
| | Other | 3.76 | 0.64 | 3.77 | 0.72 | 3.48 | 0.64 | |
| **Teaching experience** | No experience | 3.58 | 0.50 | 3.58 | 0.48 | 3.30 | 0.52 | 1.04 |
| | 15 years | 3.60 | 0.53 | 3.71 | 0.53 | 3.36 | 0.62 | |
| | 6-10 years | 3.47 | 1.10 | 3.58 | 0.98 | 3.15 | 0.91 | |
| | More than 10 years | 3.80 | 0.61 | 3.83 | 0.41 | 3.66 | 0.61 | |
| **Experience with DLN** | Classes without DLN | 3.68 | 0.49 | 3.77 | 0.46 | 3.32 | 0.57 | 1.46 |
| | Classes with some DLN | 3.54 | 0.53 | 3.60 | 0.47 | 3.33 | 0.57 | |
| | Special classes for DLN | 3.46 | 0.54 | 3.61 | 0.59 | 3.31 | 0.61 | |
| | One-to-one DLN | 3.93 | 0.50 | 4.16 | 0.55 | 3.71 | 0.67 | |
| | Not applicable | 3.69 | 0.53 | 3.62 | 0.53 | 3.36 | 0.57 | |
| **Future school** | Primary | 3.48 | 0.49 | 3.55 | 0.49 | 3.22 | 0.59 | 1.30 |
| | Lower secondary | 3.67 | 0.45 | 3.65 | 0.46 | 3.37 | 0.50 | |
| | Upper secondary | 3.76 | 0.67 | 3.79 | 0.55 | 3.46 | 0.66 | |
| | Special school (SN) | 3.40 | 0.39 | 3.53 | 0.54 | 3.30 | 0.53 | |
| | College University | 3.84 | 0.73 | 3.93 | 0.48 | 3.64 | 0.49 | |
| | Not applicable | 3.48 | 0.27 | 3.72 | 0.69 | 3.53 | 0.57 | |

| Variable | Level | F1 Confidence | | F2 Understanding | | F3 Expectations | | *F* |
|---|---|---|---|---|---|---|---|---|
| | | Mean | *SD* | Mean | *SD* | Mean | *SD* | |
| **Age of students** | Under 5 years | 4.00 | - | 4.00 | - | 4.00 | - | 1.50 |
| | 6-12 years | 3.44 | 0.47 | 3.53 | 0.50 | 3.22 | 0.58 | |
| | 13-15 years | 3.71 | 0.53 | 3.67 | 0.49 | 3.41 | 0.56 | |
| | 16-19 years | 3.60 | 0.64 | 3.81 | 0.56 | 3.40 | 0.67 | |
| | older than 19 | 3.97 | 0.78 | 3.75 | 0.48 | 3.40 | 0.58 | |
| | Not applicable | 3.42 | 0.32 | 3.69 | 0.53 | 3.34 | 0.49 | |
| **FLT Training** | 1st year | 3.74 | 0.49 | 3.64 | 0.51 | 3.44 | 0.53 | 1.51 |
| | 2nd year | 3.59 | 0.68 | 3.68 | 0.47 | 3.34 | 0.58 | |
| | 3rd year | 3.55 | 0.40 | 3.63 | 0.54 | 3.36 | 0.53 | |
| | 4th year | 3.58 | 0.64 | 3.72 | 0.62 | 3.20 | 0.69 | |
| | 5th year | 3.48 | 0.51 | 3.49 | 0.53 | 3.35 | 0.48 | |
| | 6th year | 3.29 | 0.41 | 3.58 | 0.45 | 3.05 | 0.57 | |
| | NA | 3.55 | 0.55 | 3.70 | 0.43 | 3.33 | 0.66 | |

## Biographical note

**Solveig Chilla**, PhD, is a full professor for language and communication education at Europa-Universität Flensburg, Germany. Her main areas of research are digital-inclusive language education, language diversity, multilingual and multimodal language development and didactics and developmental language disorders.

**Gerard Doetjes**, PhD, is the director of the Norwegian National Centre for English and other Foreign Languages in Education, Halden. His research interests include mutual intelligibility between Scandinavian languages, vocabulary learning and teaching, inclusive language education and foreign language teacher education.

**Karin Vogt**, PhD, is a full professor for teaching English as a foreign language at the University of Education Heidelberg, Germany. She is a trained teacher of English and French. Her research interests include classroom-based language assessment, (digital-)inclusive foreign language teaching, vocationally oriented language learning, the Common European Framework of Reference for Languages and digital media/artificial intelligence in the foreign language classroom.

**Lina Abed Ibrahim**, PhD, is a speech and language education research associate at Europa-Universität Flensburg, Germany. Her research interests include multilingual and multimodal language development, language and communication disorders, heritage language acquisition, language typology, second/foreign language didactics and inclusive education.

**Dina Tsagari**, PhD, is a full professor of English language pedagogy/TESOL at Oslo Metropolitan University, Norway. Her research interests include language testing and assessment, materials design and evaluation, differentiated instruction, multilingualism, distance education, learning difficulties and inclusive education.

Received: 31 July 2023, Accepted: 21 March 2024,
Published on-line as Recently Accepted Paper: April 2024 DOI: https://doi.org/10.26529/cepsj.1713

# Greek Primary School Teachers' Narratives About Their Role Negotiation During the Covid-19 Pandemic

Menelaos Tzifopoulos[1]

No one can dispute the fact that the teaching profession seemed to be tested during the coronavirus pandemic. Teachers were called upon to perform a difficult and multifaced role, without help and support from the state. The issues that teachers had to respond to and solve are related to their autonomy, their digital literacy competences and their relationships/cooperation with students. The new working conditions terrified teachers, who had to manage their digital classroom through a violent readjustment. Under these circumstances, Greek primary school teachers' narratives offer us their phenomenological perspective on how they coped with their teaching duties during this period of health and educational emergency. An initial attempt is made to empathetically approach the 'world' of four teachers, while the subsequent interpretive and critical analysis serves as a means to illuminate 'hidden' beliefs of their professional role, the reshaping of their identity, and their adaptation to the online teaching context. Through their narratives, the teachers reflect on the issue of the lack of support from the state. They also note that they found it difficult to manage their e-classes in such a short time. Finally, there is a need for more effective preparation of teachers in times of uncertainty and crisis.

**Keywords:** Covid-19, narratives, primary school teachers, professional identity

1 Department of Primary Education, University of Western Macedonia, Florina, Greece; mtzifopoulos@uowm.gr.

# Pripovedi grških osnovnošolskih učiteljev o njihovem pogajanju o lastni vlogi med pandemijo covida-19

Menelaos Tzifopoulos

Nihče ne more oporekati dejstvu, da je bil učiteljski poklic med pandemijo koronavirusa na preizkušnji. Učitelji so morali opravljati težko in večplastno vlogo brez pomoči in podpore države. Vprašanja, na katera so se morali učitelji odzvati in jih reševati, so povezana z njihovo avtonomijo, usposobljenostjo za digitalno pismenost in z odnosi/s sodelovanjem z učenci. Novi delovni pogoji so učitelje prestrašili, saj so morali svoje digitalne učilnice upravljati z veliko prisilnega prilagajanja. V teh okoliščinah nam pripovedi grških osnovnošolskih učiteljev ponujajo njihov fenomenološki pogled na to, kako so se spopadali s svojimi učiteljskimi dolžnostmi v tem obdobju izrednih zdravstvenih in izobraževalnih razmer. Na začetku se poskušamo empatično približati »svetu« štirih učiteljev, medtem ko poznejša interpretativna in kritična analiza služi kot sredstvo za osvetlitev »skritih« prepričanj o njihovi poklicni vlogi, preoblikovanju njihove identitete in prilagajanju kontekstu spletnega poučevanja. Učitelji s svojimi pripovedmi razmišljajo o vprašanju pomanjkanja podpore države. Ugotavljajo tudi, da so v tako kratkem času težko obvladovali svoje e-učilnice. Nazadnje se kaže tudi potreba po učinkovitejši pripravi učiteljev med negotovostjo in krizo.

**Ključne besede:** covid-19, pripovedi, osnovnošolski učitelji, poklicna identiteta

## Introduction

Man is in a dynamic relationship with his environment, which helps him to mobilise internally and to actively engage in a continuous process of searching, creating and shaping situations (Van den Broeck et al., 2016). If we look at the case of teachers in particular, we understand that uncertainty is a kind of endemic disease for them, a disease that occurs with frequency and duration in their profession and forces them to adapt to new working conditions (Lortie, 2002). This uncertainty permeates all professional areas, such as: (1) the didactic area, as the teacher should constantly adapt to the teaching needs of his/her students, (2) the practical area, through the employment of the appropriate teaching methods and tools, and (3) the interaction area, referring to the need to create favourable relationships with students and parents (Munthe, 2001). Through the closure of schools, the coronavirus pandemic created or illuminated new conditions of uncertainty that 'shook' the needs of teachers for autonomy, competence and effectiveness (Pokhrel & Chhetri, 2021).

Teachers were globally called upon to immediately handle a situation with which they had not previously come into contact (Kim & Asbury, 2020). They had to familiarise themselves with distance learning, to inform students and parents accordingly, and to adapt their teaching, their lessons and their teaching material by utilising pedagogically appropriate digital tools (Flores & Gago, 2020). Undoubtedly, teachers were faced with an unprecedented situation of redefining their professional identity through a different form of teaching, with new media channels of communication, newly adapted material and new forms of evaluation (König et al., 2020).

This situation created tremors and change in the professional trajectory of teachers; in other words, it led to a professional rupture. It also magnified issues of self-efficacy and satisfaction in the workplace by meeting specific needs, mainly of a psychological nature. For this reason, the Self-Determination Theory (SDT) can be useful in understanding the experience of today's teachers in their working lives (Hobson & Maxwell, 2017). According to this theory, three basic psychological needs are taken into account for the better functioning of employees and their satisfaction in the workplace (Deci & Ryan, 2002).

Autonomy is the first basic need (e.g., Do I have the autonomy to choose how I will work?). The teacher is satisfied in his/her workplace when s/he acts and behaves with a degree of freedom, which allows him/her to appropriate the elements of his/her workplace naturally and according to his/her own will (Trougakos et al., 2013). The teacher is autonomous when not being forced to do something imposed on him/her by external factors. However, even if asked

to do something that may be beyond his/her duties, if the teacher is happy to do it, then this degree of autonomy is still maintained (Fadaee et al., 2022; Reeve & Halusic, 2009).

Competence is the second key component in this theory (e.g., Do I feel competent and adequate in my work?). It is important that the teacher feels a sense of effectiveness and expertise, a sense of mastery over the environment, which helps him/her to cultivate new competences and transformatively shape his/her knowledge background (e.g., cognitive skills, digital media skills) (Niemiec & Ryan, 2009). Being adequate is related to the teacher's external and internal motivation. Research shows, for instance, the positive effect of verbal praise on employees in their workplace. This is also linked to self-efficacy, which is considered the primary principle of motivation (Bandura, 1977).

Relatedness is the third basic psychological need. The coverage of this need leads to a high degree of satisfaction in working life (e.g., Do I feel that I belong to a team at work?). The literature shows that if the teacher feels a sense of being able and willing to be cared for, then s/he will reap benefits in his/her work (Chiu, 2021). This is fundamentally related to the teacher's sense of belonging (Baumeister & Leary, 1995). This need is met when people see themselves as part of a team, experiencing a sense of community and developing close professional relationships.

Focusing on the third psychological need, one question that arises concerns "whether teachers felt this need during the pandemic" (Shah, 2021). This is because relationships are central in the teaching profession, with implications for both students and teachers (Hughes & Kwok, 2007; Lavy & Naama-Ghanayim, 2020; Veldmana et al., 2013). At the beginning of this unsettled social and educational situation, there was a sense of disconnection and isolation of teachers from colleagues and students, as they worked remotely, something that may have had a negative effect on their psychology (Kim & Asbury, 2020).

The above factors are linked to the way teachers – and their students – operate in the school environment, as well as to their motivation to teach (Abós et al., 2019), to their views on stress and burnout (Rubilar & Oros, 2021), to students' motivation to participate in teaching, and to students' wellbeing (Poulou, 2020). According to the SDT, an important role is played by what motivates employees, through the coverage of specific needs (Gagné & Deci, 2005). Of course, it is worth investigating the extent of motivation that helps employees or stands in the way of progress, achievement and coverage of corresponding needs (Diefendorff & Chandler, 2011).

**Role renegotiation: The case of teachers in times of crisis**

Focusing on teachers, it is important to renegotiate their role as employees and professionals towards change, innovation and compliance to new professional conditions (Hökkä & Eteläpelto, 2014). It becomes apparent that some teachers are less positive and adaptive to change in the educational process (Van der Heijden et al., 2015). On the one hand, they may realise that something needs to change and become more flexible, even during the pandemic, because this will benefit their students cognitively. On the other hand, however, there is a defensive attitude, or an attitude of refusal towards change and remote teaching, due to emotional and psychological factors (Sokal et al., 2020). Teachers who, for example, resist change may feel less effective when teaching with the help of digital tools (Alanoglu et al., 2022; Labbas & Shaban, 2013); they may feel that they are moving away from something they knew and did well or, in other words, away from their comfort zone.

As a result, feelings of insecurity, lack of satisfaction, anxiety, burnout, refusal to continue working under such conditions or even resignation appear. Such symptoms in the workplace appear to be associated with non-functional social relationships between students and teachers, as well as with reduced school performance (Klusmann et al., 2016). This situation also presupposes the provision of adequate technological equipment to the 'facilitators' of this alternative form of education. The effectiveness of the teacher is clearly affected by the above factors and by the possibilities they and their students have to access digital devices, a functional internet connection, digital tools and educational platforms (Nikolopoulou & Kousloglou, 2022).

Teachers who were called upon to face critical situations in education and in their classrooms not only had to keep pace with the rapid changes, but to renegotiate their role as well. In essence, it is a question of readjusting the role and renegotiating the identity of the teacher in the light of such a crisis. One of the main questions teachers asked during this period is "how will I adapt to a new role that has new responsibilities?" (Niemi & Kousa, 2020). This question is even more dramatic if we are confronted with the real conditions in Greece. Unlike teachers in other countries, Greek teachers had no previous experience in e-learning, and it seems that they were not familiar with digital tools or did not know how to further their use (Jimoyiannis et al., 2021).

In Europe, the conditions prevailing in education were similar to those prevailing in Greece, with measures that did not favour the effectiveness of education and teachers who were not trained and prepared for distance learning. What is certain is that teachers were called upon to deal with a situation that

left no room for 'spacious' and careful planning (Azorin, 2020; Ferraro et al., 2020). This only concerns the first grace period when schools were closed. Unfortunately, the situation did not improve noticeably, even with the return to schools in the new 2020/2021 school year (Whalen, 2020). In several countries, including Greece, governments did not benefit from the albeit brief experience of the first attempt at distance learning. A form of education that was mainly asynchronous for some teachers was non-existent for others, as they never connected to any platform. Unfortunately, during the first lockdown, no official instruction was ever given, a situation that also brings to the surface issues of social and educational inequalities (Hargreaves, 2021).

## Method

The core question that the present research attempts to answer is how Greek teachers experienced the situation of the Covid-19 health crisis. Specifically, the key questions this qualitative research aspires to answer are: How do teachers interpret the situation they experienced when they were called upon to teach with a contribution of digital technologies during the coronavirus pandemic regarding the factor of autonomy? What do teachers report regarding the adequacy of the preparation and knowledge they possessed to cope with the new working conditions? How do teachers, through their 'realities', discuss issues of the emotional component and support from institutions?

Based on the principles of Interpretative Phenomenological Analysis (IPA) (Willig, 2012), the research focuses on teachers' voices and an idiographic approach. The researcher seeks to interpret the data with reference exclusively to the subject and his/her lived experience. The research focuses on the life narratives of the sample, exploring how the respondents, recalling experiences of their working lives – through their own 'realities' – interpret and process what happened when they were invited to teach through distance learning (Serdedakis & Tsiolis, 2000).

Specifically, the first stage of IPA involves multiple readings of transcripts of interviews. At this stage, the researcher takes notes related to thoughts and concerns regarding the phenomenon s/he is examining. Through this process, descriptive comments on teachers' subjective experience emerge, as well as conceptual comments related to the interpretation of the context of the research participants' experience (Smith et al., 2009).

***Participants***

The study's sample consisted of four teachers, with the researcher approaching the participants via snowball sampling. According to IPA, the researcher is not interested in large samples, but rather in having access to the 'biota' of each teacher. The first interview took place with a teacher who was a student in a postgraduate programme in which the researcher participated as a lecturer. This teacher then became the 'link' to the other participants. All of the participating teachers serve in public primary schools in Greece (Thessaly, Macedonia and Athens). Specifically, the sample comprised two substitute teachers with less than ten years of experience in education, a permanent teacher with thirteen years of experience, and a permanent special education teacher with fifteen years of experience.

***Instrument***

The data were collected through a qualitative semi-structured interview instrument. The interview script consisted of three basic dimensions, taking into account the relevant theory and the purpose of the research: (a) support and autonomy of teachers during distance teaching, (b) knowledge and (digital) skills of teachers, and (c) feelings and experiences from teaching during the Covid-19 pandemic. The research instrument included fourteen open questions. For the present publication, the data centres around the following open-ended questions: What did you feel during the period when you had to teach remotely? How was the experience? How did you execute your lesson through a digital platform? Did you need to work with colleagues? From which institutions did you have support with your teaching?

***Research design***

A biographical approach was chosen as the most appropriate because, through a phenomenological perspective, the researcher was interested in discussing the way in which the participants reconstruct their narratives and reposition themselves through retrospective accounts and reflections (Stanley, 2016). The researcher transcribed the teachers' narratives and categorised the material based on research questions and key points of the Self-Determination Theory. Each interview was coded separately, with the words of the teachers following the triptych: (a) autonomy in the workplace, (b) knowledge of and familiarity with digital tools, and (c) support from the state and colleagues. Through this research process, the participating teachers attempt to discuss, reflect on and find their place within this new work-related context (Tsiolis & Siouti, 2023). In such a situation of personal disorganisation due to the change

in their professional conditions, a so-called biographical rupture occurs – a radical change in their daily lives – along with the redefinition of the identity of today's teachers (Tsiolis, 2012).

In the present research, taking into account the stages of IPA, the thoughts recorded by the researcher are subject to a deductive approach and the themes arise based on the Self-Determination Theory. From the sub-themes, as shown below, the main themes 'autonomy' (Table 1), 'competence' (Table 2) and 'relatedness' (Table 3) were created through the teachers' self-reports.

**Table 1**

*Main theme 1: Autonomy*

| Sub-themes | Self-reports |
|---|---|
| Students as motivation | *I wanted to work with the kids* |
| Love for work | *It was enjoyable, as difficult as it was* |
| Comparison with other teachers | *The other teachers didn't want to* |
| Pressures from on high | *I felt pressure from the school guidance counsellor* |
| Teachers as facilitators | *I was the one who told colleagues a few things* |
| Commitment | *I had to (...)* |
| Other reference groups | *We had to get involved with families* |
| External motivation | *be exposed (...)/Salary reduction/Sanctions* |
| Accountability | *Will they evaluate us?* |

**Table 2**

*Main Theme 2: Competence*

| Sub-themes | Self-reports |
|---|---|
| ICT familiarity | *I handle computers comfortably* |
| Lack of ICT knowledge | *I wasn't that good* |
| ICT readiness | *I'm not afraid of the computer/I was more ready and felt safe* |
| Update knowledge | *Take lessons to improve skills/(...) required skills* |
| Insecurity | *I felt hanging out all the time* |
| Self-efficacy | *I definitely improved* |
| Psychological benefits | *I felt proud/I felt affirmed* |
| Parents' positive views | *Parents came to thank me* |

**Table 3**
*Main Theme 3: Relatedness*

| Sub-themes | Self-reports |
|---|---|
| Mutual support | *It is important to have contact with other teachers*<br>*There was constant communication* |
| Informal cooperation network | *Anyone who knew had to help/We were relieved that a colleague came and showed us* |
| Lack of supporting educational material | *Suitable material was not given to us* |
| Lack of support from institutions | *I felt the support was lacking* |
| Depersonalisation | *Alone* |

Each biographical interview lasted from 40 to 60 minutes and was conducted online in March and April 2021 using the Skype platform and audio recording. To make it easier for the teachers, key points were noted in a Word document. Furthermore, ethical issues were respected in the research. The respondents were informed of the nature of the research through a cover letter sent to them by the researcher via email. The teachers consented and signed the relevant form, thus accepting their participation.

## Results

***First teacher: "I felt threatened by the Ministry of Education rather than supported."***

The first teacher, a substitute teacher, recalls the difficulties she encountered under the new conditions, as she felt insecure and without any guidance or specific instructions. This also raises the issue of autonomy referred to in the SDT and relates it to misinformation regarding working and economic conditions for teachers. The teacher felt alone, without any help from the state. It is worth mentioning that she uses the word 'hanging'. As a counterbalance to fear, uncertainty and the feeling of insecurity and depersonalisation, she employs her inner motivation to help her students feel that they belong somewhere (Martí-González, 2023). This is, therefore, linked to the third factor affecting workplace satisfaction. Despite the fact that she was not satisfied in terms of the autonomy element of the SDT theory, she was motivated by her professionalism and by the feeling that she belongs or should belong somewhere:

> *"In the first lockdown no decision was made, nothing about education. It was not mandatory. We had no instructions. I felt insecure. Alone inside*

*four walls. We were all scared. I felt bad (...). Amid the doubt and fear of the pandemic, which was something unknown to all of us, there was misinformation about salary cuts if we did not engage in distance teaching. We didn't know how long this would last. If school was going to open (...). Everyone was unprepared; as a result, the training seminars were inadequate, unorganised, ineffective. No one was prepared, not even the state (...). Of course, I engaged in distance teaching, because I was teaching sixth graders and I wanted to work with the children and prepare them for secondary school. I was working; I didn't stop at all. I thought distance teaching could help my students keep in touch. I realised that this connection was helping them. They were happy to see their classmates."*

Through her narrative, the teacher emphasises the division between young teachers and those with many years of service in education, which connects to the second SDT factor. On the one hand, there are teachers who adequately handle digital media and e-learning tools, while, on the other hand, there are teachers who find it difficult, 'give up' and feel ineffective. These new conditions also brought to the fore disagreements, as the teacher underlines. She gives a harsher characterisation of the school, mentioning the word 'camp', stating that teachers were divided into two 'camps' depending on their experience in using technology. This issue is also linked to teachers' epistemological assumptions about learning and teaching (Winter et al., 2021). The teacher raises the issue of reward, that is, confirmation from other reporting groups and specifically from the parents of her students. This issue is directly related to a high sense of effectiveness. As stated in relevant research, the factor of competence is linked to support from the teacher's environment. Despite her proficiency in digital media, the first teacher, who works in a primary school, notes that she learned more.

*"The teachers were divided. It was like we were divided into two camps (...). Certainly, the teachers who did not want to engage in distance teaching were not bothered with this part, offering neither to help nor to teach. We young teachers think we are quite comfortable using computers and can manage technology. Older teachers avoided distance teaching because they were afraid of it. They didn't know how to handle digital tools. Distance teaching required skills that I believe all young people possess. When we returned to school after three lockdowns, parents came to thank me. That was touching. They felt their children would not be able to progress through distance learning, but they realised that we were working and there were no gaps. This served as a confirmation of my work. I thought I had succeeded. I felt proud that my work was being praised. Despite the*

*doubts I had, I kept going and even felt that I became more comfortable with several online tools. I learned more things.*"

For this teacher, it was of great importance that an informal network of mutual aid, cooperation and experimentation was created, mainly by her colleagues. The school's computer science teacher offered support and helped teachers to feel safe. However, the teacher interviewed stresses that there was no support from the state, on the part of the Ministry of Education. This situation contributed negatively to teachers' sense of isolation (Wong et al., 2022). The interviewee mentions that she was alone in all of this.

*"Colleagues were helping each other. Yes, we worked together. I remember we had a meeting. The computer science teacher had informed us about all of the computer tools. It was easy, but having someone who already knew the tools in this stressful and unprecedented situation made us feel relieved. When I created my digital class in the 'e-me' platform, I collaborated with a colleague. We joined each other's digital classes and experimented before starting with our students. I feel lucky because I've been working with amazing colleagues all these years. On the other hand, I felt threatened by the Ministry of Education rather than supported. Manuals of the appropriate platforms were posted, but there were no clear instructions for compulsory or non-compulsory distance teaching. We were not informed about personal data, what was going on with the platform, so we were afraid to turn on cameras, especially those of the children. There was uncertainty about everything. I really felt that everyone was so scared and isolated that almost no one communicated with anyone. I was alone for three months.*"

***Second teacher: "It was a period of teaching in the dark. I was a little scared about my role."***

The second school teacher describes her teaching experience during the coronavirus pandemic as one of fear of the unknown, characterising it as a period of 'darkness'. She discusses the issue of (re)negotiating her professional identity (Melon, 2022), which seems to be of particular concern to her. Her narrative seems like an internal dialogue, completely raw and ideographical. She states that she felt insecure, lacking the autonomy she needed to be able to function professionally. The teacher prioritises the needs of her students and feels satisfied with the 'praise' she received from her students' parents. The other reference groups therefore seem to influence and determine, to a large extent, the teacher's sense of self-efficacy.

> *"In general, it was a bit terrifying at the beginning. There was no framework, there was no 'Webex', no platform. It was a period of teaching in the dark. I was a little scared about my role. I thought to myself: What's happening now? Should I do what I have to do? How do I know it will help my students? Should I record a video and send it? After some time, teacher training started (...). If I remember correctly, the first seminar by the Ministry took place at the end of distance teaching, that is, after we had returned to schools. Schools had opened normally and then they trained us (...). But I felt proud. Do you know when? When the parents came to me at the end of the year and said, "What would we do without you?" This is actually an acknowledgement. And finally, at the end of the year the parents told me: "You know, you helped us with your videos, well done to you because nobody does that." That's when I felt what I did was okay!"*

The teacher considers that she is well acquainted with digital tools. This fact seemed to facilitate her distance teaching. Besides, as she notes, her teaching practice did not change significantly, as she had used similar means in her teaching before the pandemic. The only thing that changed is that she engaged in a process of self-education, searching for relevant material on the internet to support her students even more (Daniel, 2020). She seems to have been quite supportive with her colleagues, offering her help especially to teachers who had several years of experience in education. She believes that teachers who were either not positive about technology or had different assumptions about teaching hindered the work of other teachers.

> *"At first I didn't think about it in a negative way. Because I utilise technology in class – we often used the projector, the computer, we listened to songs – the students were also well acquainted with these processes. So, when we did it remotely, I showed them what we saw in class anyway. So, it's not that I felt blurred or that I struggled. I searched on the internet, on YouTube, I saw videos of colleagues and how these platforms work (...). In fact, I was the one who told my colleagues some things, because they were older and they encountered great difficulties at first. I think the most important factor for them was the stress about teaching, because they had no technological skills. My mother-in-law, for example, was teaching third graders. She was anxious because she lacked technological knowledge. Of course, those who didn't know were holding us back."*

The relatedness factor, as the third key element in the SDT, plays an important role for the teacher. Specifically, through her reflections, the second

teacher focuses on issues of support from both colleagues and state agencies (Rasmitadila et al., 2020). Regarding support from the other teachers, she notes cooperation as an important factor in overcoming obstacles during the coronavirus period, but at the same time she does not hide the fact that the situation was quite tiring. Support from institutions is also not mentioned. On the contrary, the primary school teacher repeats that the teachers did what they did on their own. She notes that coordinators provided them with help, which was of importance.

> *"When all of this happened, no one was ready. To tell you the truth, I was more ready and I felt safe. Most of all, colleagues helped by uploading videos on how to handle the platforms, in mutual support. I tried to help, but then I realised that I was on the computer all day long doing my own work and then helping my colleagues. It was very, very difficult to work together. I felt that no one was helping me. As I told you before, training took place later on. Alone we made it in the beginning and we struggled, both those who knew and those who did not. Only the coordinators tried to hold online meetings to show us how to work. In that sense, yes, there was a kind of response from our primary schools. They organised seminars."*

The teacher emphasises the issue of face-to-face interaction and teacher-student communication. In particular, the absence of face-to-face communication creates 'cracks' in relationships. She also mentions that such a situation leads to depersonalisation, even 'resignation' or emotional exhaustion: *"It's one thing to wake up, go to work, talk to your colleagues, see the children hugging you, have contact, but another thing is this cold situation, being necessarily far from each other. It goes without saying that 'I gave up'. I report that clearly about myself, because I was tired psychologically and physically."*

***Third teacher: "There was anxiety about what we should do."***

The third case is that of a newly appointed teacher, who focuses on the third factor that has a noticeable impact on her satisfaction in the workplace. She also devotes a large part of her narrative to her psychology, as well as that of her students. In other words, she focuses on the psychological component and the communication she had with students during the coronavirus pandemic (Phelps & Sperry, 2020). The teacher proposes contact with her students and then discusses the cognitive aspect in the context of distance teaching. To compensate for the lack of help and support from the state, she notes the supportive role that teachers had to play at the time.

*"At first we didn't know what to do or what to teach. We weren't given any instructions. At first it was a bit of a shock for everyone. I thought that the role of the teacher should change. We had to focus more on the psychology of the children, to stand by them. We should adopt a more supportive role and we should probably put aside the learning part a little. I thought that this was the direction, that we need to be next to the children, to help, to make them aware of what is happening and that it will pass quickly. So that's where I focused, I think. This meant communicating with the students every day. During the first lockdown, I had better communication with them using Viber, images, photos. Everything I could do was by using a digital book, online games and quizzes. This was not as much about lessons as it was about psychological support, about spending time pleasantly, away from school."*

The teacher's familiarity with technology, at least before the health crisis, was not at a high level. Along with a lack of familiarity with digital tools and e-learning platforms, symptoms of anxiety and insecurity appeared. As a result, she was either helped by 'ready-made' material she searched for online or material her colleagues provided her with. She particularly emphasises how much the attitude of parents influenced her teaching. She encountered difficulty in dealing with this new situation, with parents who were either sceptical or negative, and with parents who intervened in the online educational process. She experienced unpleasant feelings; she did not agree with being 'exposed' to the eyes of parents while obliged to teach through a platform. This is inextricably linked to the first factor that affects teachers' sense of satisfaction, the factor of autonomy. In other words, teachers were asked to teach under these 'strange' conditions, without agreeing – or being trained – to do so, thus shaping their teaching practices under the 'watchful eye' of other reference groups (Rousouli-oti et al., 2022).

*"There was anxiety about what to do. I may have had some material, but I also found a lot of material from colleagues online. And maybe there was less material that I created. At the very beginning, during the first lockdown, when I had four classes, it was very difficult to find so much material. I worked long hours – longer than when I was at school – to find my material (...). I wasn't that good. I had to learn to handle some things on the computer that I hadn't been aware of. I had to search a lot, but it wasn't an obstacle for me. The obstacle was my cooperation with parents, where you had to convince them of certain things. I don't like the fact that we had to get so involved with families and to be so exposed. Suddenly you*

*were exposed to the eyes of all of the parents and relatives, and you listened to their comments. It wasn't very easy."*

The third interviewee considers that teachers were not supported enough, but were left to teach without proper and timely guidance and infrastructure. She agrees with her colleagues involved in the present research and gives us her reflection on a situation that seems to have worked – at best – on 'autopilot'. Each teacher taught based on his/her own internet searches, with the informal support of colleagues, dedicating time beyond normal teaching hours even for technical issues, e.g., to help children log in to the platform with their passwords.

*"There was no help. No help from the state. Infrastructure, as I said before, did not exist. Should we give laptops, tablets? When? We didn't have the necessary equipment at schools to give to students. Secondly, we weren't given material suitable for the platforms. We had to search for the material, we had to find out how the platforms work, we had to register the children. Parents were not properly informed to be able to register students, so we did it, as you have probably heard, we did everything at midnight, when the platform was operational. So, nobody provided us with help for that either. And also, the training programmes came so late and I don't know why. No, we didn't have help. I can't recall anything that helped me, other than some instructions that I had to read and to sign in to the platform."*

***Fourth teacher: "I was afraid that I wouldn't be able to meet the demands of the children and parents."***

The fourth participant is a special education teacher with more than ten years of experience in education. Through her many years of experience in school classes, she describes her own reality drawing on her experience, ideographically and phenomenologically. The teacher does not conceal the fact that anxiety was the first emotion that overwhelmed her and states that she did not feel the autonomy she needed to be satisfied. She felt pressure, as she had to adapt in a short time to something she did not know. In a conflicting process between the needs of her students, being effective in her work and the 'sanctions' that were said to be imposed on teachers, she was scared and pressured.

*"The dominant emotion was anxiety about the situation and how lessons would be conducted. I also felt pressure that we should use specific platforms for online learning in a certain way, and at the same time everything*

*had to be done very quickly and without guidance. And all of this was a mess in my mind (...). Yes, I was afraid that I wouldn't be able to meet the demands of the children and parents. Of course, this was probably my own personal fear. But there was also a vague fear, because there were various rumours circulating that all of this would be evaluated, that we would be evaluated."*

Throughout her narrative, the teacher returns to the role of the teachers and what it means to teach in different contexts, depending on circumstances that are defined each time. She seems to be concerned with her self-image and self-efficacy issues (Assidiq et al., 2021). In the context of this reflection, she prioritises social interaction and communication with her students. She wanted to support both the children and their parents, which is probably necessary in the case of special schools.

*"I was already aware that the teaching profession is more than just providing students with information or with knowledge or whatever, but this became clearer in the midst of the pandemic. All teachers were called upon to play the role of psychologist. We were called upon to empower and support psychologically both children and in some cases their parents. Also, I realised that face-to-face interaction with students is very important. In the beginning, I had planned to do my teaching as normally as I could, to focus on learning as well. The children themselves wanted this contact."*

Like the other teachers involved in the research, the fourth teacher stresses the fact that the process followed had elements of forced self-education. She searched for material, experimented with platforms and gradually managed to support her students. She adds that there was not a supportive environment, at least on the part of the computer science teacher. The only support came from the coordinator, with the sharing of relevant educational audiovisual material. She admits that this situation was very sudden and 'justifies' the Ministry and its actions, at least in the first period of distance teaching, but she then declares her disappointment in a 'cruel' way. Specifically, she reports that the required actions were not taken by the state and that education policy-makers did not make use of the time they had and the relative experience from distance learning.

*"I was also trying to do my best, without having the knowledge, and trying to find how these platforms work. I had never used them before. That was the dominant feeling. Of course, over time, we got in line, I found my feet. Yes, I felt that the support we received was incomplete. Specifically, in my own school, while we were normally supposed to have the support of the*

*computer science teacher, he was absent from us throughout the lockdown, he did not communicate with us at all. Afterwards, I found some videos on YouTube regarding the platforms. So, there was no support, apart from the training videos sent to us by the coordinator. This is understandable in the case of the first lockdown, because it happened abruptly and caught us by surprise, both the Ministry and all of the relevant bodies. In the middle of the summer, however, there were no opportunities for training."*

## Discussion

The transition period from face-to-face teaching to distance teaching should be an occasion for discussion on a new basis of the issue of teacher professionalisation in the modern digital age (Van der Spoel et al., 2020). The education and training of teachers in times of crisis (Reissmannová, 2021) should be discussed very seriously and planned, with adjustments (Symeonidis, 2015). I firmly believe that education has a continuous dynamic and must be regularly adjusted whether we refer to times of crisis or not. Such an unsettled period, as illustrated by the narratives of the teachers in the present research, clearly did not provide an opportunity to organise efforts to utilise digital technologies, as the conditions, the guidelines of education policy and the support that existed from institutions did not favour coordinated policy.

If we take into account the literature, which provides encouraging data regarding our students (Rafsanjani et al., 2022), who are receptive to digital education and familiar with digital technologies, we will be able to think of ways to include our teachers in this 'game' (Aslan & Chang, 2015). The first issue is how to provide our teachers with digital knowledge and skills that support the educational process. Secondly, we need to determine how to shape – transformatively, dynamically and evolutionarily – a professional teacher who is able to adapt to the conditions, co-shape his/her educational framework and be protected by a legal framework, with professional rights that separate him/her and ensure his/her relative distance from other reference groups.

From this perspective, regarding the experience of teachers, it is clear that teachers did not feel autonomous, as they were called upon to teach in an unknown context in a short time and without support. It is also evident that teachers, especially younger teachers, despite their knowledge and experience in the use of digital technologies, felt fear and insecurity. This is because there were no directions, but only informal support from their colleagues (Pressley & Ha, 2021). Finally, it is evident that, in this situation, our teachers had to be effective while being alone, without feeling a 'connection'.

The present research reveals that we have teachers who are conscientious and do their best without the commitment of time. Teachers are concerned about their students and the promotion of the educational process, about the cognitive and social-emotional aspect of teaching their students. We have teachers with various levels of digital knowledge and skills, some of whom feel more self-confident and autonomous, while others feel insecure and uncertain (*"I have a good relationship with technology"*, *"I wasn't that good. I had to learn to handle some things on the computer that I didn't know"*, *"In fact, I was the one who told colleagues some things"*, *"I don't know if I did it in the best way"*).

However, we cannot only rely on the effort of teachers to search for material on digital portals and respective platforms on their own, on an informal support framework that teachers create themselves (e.g., online support groups on social media, for platforms and digital educational material in the context of distance teaching); we must support them through professional frameworks. This can be done with correspondingly flexible curricula at all levels, with rich educational material adapted to the conditions, with functional training platforms, and with continuous focused and contextualised education and training.

## Conclusion

During the Covid-19 pandemic, some teachers crossed over to the other 'bank', beyond their narrow public employment duties. They did this because they felt obliged to help their students, and they found ways to accomplish this. Some teachers 'lost track' of time and devoted many more hours to searching for material and preparing lessons through distance learning. Some teachers focused on correcting assignments and sending comments and audio files with feedback, communicating with parents and students, sometimes even late at night. All of this cannot leave us apathetic; we have to take a stand and discuss the issue of the professionalisation of teachers in relation to receiving support from institutions and the state.

The present research results cannot, however, be generalised. The limitations of this qualitative study concern the small sample of Greek teachers. Future research could focus on this issue through a representative sample of Greek teachers by combining quantitative and qualitative research methods.

## Disclosure statement

The author has no conflict of interest to declare.

## References

Abós, A., Haerens, L., Sevil-Serrano, J., Morbee, S., Julian, J. A., & García-González, L. (2019). Does the level of motivation of physical education teachers matter in terms of job satisfaction and emotional exhaustion? A person-centered examination based on Self-Determination Theory. *International Journal of Environmental Research and Public Health*, *16*. https://doi.org/10.3390/ijerph16162839

Alanoglu, M., Aslan, S., & Karabatak, S. (2022). Do teachers' educational philosophies affect their digital literacy? The mediating effect of resistance to change. *Education and Information Technologies*, *27*(3), 3447–466.

Aslan, A., & Z. Chang (2015). Pre-service teachers' perceptions of ICT integration in teacher education in Turkey. *Turkish Online Journal of Educational Technology*, *14*(3), 97–110.

Assidiq, F. Z., Rochsantiningsih, D., & Drajati, N. A. (2021). Unpacking teacher's self-understanding in technology use during COVID-19 pandemic. *Randwick International of Education and Linguistics Science Journal*, *2*(3), 364–373.

Assunção Flores, M., & Gago, M. (2020). Teacher education in times of COVID-19 pandemic in Portugal: National, institutional and pedagogical responses. *Journal of Education for Teaching*, *46*(4), 507–516.

Azorín, C. (2020). Beyond Covid-19 supernova. Is another education coming? *Journal of Professional Capital and Community*, *5*(3/4), 381–390.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*(3), 497–529.

Chiu, T. K. (2021). Digital support for student engagement in blended learning based on self-determination theory. *Computers in Human Behavior*, *124*. https://doi.org/10.1016/j.chb.2021.106909

Daniel, S. J. (2020). Education and the COVID-19 pandemic. *Prospects*, *49*(1), 91–96.

Deci, E. L., & Ryan, R. M. (2002). Self-determination research: Reflections and future directions. In E. L. Deci, & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 431–441). University of Rochester Press.

Diefendorff, J., & Chandler, M. (2011). Motivating employees. In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology, Vol. 3. Maintaining, expanding, and contracting the organization* (pp. 65–135). American Psychological Association. https://doi.org/10.1037/12171-003

Fadaee, E., Marzban, A., & Karimi, S. N. (2022). Teacher autonomy and personality traits: A comparative study of Iranian male and female EFL teachers. *International Journal of Foreign Language Teaching and Research*, *10*(42), 53–66.

Ferraro, F. V., Ambra, F. I., Aruta, L., & Iavarone, M. L. (2020). Distance learning in the Covid-19 era: Perceptions in southern Italy. *Education Sciences*, *10*(12), Article 355. https://doi.org/10.3390/educsci10120355

Gagné, M., & Deci, E. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, *26*(4), 331–362.

Hargreaves, A. (2021). What the Covid-19 pandemic has taught us about teachers and teaching. *Facets*, *6*, 1835–1863.

Hobson, A. J., & Maxwell, B. (2017). Supporting and inhibiting the well-being of early career secondary school teachers: Extending self-determination theory. *British Educational Research Journal*, *43*(1), 168–191.

Hökkä, P., & Eteläpelto, A. (2014). Seeking new perspectives on the development of teacher education: A study of the Finnish context. *Journal of Teacher Education*, *65*(1), 39–52.

Hughes, J., & Kwok, O. (2007). Influence of student-teacher and parent-teacher relationships on lower achieving readers' engagement and achievement in the primary grades. *Journal of Educational Psychology*, *99*(1), 39–51. https://doi.org/10.1037/0022-0663.99.1.39

Jimoyiannis, A., Koukis, N., & Tsiotakis, P. (2021). Shifting to emergency remote teaching due to the COVID-19 pandemic: An investigation of Greek teachers' beliefs and experiences. In A. Reis, J. Barroso, J. B. Lopes, T. Mikropoulos, & C.-W. Fan (Eds.), *Technology and Innovation in Learning, Teaching and Education: Second International Conference* (pp. 320–329). Springer International Publishing.

Kim, L., & Asbury, K. (2020). Like a rug had been pulled from under you: The impact of Covid-19 on teachers in England during the first six weeks of the UK lockdown. *British Journal of Educational Psychology*, *90*(4), 1062–1083.

Klusmann, U., Richter, D., & Lüdtke, O. (2016). Teachers' emotional exhaustion is negatively related to students' achievement: Evidence from a large-scale assessment study. *Journal of Educational Psychology*, *108*(8), 1193–1203.

König, J., Jäger-Biela, D., & Glutsch, N. (2020). Adapting to online teaching during Covid-19 school closure: Teacher education and teacher competence effects among early career teachers in Germany. *European Journal of Teacher Education*, *43*(4), 608–622.

Labbas, R., & Shaban, A. E. (2013). Teacher development in the digital age. *Teaching English with technology*, *13*(3), 53–64.

Lavy, S., & Naama-Ghanayim, E. (2020). Why care about caring? Linking teachers' caring and sense of meaning at work with students' self-esteem, well-being, and school engagement. *Teaching and Teacher Education*, *91*, Article 103046.

Lortie, D. C. (2002). *Schoolteacher: A sociological study*. University of Chicago Press.

Martí-González, M., Alcalá-Ibañez, M. L., Castán-Esteban, J. L., Martín-Bielsa, L., & Gallardo, L. O. (2023). COVID-19 in school teachers: Job satisfaction and burnout through the job demands control model. *Behavioral Sciences*, *13*(1), 76. https://doi.org/10.3390/bs13010076

Mellon, C. (2022). Lost and found: An exploration of the professional identity of primary teachers during the Covid-19 pandemic. *Journal for Multicultural Education*, *6*(1), 77–89.

Munthe, E. (2001). Measuring teacher certainty. *Scandinavian Journal of Educational Research*, *45*, 167–181.

Niemi, H. M., & Kousa, P. (2020). A case study of students' and teachers' perceptions in a Finnish

high school during the COVID pandemic. *International Journal of Technology in Education and Science*, *4*(4), 352–369.

Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and research in Education*, *7*(2), 133–144.

Nikolopoulou, K., & Kousloglou, M. (2022). Online teaching in Covid-19 pandemic: Secondary school teachers' beliefs on teaching presence and school support. *Education Sciences*, *12*(3), Article 216. https://doi.org/10.3390/educsci12030216

Phelps, C., & Sperry, L. L. (2020). Children and the COVID-19 pandemic. *Psychological Trauma: Theory, Research, Practice, and Policy*, *12*(S1), S73–75. https://doi.org/10.1037/tra0000861

Pokhrel, S., & Chhetri, R. (2021). A literature review on impact of COVID-19 pandemic on teaching and learning. *Higher Education for the Future*, *8*(1), 133–141.

Poulou, M. (2020). Students' adjustment at school: The role of teachers' need satisfaction, teacher–student relationships and student well-being. *School Psychology International*, *41*(6), 499–521.

Pressley, T., & Ha, C. (2021). Teaching during a pandemic: United States teachers' self-efficacy during COVID-19. *Teaching and Teacher Education*, *106*. https://doi.org/10.1016/j.tate.2021.103465

Rafsanjani, M. A., Pamungkas, H. P., Laily, N., & Prabowo, A. E. (2022). Online learning during the Covid-19 pandemic: Readiness and satisfaction among Indonesian students. *Center for Educational Policy Studies Journal*, *12*(3), 149–165. https://doi.org/10.26529/cepsj.12.3

Rasmitadila, R., Aliyyah, R. R., Rachmadtullah, R., Samsudin, A., Syaodih, E., Nurtanto, M., & Tambunan, A. R. S. (2020). The perceptions of primary school teachers of online learning during the COVID-19 pandemic period. *Journal of Ethnic and Cultural Studies*, *7*(2), 90–109.

Reeve, J., & Halusic, M. (2009). How K-12 teachers can put self-determination theory principles into practice. *Theory and Research in Education*, *7*(2), 145–154.

Reissmannová, J. S. (2021). Education in the area of human protection in emergency and crisis situations in the context of health education in the Czech Republic. *Center for Educational Policy Studies Journal*, *11*(4), 109–134.

Rousoulioti, T., Tsagari, D., & Giannikas, C. N. (2022). Parents' new role and needs during the COVID-19 educational emergency. *Interchange*, *53*, 429–455.

Serdedakis, N., & Tsiolis, G. (2000). Biographical trajectories and identity: Traditional overdetermination and individualisation. *Young*, *8*(2), 2–23.

Shah, S. S., Shah, A. A., Memon, F., Kemal, A. A., & Soomro, A. (2021). Online learning during the COVID-19 pandemic: Applying the self-determination theory in the 'new normal'. *Revista de Psicodidáctica* (English ed.), *26*, 168–177.

Smith, J. A., Flowers, P., & Larkin, M. (2009). *Interpretative Phenomenological Analysis: Theory, method and research*. Sage.

Sokal, L., Trudel, L. E., & Babb, J. (2020). Canadian teachers' attitudes toward change, efficacy, and burnout during the Covid-19 pandemic. *International Journal of Educational Research Open*, *1*, Article 100016. https://doi.org/10.1016/j.ijedro.2020.100016

Stanley, L. (Ed.). (2016). *Documents of life revisited: Narrative and biographical methodology for a 21st century critical humanism*. Routledge.

Symeonidis, V. (2015). *The status of teachers and the teaching profession. A study of education unions' perspectives*. Education International.

Trougakos, J, Hideg, I., Cheng, B., & Beal, D. (2013). Lunch breaks unpacked: The role of autonomy as a moderator of recovery during lunch. *Academy of Management Journal*, *57*(2), 405–421.

Tsiolis, G. (2012). Biographical constructions and transformations: Using biographical methods for studying transcultural identities. *Papers*, *97*(1), 113–127.

Tsiolis, G., & Siouti, I. (2023). Exploring biographies in a rapidly changing labor world. *Current Sociology*, *71*(4), 587–606.

Van der Heijden, H. R. M. A., Geldens, J. J., Beijaard, D., & Popeijus, H. L. (2015). Characteristics of teachers as change agents. *Teachers and Teaching*, *21*(6), 681–699.

Van der Spoel, I., Noroozi, O., Schuurink, E., & van Ginkel, S. (2020). Teachers' online teaching expectations and experiences during the Covid-19 pandemic in the Netherlands. *European Journal of Teacher Education*, *43*(4), 623–638.

Vargas Rubilar, N., & Oros, L. B. (2021). Stress and burnout in teachers during times of pandemic. *Frontiers in Psychology*, *12*, https://doi.org/10.3389/fpsyg.2021.756007

Veldmana, I., Tartwijkb J., Brekelmans, M., & Wubbels, T. (2013). Job satisfaction and teacher-student relationships across the teaching career: Four case studies. *Teaching and Teacher Education*, *32*, 55–65.

Whalen, J. (2020). Should teachers be trained in emergency remote teaching? Lessons learned from the COVID-19 pandemic. *Journal of Technology and Teacher Education*, *28*(2), 189–199.

Willig, C. (2012). *Qualitative interpretation and analysis in psychology*. Open University Press.

Winter, E., Costello, A., O'Brien, M., & Hickey, G. (2021). Teachers' use of technology and the impact of Covid-19. *Irish Educational Studies*, *40*(2), 235–246.

Wong, C. Y., Pompeo-Fargnoli, A., & Harriott, W. (2022). Focusing on ESOL teachers' well-being during COVID-19 and beyond. *ELT Journal*, *76*(1), 1–10.

## Biographical note

**Menelaos Tzifopoulos**, PhD, is an assistant professor in the field of Pedagogy and Applications in Primary Education at the Department of Primary Education of the University of Western Macedonia (Florina, Greece). His main areas of research are: school pedagogy, digital literacy and digital technologies in education, teacher practicum and education, curriculum development.

Received: 31 July 2023, Accepted: 21 March 2024,
Published on-line as Recently Accepted Paper: April 2024 DOI: https://doi.org/10.26529/cepsj.1714

# The Italian Way to the Europeanisation of Teacher Education: An Analysis of Reforms and the Ongoing Experience of Digital Transformation

Loredana Perla[1], Viviana Vinci[2] and Laura Sara Agrati*[3]

The Covid-19 emergency compelled teachers to reshape their teaching approach. Teachers were able to better recognise technologies as a means of interaction and digital transformation as a driver for professional growth. The present paper addresses the Europeanisation of teacher education and professionalisation. This process, which recognises the specific histories and political cultures of national training systems while offering common categories of analysis, nowadays welcomes the challenge of the general digital transition. The aim of the paper is to focus on how the process of Europeanisation of teacher education in Italy is taking place. Two paths are proposed. The first is the presentation of a documentary review study of the latest ministerial reforms that interpret the European recommendations. The second is a description of the DidaSco continuous professional development programme at the University of Bari, which implements European recommendations and national directives through appropriate technological innovations, which have been made even more available since the pandemic. What emerges is the representation of a possible 'Italian way' to the Europeanisation of teacher training, as is being achieved through the opportunities of digital transformation.

**Keywords:** Europeanisation, teacher education, digital transformation

1 University of Bari, Italy.
2 University of Foggia, Italy.
3 *Corresponding Author. Pegaso Telematic University, Napoli, Italy; laurasara.agrati@unipegaso.it.

# Italijanska pot k evropeizaciji izobraževanja učiteljev: analiza reform in trenutnih izkušenj z digitalno transformacijo

Loredana Perla, Viviana Vinci in Laura Sara Agrati

Izredne razmere med pandemijo covida-19 so učitelje prisilile, da so preoblikovali svoj pristop k poučevanju. Učitelji so dobili priložnost bolje prepoznati tehnologije kot sredstvo interakcije in digitalno transformacijo kot gonilo poklicne rasti. Ta članek obravnava evropeizacijo izobraževanja in profesionalizacijo učiteljev. Ta proces, ki priznava specifične zgodovine in politične kulture nacionalnih sistemov usposabljanja, hkrati pa ponuja skupne kategorije analize, danes pozdravlja izziv splošnega digitalnega prehoda. Namen prispevka se osrediniti na to, kako poteka proces evropeizacije izobraževanja učiteljev v Italiji. Predlagani sta dve poti. Prva je predstavitev dokumentarne pregledne študije najnovejših ministrskih reform, ki razlagajo evropska priporočila, druga pa je opis programa stalnega strokovnega izpopolnjevanja DidaSco na Univerzi v Bariju, ki izvaja evropska priporočila in nacionalne direktive z ustreznimi tehnološkimi inovacijami, ki so po pandemiji postale še dostopnejše. Iz tega je razviden prikaz mogoče »italijanske poti« k evropeizaciji usposabljanja učiteljev, ki se uresničuje z možnostmi digitalne transformacije.

**Ključne besede:** evropeizacija, izobraževanje učiteljev, digitalna transformacija

## Introduction

The Covid-19 emergency compelled teachers to redefine and redesign their teaching approach, requiring significant infrastructural and instrumental adjustments, as well as cultural changes (Estermann, 2020; Perla et al., 2021).

Digitalisation played an indispensable role in addressing the urgency and radical change required. Governments worldwide suspended in-person classes, making distance education a key response to the crisis (Williamson et al., 2020). However, the pandemic also revealed certain difficulties and resistance among the teaching community, resulting in a disconnect between administrative and organisational levels and the use of digital tools in teaching (Tømte et al., 2019).

Emergency teaching exposed the fundamental inadequacy of most teachers, who were unprepared for the new challenges and lacked adequate support and guidance (Fernández Río et al., 2022). Teachers need to amalgamate professional, relational, pedagogical and technological proficiencies while choosing appropriate digital tools for content delivery and student interaction (Barberà Gregori & Badia Garganté, 2005). The shift to emergency remote teaching during the pandemic lacked adequate preparation and revealed organisational and infrastructural challenges, as well as digital skills issues for both teachers and students (Dipace & Scarinci, 2021; Hodges et al., 2020).

Integrating in-person teaching with digital tools remains a fundamental and necessary objective, achievable through high-quality technological and pedagogical training for educators (Aguilera-Hermida, 2020; Rapanta et al., 2021).

### Digital transformation and teacher education in the post-Covid-19 era

As noted by Perla et al. (2021), the pandemic compelled teachers to redesign their teaching approach, acknowledging the fact that technologies are no longer mere tools for knowledge transmission. Teaching is now seen as a mediated action with high potential for hybridisation. Online learning changes the didactic transposition of in-person teaching, as it transforms space-time organisation, promotes flexibility, and impacts relational dynamics and social interaction, requiring different teaching approaches and skills (Hodges et al., 2020). Despite the initial didactic and organisational challenges, the emergency situation provided a valuable opportunity to rethink distance learning through adaptive and flexible perspectives, offering students wider choices and greater customisation (Huang et al., 2020).

The Covid-19 emergency posed a significant challenge for educational institutions and all of the parties involved, including teachers, students and staff, as they had to adapt to the shift from face-to-face education to online learning, requiring acceptance of and proficiency in technology (Aguilera-Hermida, 2020). Teacher qualification through training activities for methodological and technological updates is crucial to produce multimedia content, manage distance learning and effectively utilise technologies. The role of the teacher has evolved, not only in terms of technological mediation, but also in terms of catering to a diverse student population and focusing on learning outcomes.

## Conceptual and theoretical framework

Europeanisation, commonly and outside the social sciences, refers to the growth of a European identity above national identities; in other words, the adoption of a series of European features by a specific nation (Börzel & Risse, 2003). Generally understood as a dynamic process that transforms over time, the effects of Europeanisation are not always predictable, given that it activates multiple interactions with the social and political environment in which it takes place (Featherstone & Kazamias, 2001).

In political sciences, the Europeanisation concept is understood as a process of incorporation – within the national logic of the domestic – of discourse, established and unspoken regulations, procedures, policy paradigms, methodologies, operational approaches, and collectively held convictions and standards originally outlined within EU policy formulation (Moumoutzis, 2011) and specifically related to other sub-processes, such as *construction*, *diffusion* and *institutionalisation* (Radaelli, 2002, p. 108). Referring to multiple interactions that are expressed both vertically and horizontally, socio-political studies on Europeanisation have, over time, opted for a 'circular' approach to empirical research, capable of describing the reciprocal negotiations between policies at the national and European level (Börzel, 2005; Graziano & Vink, 2008). The 'circular' approach is seen as appropriate for investigating 'soft' policy areas (i.e., binding but not subject to compliance through directives and regulations), such as education policy, also in reference to the new governance initiated with the Lisbon Agenda (Radaelli, 2008). With regard to European policy, the term 'European Education Space' encompasses school education, higher education and, consequently, teacher education, which involves the entire spectrum of teacher learning, including initial teacher education (ITE), induction and continuing professional development (CPD) (Symeonidis, 2018). This is included mainly in the wider area of social policy and employment (Paino, 2012).

Research on Europeanisation in the specific field of teacher education investigates Europeanisation not as a stable phenomenon above the system, but as a 'fluid process' (Symeonidis, 2018) that propagates within systems at different levels of policies and practices. Unlike previous studies on the European dimension of teacher education (Caena, 2014), which have focused on initial training programmes, internationalisation and mobility, as well as on the recontextualisation of policies (Hudson, 2017), the study by Symeonidis (2018, 2021) offers a process analysis of Europeanisation in teacher education from an international and comparative perspective by exploring policies and practices in three EU countries (Austria, Greece and Hungary). Symeonidis's study offers an analysis matrix with indicators and descriptors for further comparative studies (see Table 1). This goes beyond the concept of 'convergence' (Vidović & Domović, 2013) and of 'Europeanness' in teachers' work (Schratz, 2014), but takes up Miller's theoretical reflection on 'resonance' (Miller, 2015) and Stéger's triple level of teacher education description (Stéger, 2014), which defines and utilises teacher competencies, establishing a continuum of teacher professional development and providing support for teacher educators.

**Table 1**

*Analysis matrix of the Europeanisation of teacher education* (adapted from Symeonidis, 2018, pp. 101–102)

| Categories | |
|---|---|
| 1. Continuum of Teacher Education (CTE) | **1. Initial Teacher Education (ITE)** |
| | The identification and recruitment of the most appropriate candidates for the profession, encompassing alternative routes |
| | A harmonious blend of subject expertise, pedagogical skills and integrated periods of hands-on training |
| | Themes within educational curricula: digital instruction and learning, introspective practice, collaborative teamwork, diversity in education, civic instruction, and roles in school administration and leadership… |
| | Collaborations with a diverse spectrum of stakeholders in the development and implementation of teacher education initiatives |
| | Quality assurance and regular evaluations |
| | **2. Induction** |
| | Precisely delineate policy objectives and the roles and obligations of stakeholders, and enhance collaboration among teacher education providers… |
| | Administered as a unified programme (inclusive of personal, social and professional support) |
| | Forms the initial phase of a lifelong career development system |
| | Allocate sufficient financial and temporal resources |
| | **3. Continuing Professional Development** |
| | Can encompass formal, informal and non-formal activities, including mobility and exchange programmes |
| | Programmes that are pertinent, customised to requirements and focused on practical application |
| | Mandatory component within school development plans, accompanied by salary or allowance incentives |
| 2. Teacher Competence frameworks (TC) | Develop comprehensive professional competence frameworks founded on learning outcomes, adaptable to various stages of teachers' careers |
| | Versatile utility across teacher education, professional development, school improvement, recruitment and selection |
| | Promote the autonomy, empowerment and accountability of teaching personnel, rather than exerting control and disempowering them |
| 3. Role of Teacher Educators (RTE) | Specify the roles and responsibilities of teacher educators |
| | Encourage the establishment of professional competency frameworks for teacher educators |
| | Strengthen collaboration between all key stakeholders throughout all phases of teacher education |

The matrix assumes a broad concept of the 'continuum of teacher education' – as policy actions including connecting phases and perspectives, teacher learning needs, support structures, career paths, competence levels and connecting teacher development to school improvement (Symeonidis, 2018) – and identifies three analytic categories of the Europeanisation process:

a. the continuum of the process, articulated in:
   i. *Selection/Initial Phase* – a high level of selectivity, an attractive salary, the positive image of the teaching profession; balancing subject knowledge, pedagogical competencies and integrated periods of practical training; updating topics such as digital teaching and learning, self-reflection and collaborative working, diversity, citizenship, school management and leadership; splitting theory and practice; partnerships with stakeholders and schools; development of study programmes; development of mentoring systems, quality control.
   ii. *Induction* – related to support of experienced teachers, remuneration for work, additional training, and personalised help and advice; clearly defined and with measurable effects; training teacher educators, including mentors, for their role;
   iii. *Continuing Professional Development* – related to professional mobility opportunities, with some compulsory elements connected to school development plans.

b. the teacher competence framework – the distinction between "knowledge and understanding, skills and dispositions" (European Commission, 2012, pp. 25–26); developing teacher profiles to align teacher development, performance standards and school needs (OECD, 2005), and articulating distinct career levels tailored to pre-service, novice or experienced educators (OECD, 2005); defining the knowledge and skills expected of teachers (European Commission, 2013, pp. 15–16), employed to foster the agency, empowerment and accountability of teaching personnel.

c. the role of the teacher educator – teacher educators defined as "all those who actively facilitate the (formal) learning of student teachers and teachers", in the ITE or CPD of teachers (European Commission, 2012, p. 64); competencies to be distinguished into first order (teaching competences) and second order (teaching about teaching, research competences, pedagogy and didactics), for selection and recruitment procedures, as well as for professional development opportunities.

A virtuous circle would be activated between teacher wellbeing, teacher professional development and the ability to positively manage the challenges of today's complexity (Viac & Freser, 2020).

According to the Eurydice Report (2021), the pandemic crisis taught us, above all, that adaptation to an uncertain context is favoured by greater digital

education for students, by the enhancement of hybrid learning contexts and, consequently, by equipping teachers with relevant tools and appropriate skills, such as the ability to design and manage hybrid learning contexts and exploit the digital dimension as teaching resources. However, the pandemic crisis provided other even deeper lessons: that teachers must not feel alone in the face of the challenges posed by complex contexts, otherwise they risk fleeing the profession now deemed as unsustainable (Kelchtermans, 2017); that teachers can be accompanied in self-development and personal empowerment paths through, inter alia, discussions with more experienced colleagues or with diversified tasks, enabling them to share responsibilities in a multi-level career progression framework. Within this framework of an enlarged and multi-level network, digital transformation can be experienced as an opportunity, not just as a challenge, or even a threat (Røe et al., 2022).

A proactive attitude towards teaching professionalism – expressed in a willingness to transform learning environments, combined with multi-level career structures and an ability to partner with wider stakeholders – could be taken as the cornerstone of the profile of the European teacher (European Commission, 2012), and of the very concept of the Europeanisation of teacher education (Symeonidis, 2018).

## Purpose of the study

The present study aimed to find early indications useful for a wider description of the Europeanisation process of teacher education in Italy. Since the professional development of teachers is often subject to reforms in Italy, it is appropriate to identify possible elements of Europeanisation to share with the research community and to bring to the attention of policymakers. The following research question was posed:

- *How do the provisions contained in the regulations on initial teacher education in Italy in the last ten years resonate with the characteristics of Europeanisation suggested by research?*

The study also posed a non-directional question that was investigated by comparing the findings of the documentary review study and the DidaSco programme, as the teacher training experience carried out at Uniba:

- *Do the features of the DidaSco programme comply with the criteria of the Europeanisation of teacher training?*

## Method

***Context***

The education and training education system is organised according to the principles of subsidiarity and autonomy. The state has exclusive legislative competence regarding general regulations, such as those on the training of school personnel. Although schools are endowed with a high degree of autonomy (definition of the curriculum, organisation of teaching, etc.), the general direction of the initial training and professional development of teachers is the exclusive responsibility of the state (European Commission/EACEA/Eurydice, 2021).

The present study focused only on the regulation documents related to middle and secondary school initial teacher education, as this specific segment has been subjected to more frequent reviews by governments then the primary school sector. The essential characteristics of the three latest reforms on the training of middle and secondary school teachers are presented below.

- TFA (Tirocinio Formativo Attivo – *Active Training Practicum*). The reform (see Ministerial Decree nos. 249/2010 and 81/2013) provided for an annual postgraduate university path with a highly selective access competition (Ministerial Decree no. 197/2011) at the national level. The path involved the integration of theoretical lessons, didactic-disciplinary laboratories (at university) and practicum (at schools) for a total of 60 university credits in the pedagogical-didactic area and disciplinary didactics. School staff were involved as 'organiser' and 'coordinator' tutors (who work at the university, with total/partial exemption from service ) and as 'school' tutors (who work at school, without exemption, as per Interministerial Decree No. 210/2013); the former were selected at universities through a competition, while the latter were individualised by the school on the basis of spontaneous applications. Selection and identification took place on the basis of 'prerequisites and qualifications' as well as a motivational interview. Roles and responsibilities were identified for each type of tutor, including monitoring and course evaluation, but adequate training or forms of recognition in terms of professional development were not envisaged.
- 24 CFU (Crediti Formativi Universitari – *University Training Credits*). Introduced by Decree Law no. 59/2017, then by Law no. 145/2018, the reform did not foresee training path or access selection, but only requirements. It provided for the acquisition – through additional exams to the

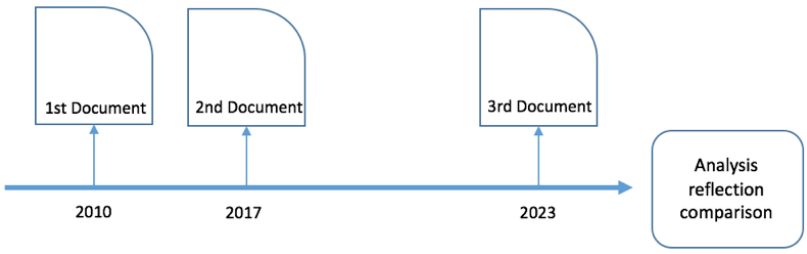
academic curriculum – of a further 24 credits in at least three disciplines of four anthropo-psycho-pedagogical areas as well as disciplinary teaching methodologies and technologies. Ministerial Decree no. 616/2017 explains the educational objectives and sets the criteria for universities to recognise valid courses among their already active courses. The training objectives were defined exclusively in terms of knowledge for the transversal area (pedagogical-didactic, psychological, anthropological and technological-didactic) and of skills for the specific areas of the competition classes.

- 60 CFU (Crediti Formativi Universitari – *University Training Credits*). The reform started with Law no. 79/2022 and was applied through Prime Minister Decree (DPCM 4 August 2023). It provides: a. a qualifying postgraduate university course with integrated training activities – theoretical lessons and internships to be carried out in schools, for a total of 60 credits with a prevalence of pedagogical, special teaching and socio-psycho-anthropological areas; b. a university centre with an organisation and coordination function. The reform sets the educational objectives of the course, described in terms of skills and abilities, as well as a profile of professional skills, which are completely original with respect to the typical knowledge-skills-disposition declination (European Commission, 2012, pp. 25–26) and in 'continuous evolution', through, inter alia, the ePortfolio self-evaluation device, as well as minimum professional standards (Annex A). With regard to tutorial figures, the reform partially redefines the tasks but does not change the selection criteria, nor does it provide for adequate training or forms of recognition in terms of professional development.

***Research design***

A documentary review (see Figure 1) with a horizontal longitudinal design (Bartlett & Vavrus, 2016) was carried out by the DidaSco team of the University of Bari, coordinated by Prof. Loredana Perla.

**Figure 1**
*Longitudinal case-study design*




***Documents***

The document review was conducted in the period April-September 2023 (Bretschneider et al., 2017) on governmental documents, including government decrees, laws and ministerial notes, as primary sources of data. The documents concern the latest ITE reforms in Italy, the only area reformed in recent years. Covering a period of ten years, they are:

1st Document – "Definition of the discipline of requirements and methods for the initial training of teachers in kindergarten, primary school and secondary school of the first and second degree" (*Definizione della disciplina dei requisiti e delle modalità della formazione iniziale degli insegnanti della scuola dell'infanzia, della scuola primaria e della scuola secondaria di primo e secondo grado*, Ministerial Decree no. 249/2010) and "Regulation amending the decree" (*Regolamento recante modifiche al decreto*, Ministerial Decree no. 81/2013). Ministerial Decree no. 249/2010 defines the requirements and methods for the initial training of teachers in kindergarten, primary schools and secondary schools of first and second degrees, outlining the educational standards and procedures necessary for teacher preparation programmes. Ministerial Decree no. 81/2013 modifies Ministerial Decree no. 249/2010, introducing changes to the methods and requirements for the initial training of teachers. It may include adjustments or updates to the curriculum, evaluation criteria or other aspects of teacher preparation.

2nd Document – "Reorganisation, adaptation and simplification of the system of initial training and access to teaching roles in secondary school to make it functional to the social and cultural enhancement of the profession" (*Riordino, adeguamento e semplificazione del sistema di formazione iniziale e di accesso nei ruoli di docente nella scuola secondaria per renderlo funzionale alla valorizzazione sociale e culturale della professione*, Decree Law no. 59/2017) and the related "State Budget Forecast for the 2019 Financial Year" (*Bilancio di*

*previsione dello Stato per l'anno finanziario 2019*, Law no. 145/2018). Decree Law no. 59/2017 reorganises, adjusts and simplifies the system of initial training and access to teaching roles in secondary schools, with the aim of enhancing the social and cultural value of the teaching profession by improving the training process and ensuring better access to teaching positions. Law no. 145/2018 approves the State Budget Forecast for the 2019 financial year, outlining the government's projected revenues and expenditures for the specified period, including allocations for education and other sectors.

3rd Document – "Definition of the university and academic path of initial training for teachers of secondary schools of the first and second degree, for the purpose of respecting the objectives of the National Recovery and Resilience Plan" (*Definizione del percorso universitario e accademico di formazione iniziale dei docenti delle scuole secondarie di primo e secondo grado, ai fini del rispetto degli obiettivi del Piano nazionale di ripresa e resilienza*, DPCM, 4 August 2023) and the related "Conversion into law, with amendments, of the decree-law of 30 April 2022, no. 36, containing further urgent measures for the implementation of the National Recovery and Resilience Plan (PNRR)" (*Conversione in legge, con modificazioni, del decreto-legge 30 aprile 2022, n. 36, recante ulteriori misure urgenti per l'attuazione del Piano nazionale di ripresa e resilienza (PNRR),* Law no. 79/2022). The Decree of the President of the Council of Ministers (DPCM, 4 August 2023) defines the university and academic pathway for the initial training of teachers in secondary schools, with the aim of aligning teacher education programmes with the objectives of the National Recovery and Resilience Plan, focusing on enhancing teaching quality and effectiveness. Law no. 79/2022 converts into legislation, with amendments, the decree-law of 30 April 2022, no. 36. The original decree-law likely contained urgent measures for implementing the National Recovery and Resilience Plan, and this law consolidates these measures into a legal framework, possibly with additional modifications or provisions.

Secondary sources, such as relevant academic articles and scientific studies, have also been included in order to present a more holistic view of the complex process of teacher education reform (Caputo, 2023; Fiorucci & Zizioli, 2022).

***Document analysis***

For data analysis, the 'process tracing' method (George & Bennett, 2005) was followed. This method is useful for exploring the descriptive aspect of a case study and identifying potential causal processes through the so-called 'detailed narrative', without a reference theory. The 'narrative' followed in the

present study refers to three phases, corresponding to the three main reforms of teacher education, first described in essential characteristics, then narrowed down through three analytical categories: continuum, teacher competences and teacher educators (Stéger, 2014; Symeonidis, 2018, 2021) (see Table 1).

Table 2 shows the matrix of the comparative and longitudinal analysis of the latest reforms of initial teacher education in Italy. It incorporates descriptors from the Europeanisation of teacher education matrix (see Table 1).

## Results

Reading the matrix (see Table 2) reveals the strongly discontinuous framework of the Europeanisation of the initial training of teachers in Italy, both longitudinally and in terms of the categories examined. The first reform, TFA (2012–2015), only partially corresponded to the categories of ITE and RTE; the second reform, 24 CFU (2017–2021) was completely decentralised with respect to these categories; while the current reform, 60 CFU, would seem to respond provisionally to several of the categories, with the exception of selection/recruitment and the role of teacher educators (RTE).

**Table 2**

*Analysis matrix of the Europeanisation of Italian Initial Teacher Education reforms*

| Categories | European | TFA (2012–2015) | 24 CFU (2017–2022) | 60 CFU (2023) |
|---|---|---|---|---|
| 1. ITE | Selection/recruitment candidates | High selection | n.a. | n.a. |
| | Balancing subject knowledge, pedagogical competencies, practical training | Displacement in favour of subject knowledge | n.a. | Displacement in favour of practical training |
| | Topics: digital teaching-learning, self-reflection and collaboration, diversity, citizenship, school management | Digital teaching-learning, self-reflection | n.a. | All (forecast) |
| | Partnerships with stakeholders (schools) | High partnership | n.a. | High partnership (forecast) |
| | Quality assurance and regular reviews | n.a. | n.a. | QA and reviews (forecast) |

| Categories | European | TFA (2012–2015) | 24 CFU (2017–2022) | 60 CFU (2023) |
|---|---|---|---|---|
| 2. CT | Frameworks adapted to different levels of teachers' career | n.a. | n.a. | n.a. |
| | Professional development, school development | n.a. | n.a. | n.a. |
| | Agency, empowerment and responsibility | n.a. | n.a. | Responsibility (forecast) |
| 3. RTE | Role and responsibilities | Defined | n.a. | Re-defined |
| | Professional competence frameworks | n.a. | n.a. | n.a. |
| | Collaboration between actors | Collaboration | n.a. | Collaboration |

Despite Europe's increasingly explicit request for professional career paths and a multi-level career progression framework for teachers that are well defined and integrated with school development (European Commission/EACEA/Eurydice, 2021), it seems that Italy is responding slowly and in a fluctuating way. The Italian teacher education system still lacks:

a well-defined framework of professional competences, capable of guiding not only the professional development of teachers but, above all, the selection/training of teacher trainers, within a multi-level career framework. The forthcoming reform – although proposing a redefinition of the teacher competence framework, which is not in line with the European framework – does not involve the entire professional development and career path framework;

a clear strategy for the development of teachers' digital skills. Despite the fact that Europe is requesting that digital skills be integrated into the global framework of teacher skills (Ghomi & Redecker, 2019), the current reform considers digital skills juxtaposed with rather than integrated into the range of other competences areas (e.g., planning, documentation, learning support, etc.) and includes them among the minimum professional standards, rather than as an incentive for professional and career development.

The changing regulatory framework in Italy – in place as of 2022 with the National Recovery and Resilience Plan 2, which provides for the reform of teacher recruitment, published by Law no. 79/2022, converting Decree-Law no. 36/2022 – faces schools and universities with specific and unprecedented responsibilities with respect to access to the roles of teaching staff and initial and in-service training. In particular, the reform envisages the establishment of training centres to promote and coordinate continuing teacher training, with regard to methodological and technological/digital skills.

## Discussion

The document review of recent reforms reveals the lack of a system in Italy that can virtuously engage institutions on the subject and modify widespread practices in line with two principles now shared by all European countries:

a) the idea of teacher professionalism rooted in reflexivity and the development of cultural and methodological-didactic skills aimed at student learning;
b) partnership with research institutions, primarily universities, for the development of continuous training models.

As emphasised by Maubant and Martineau (2013), teacher training today requires a reconceptualisation of the teacher's relationship with knowledge, methods and the sense of being a teacher. This reconceptualisation needs to be articulated in at least three directions:

a) The dual process required by the integration of theoretical-practical knowledge by the teacher: it is necessary to organise professional learning as a process of semanticising theoretical knowledge and competence-values. Training for the act of teaching – a kind of knowledge that is non-linear and cannot be fully formalised with the language of demonstrative logic (Eisner, 2002) – calls for a theoretical shift from deductive paradigms to paradigms rooted in the epistemology of practice (Damiano, 2013);
b) Disciplinary-educational training: promoting the formative aspect of knowledge organised by the teacher for teaching purposes;
c) Overcoming the gap between 'practical' training and the critical-problematising reflexivity that should support it: effective training should be based on devices that allow the teacher to recover their experience in the situation and activate a posteriori reflection on it, in order to grasp the meaning attributed to it by the actors involved.

A scientific reconceptualisation of teacher training is necessary, starting from the validation of current practices through various types of training devices. By 'training device', we mean the bodily and incorporeal system of institutional and didactic procedures that determine the 'form-context' of training and its functioning, including tools and activities that give rise to participation shaped by how the subject undergoing training interprets the device.

The idea of a new governance of reconceptualised training, based on the aforementioned premises, forms the foundation of the DidaSco (Didattiche

Scolastiche) concept. DidaSco originated in 2010 within the research group[4] active at the Department of Psychological, Pedagogical and Educational Sciences at the University of Bari using a curriculum design approach.

***The DidaSco teacher education programme***

The DidaSco programme was launched in 2017 as an in-service training project for teachers. In 2024, it will also be tested for initial training following the Prime Ministerial Decree of 4 August 2023, given that it was able to positively validate the hybrid pedagogical model (in-person and online) during the pandemic and post-pandemic phase.

DidaSco considers professional development not only as cultural updating, but also as a strategic lever for teachers, the school environment and the entire national system. The underlying model of DidaSco challenges one-shot training perspectives and professional development approaches, embracing a perspective of "professional learning through change". This approach draws inspiration from adult learning theories, situated cognitive theories and the paradigm of the reflective teacher who takes responsibility for learning to improve the quality of their professional performance (Craig, 2019).

The DidaSco model is based on three lines of research on teacher practices for research and training purposes: analysis of teaching practices (Altet & Vinatier, 2008; Laneve, 2005; Maubant & Martineau, 2011), professional didactics (Pastré, 2011); and studies of teacher thought, self-study and transformative learning (Loughran et al., 2007).

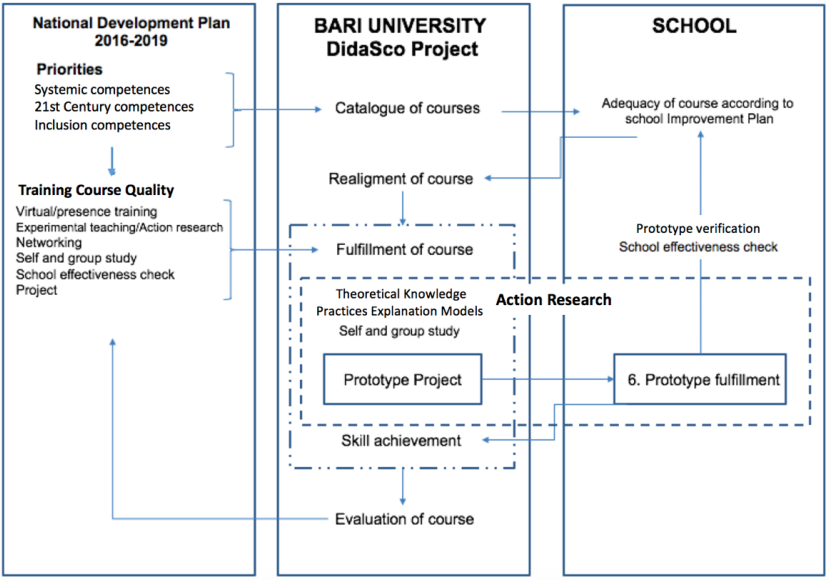
The underlying model of DidaSco is structured around teamwork and is inspired by a multilevel governance system whereby national, regional and local dimensions are closely interconnected, as shown in Figure 2:

- The Ministry of Education, which develops a three-year national plan and establishes the quality standards for teacher training;
- The Regional School Offices, which analyse training needs and manage teachers' professional development requirements;
- The schools themselves, which identify teachers' professional development needs based on their three-year planning (PTOF) and annual improvement plan (PdM);
- Educational institutions, including universities, which provide professional development programmes aligned with the national quality standards and strategic priorities established by the National Framework for Teacher CPD (DM 796/2016) in terms of competencies.

4 Coordinated by Loredana Perla, this research group has a mixed composition, including university professors from various disciplines of universities in Apulia (Bari, Foggia, Salento), school principals and teachers. The group's primary objective is to develop research and training proposals in response to the emerging needs of the Apulian region.

**Figure 2**

*The multilevel governance model of DidaSco* (Perla et al., 2017, p. 927)



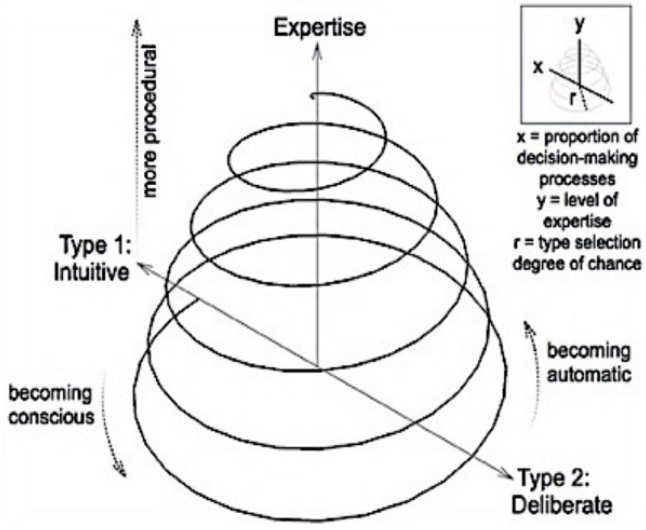

## Organisational methodologies and digital transformation of the DidaSco programme

The DidaSco programme has implemented a catalogue with over 150 training courses structured through a dialectic between educational knowledge and disciplinary knowledge resulting from interactions within the research group, which has engaged general didactics experts and teachers from humanities and scientific disciplines since 2010.

Each course is divided into units with different didactic formats, including virtual and in-person training, designing and implementing experimental devices, active research, networking, individual and group study, documentation aimed at assessing school effectiveness, and project work.

The structure of each individual course encompasses theoretical knowledge, research-based training (for prototype experimentation), and documentation/evaluation of the journey. It is predominantly founded on an innovative organisational framework, rooted in a collaborative approach that underscores the significance of partnership between teachers and researchers.

**Figure 3**
*The spiral cycle of reflection* (Hammond, 2010)




Perla et al. (2021) underscore the pandemic's profound impact on teaching methodologies, necessitating a fundamental redesign. They argue that technology is no longer merely a tool for knowledge transmission, but rather a pivotal element in redefining teaching as a highly hybridised and mediated action. Contrary to viewing online learning as a simple transposition of traditional classroom teaching, it represents a paradigm shift with implications for space-time organisation, fostering greater flexibility and altering relational dynamics and social interactions, thus demanding new teaching approaches and skills. Moreover, amidst the didactic and organisational challenges posed by the emergency situation, there emerges a valuable opportunity to reconsider the modalities of mediation in distance learning through technology. This entails embracing an adaptive and flexible learning perspective capable of providing students with expanded choices and a heightened level of customisation.

The DidaSco project exploited the digital potential for in-service training, as it presented the training offer via a ministerial platform and exploited the features of Moodle to create mixed delivery, through video recordings, webinars, sharing of materials, working groups, etc. During the pandemic phase, the effectiveness of the system was validated especially regarding the participation of teachers, who found an expanded professional community and were thus able to cope with the daily difficulties of distance learning (European Commission/EACEA/Eurydice, 2021).

## Conclusion

Over the ten years since its establishment, and in anticipation of the publication of the new DPCM (Decree of the President of the Council of Ministers) on initial training for secondary school teachers, the DidaSco group has focused its reflection on the possibility of strengthening the partnership between universities (and between universities and schools), with an emphasis on research and methodological and technological innovation. How well does the most recent training model align with today's reality? How suitable is it in facing the challenges posed by the contemporary context? And to what extent can artificial intelligence (AI) support education (for example, by rethinking tutorial roles)?

As mentioned in the introduction, the ongoing technological revolution in educational contexts goes beyond a purely instrumental function or achieving greater teaching efficiency; it has an immersive impact, whereby knowledge is continuously deconstructed and reconstructed through new media languages. The gradual rise of artificial intelligence (AI), robotics and learning machines poses significant challenges to contemporary teaching and further emphasises the crisis of traditional transmissive approaches. The use of AI in teaching and learning processes indeed entails a rethinking of the forms of interaction between bodies and virtual objects (e.g., smart wearable devices, avatars, non-player characters), challenging linear and transmissive models (Zhang et al. 2022). It alters the nature of educational interaction, which can be based on immersive, multimodal and multisensory experiences, and rapid access to learning resources, detached from the spatiotemporal barriers of the physical world (Ayiter, 2019; Prieto et al., 2022). This transformation also fosters increased student participation and interaction through roleplaying and/or dialogue exercises in simulated environments (Zhao et al., 2022), as well as adaptive and timely feedback and assessment methods (Díaz, 2020). This necessitates a revision of objectives, practices and learning environments, prioritising students' critical-constructive, elaborative, autonomous decision-making and knowledge restructuring capabilities. This connects to the emergence of new professionalism for teachers (Holmes et al., 2022; Kaplan & Haenlein, 2019), capable of operating in the relationships between individuals and digital devices through generative digital skills to create effective learning contexts. UNESCO (2023, p. 24) summarises the essential qualities of an effective teacher, with emphasis on the qualities needed for teaching remotely and in hybrid mode (Table 3):

**Table 3**

*Qualities of effective teachers before and after the pandemic* (UNESCO, 2023, p. 24)

| | |
|---|---|
| **Essential and specific knowledge and skills of the teaching profession** | • Pedagogical content-knowledge for all modalities of teaching<br>• Pedagogical skills that respond to all modalities of teaching<br>• Use of educational technology in the classroom and outside it, not only to support face-to-face teaching but sometimes to serve as the most important teaching modality<br>• Skills to identify appropriate technologies to use given content and learning objectives<br>• Curriculum planning and development for face-to face, remote, and hybrid teaching<br>• Content knowledge<br>• Assessment and evaluation in face-to-face, remote, and hybrid settings<br>• Individual learning differences and effective responses in all teaching settings<br>• Teaching practices (supporting the learning process, application of content)<br>• Classroom management, organization, and disciplinary techniques. Emphasis on different techniques of group work, cooperative learning, and organization of learning experiences when teaching in hybrid or remote modes. |
| **Foundational knowledge that informs teaching practices** | • Human development and developmentally appropriate teaching skills, with special attention to developmental differences in planning teaching and learning experiences in hybrid and remote formats.<br>• Socioemotional learning and culturally responsive teaching, paying particular attention to (a) helping students engage with others, (b) establishing social interactions, and (c) responding to emotional needs even when in remote or hybrid settings. |
| **Partnerships for effective support of all students** | • Establishing and maintaining effective home-school partnerships, both face-to-face and in remote format, to support learners. These partnerships are built on collaboration and deep empathy.<br>• Effective and respectful partnerships with families, communities, public institutions, and other entities to collaborate in the social responsibility of educating learners.<br>• Effective professional partnerships (teachers, principals, psychologists, social workers, health professionals, etc.). Special emphasis on developing networks of teachers and teams to support teaching whether face-to-face, remote, or hybrid. |
| **Personal characteristics of a professional educator** | • Professional ethics, with a strong emphasis on ethical behavior and empathy toward communities whether teaching face-to-face, remotely, or in hybrid format.<br>• Understanding of and respect for the diverse social contexts of students, their families, and their communities.<br>• Strong desire to continue learning as expressed in self-initiated professional development, especially to strengthen and practice remote and hybrid teaching skills, evaluation processes, and responses to the socioemotional needs of students. |

Digitally enhanced practices expand teaching, allowing for the harmonisation (blended) of face-to-face and online tools and methods. This approach integrates synchronous, asynchronous and self-paced study activities (Anderson, 2008) within active, collaborative and socio-constructivist learning contexts for students. Technologies for training, digitalisation and open educational resources entail a reorganisation of learning content and delivery methods. Open educational resources are available to a diverse and extended audience and provide concrete support to students and teachers. The literature highlights

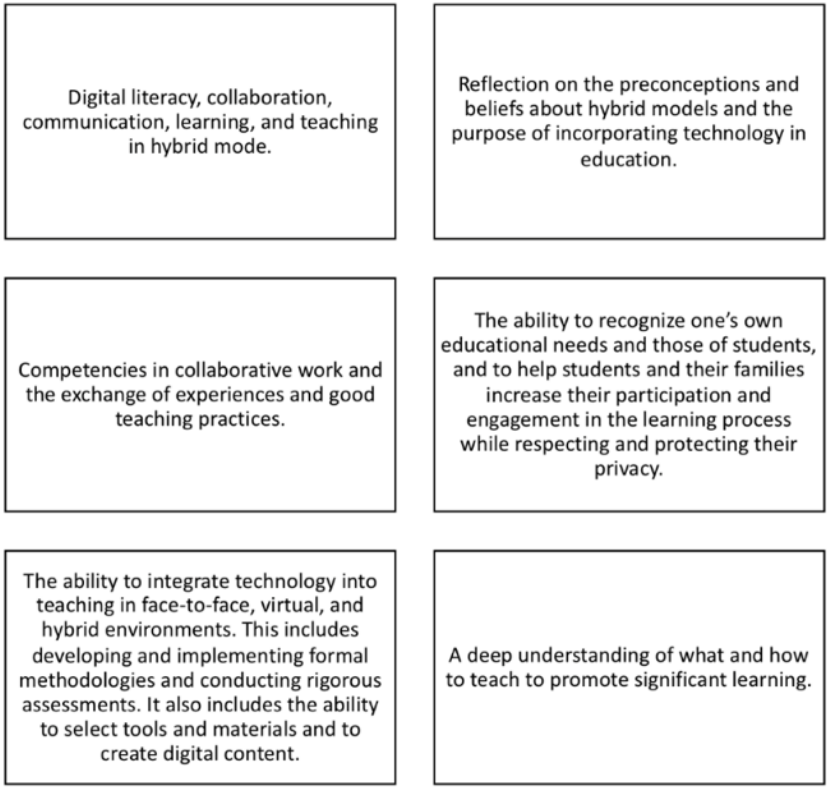
various reasons for adopting technological systems and environments in learning, as they enable the internationalisation of education and democratisation of knowledge (Olivier & Rambow, 2023). They also allow for more flexible and adaptable learning modes, combining formal, non-formal and informal learning contexts, while optimising human and economic resources (OECD, 2017).

It is therefore essential to establish and support communities of teachers who can reflect, develop and experiment with digitally enhanced innovative actions, evaluating their impact. Well-designed, managed and evaluated digitally enhanced teaching allows for the redefinition of space-time categories in teaching actions, mitigates dropouts, enhances the effectiveness of educational pathways, and fosters dialogue and open discussion at national and international levels.

DidaSco proposes a model for remote and hybrid teaching on the basis, inter alia, of what UNESCO has recently suggested for an effective programme of professional development (2023):

**Figure 4**

*The six components of effective professional development for remote and hybrid teaching* (UNESCO, 2023, p. 26)



Implementing a programme for initial and in-service teacher training based on innovation and digital hybridisation indeed requires specific methodologies for professional learning (Orland-Barak & Maskit, 2017). It is essential to establish research infrastructure and intra-university networks to effectively implement and monitor teacher training actions involving practitioners. Conducting co-research on a theory of teaching professionalism that incorporates pedagogy, didactics and disciplinary knowledge is crucial. Furthermore, conducting surveys on the role of teachers in managing hybridisation will provide valuable insights for the success of the teacher education programme.

## Author Contributions

Loredana Perla wrote the paragraphs: Organisational methodologies and digital transformation of the DidaSco Project; Conclusions.

Viviana Vinci wrote the paragraphs: Introduction; Conceptual and Theoretical framework; Discussion.

Laura Sara Agrati wrote the paragraphs: Purpose of the study; Results; The DidaSco teacher education programme.

All of the authors made contributions to the article and have reviewed and approved the submitted version.

## Disclosure statement

The authors have no conflict of interest to declare.

## References

Aguilera-Hermida, A. P. (2020). College students' use and acceptance of emergency online learning due to COVID-19. *International Journal of Educational Research Open*, *1*, Article 100011. https://doi.org/10.1016/j.ijedro.2020.100011

Altet, M., & Vinatier, I. (2008). *Analyser et comprendre la pratique enseignante* [*Analysing and understanding teaching practice*]. Presses Universitaires de Rennes.

Anderson, T. (2008). *The theory and practice of online learning*. Athabasca University Press.

Ayiter, E. (2019). Spatial poetics, place, non-place and storyworlds: Intimate spaces for metaverse avatars. *Technoetic Arts, 17*, 155–169. https://doi.org/10.1386/tear_00013_1

Barberà Gregori, E., & Badia Garganté, A. (2005). El uso educativo de las aulas virtuales emergentes en la educación superior [The educational use of emerging virtual classrooms in higher education]. *Revista de Universidady Sociedad del Conocimiento*, *2*(2).

Börzel, T. A. (2005). How the European Union interacts with its member states. In S. Bulmer, & C.

Lequesne (Eds.), *The member states of the European Union* (pp. 45–69). Oxford University Press.

Börzel, T. A., & Risse, T. (2003). Conceptualizing the domestic impact of Europe. In K. Featherstone, & C. M. Radaelli (Eds.), *The politics of Europeanization*. Oxford University Press.

Bretschneider, P. J., Cirilli, S., Jones, T., Lynch, S., & Wilson, N. A. (2017). *Document review as a qualitative research data collection method for teacher research*. SAGE.

Caena, F. (2014). *Initial teacher education in Europe: An overview of policy issues*. European Commission ET2020 Working Group on Schools Policy.

Caputo, M. (2023). Insegnare ad insegnare. Ricerca pedagogica e normative ministeriali in Italia fra storia e prospettiva. [Teaching to teach: Pedagogical research and ministerial regulations in Italy between history and perspective]. *Professionalità Studi*, *3*(5), 42–67.

Craig, C. J. (2019). Positioning others in self-facing inquiries: Ethical challenges in self-study of teaching and teacher education research. In R. Brandenburg, & S. McDonough (Eds.), *Ethics, self-study research methodology and teacher education* (pp. 29–43). Springer. https://doi.org/10.1007/978-981-32-9135-5_3

Damiano, E. (2013). *La mediazione didattica. Per una teoria dell'insegnamento*. [Didactic mediation: Towards a theory of teaching]. FrancoAngeli.

*Decree Law No. 59.* (2017). Riordino, adeguamento e semplificazione del sistema di formazione iniziale e di accesso nei ruoli di docente nella scuola secondaria per renderlo funzionale alla valorizzazione sociale e culturale della professione [Reorganization, adaptation, and simplification of the system of initial training and access to teaching roles in secondary school to make it functional to the social and cultural enhancement of the profession]. Gazzetta Ufficiale della Repubblica Italiana.

*Decree of the President of the Council of Ministers.* (2023). Definizione del percorso universitario e accademico di formazione iniziale dei docenti delle scuole secondarie di primo e secondo grado, ai fini del rispetto degli obiettivi del Piano nazionale di ripresa e resilienza [Definition of the university and academic path of initial training for teachers of secondary schools of first and second degree, for the purpose of respecting the objectives of the National Recovery and Resilience Plan]. Gazzetta Ufficiale della Repubblica Italiana.

Díaz, J. E. M. (2020). Virtual world as a complement to hybrid and mobile learning. *International Journal of Emerging Technologies in Learning (iJET), 15*(22), 267–274. https://doi.org/10.3991/ijet.v15i22.14393

Dipace, A., & Scarinci, A. (2021). Formazione metodologica, tecnologie didattiche ed esperienze nella promozione delle competenze di insegnamento e apprendimento. [Methodological training, educational technologies, and experiences in promoting teaching and learning skills]. *Excellence and Innovation in Learning and Teaching*, Special issue, 95–111.

Eisner, E. W. (2002). From episteme to phronesis to artistry in the study and improvement of teaching. *Teacher and Teaching Education*, *18*(4), 375–385.

Estermann, T., Bennetot Pruvot, E., Kupriyanova, V., & Stoyanova, H. (2020). *The impact of the Covid-19 crisis on university funding in Europe. Lessons learnt from the 2008 global financial crisis*. EUA.

European Commission. (2012). *Key data on teacher and school leaders in Europe*. EACEA.

European Commission. (2013). *Supporting teacher competence development for better learning outcomes*. Publications Office of the European Union.

European Commission/EACEA/Eurydice. (2021). *Insegnanti in Europa: Carriera, sviluppo professionale e benessere*. Rapporto Eurydice. [Teachers in Europe: Career, professional development, and well-being. Eurydice Report]. Publications Office of the European Union.

Featherstone, K., & Kazamias, G. (Eds.) (2001). *Europeanization and the southern periphery*. Routledge.

Fernández Río, J., López Aguado, M., Pérez Pueyo, Á., Hortigüela Alcalá, D., & Manso Ayuso, J. (2022). La brecha digital destapada por la pandemia del coronavirus: Una investigación sobre profesorado y familias. [The digital divide unveiled by the coronavirus pandemic: An investigation on teachers and families]. *Revista complutense de educación*, *33*(2), 351–360. https://dx.doi.org/10.5209/rced.74389

Fiorucci, M., & Zizioli, E. (2022). *La formazione degli insegnanti: problemi, prospettive e proposte per una scuola di qualità e aperta a tutti e tutte.* [Teacher training: Issues, perspectives, and proposals for a quality school open to all]. PensaMultimedia.

Ghomi, M., & Redecker, C. (2019). Digital competence of educators (DigCompEdu): Development and evaluation of a self-assessment instrument for teachers' digital competence. In H. C. Lane, S. Zvacek, & J. Uhomoibhi (Eds.), *Proceedings of the 11th International Conference on Computer Supported Education* (CSEDU 2019) (pp. 541–548). Springer Nature.

Graziano, P., & Vink, M. P. (2008). *Europeanization: New research agendas*. Palgrave McMillan.

Hammond, K. R. (2010). Intuition, no! ... Quasirationality, yes! *Psychological Inquiry*, *21*, 327–337.

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *EDUCAUSE Rev*, *27*.

Holmes, W., Persson, J., Chounta, I. A., Wasson, B., & Dimitrova, V. (2022). *Artificial intelligence and education: A critical view through the lens of human rights, democracy and the rule of law*. Council of Europe.

Huang, R., Tlili, H., Chang, T., Zhang, X., Nascimbeni, N., & Burgos, D. (2020). Disrupted classes, undisrupted learning during COVID-19 outbreak in China: Application of open educational practices and resources. *Smart Learning Environment*, *7*, 19.

Hudson, B. (Ed.). (2017). *Overcoming fragmentation in teacher education policy and practice*. Cambridge University Press.

Kaplan, A., & Haenlein, M. (2019). Siri, Siri in my hand, who's the fairest in the land? On the Interpretations, illustrations and implications of artificial intelligence. *Business Horizons*, *62*(1), 15–25. https://doi.org/10.1016/j.bushor.2018.08.004

Kelchtermans, G. (2017). 'Should I stay or should I go?': Unpacking teacher attrition/retention as an educational issue. *Teachers and Teaching*, *23*(8), 961–977.

Kilborn, R. (2010). *Taking the long view. A study of longitudinal documentary*. Manchester University Press.

Laneve, C. (2005). *Analisi della pratica educativa. Metodologie e risultanze della ricerca*. [Analysis of educational practice: Methodologies and research findings]. La Scuola.

*Law No. 145*. (2018). Bilancio di previsione dello Stato per l'anno finanziario 2019 [State budget forecast for the 2019 financial year]. Gazzetta Ufficiale della Repubblica Italiana.

*Law No. 79*. (2022). Conversione in legge, con modificazioni, del decreto-legge 30 aprile 2022, n. 36, recante ulteriori misure urgenti per l'attuazione del Piano nazionale di ripresa e resilienza (PNRR) [Conversion into law, with amendments, of the decree-law of 30 April 2022, no. 36, containing further urgent measures for the implementation of the National Recovery and Resilience Plan (PNRR)]. Gazzetta Ufficiale della Repubblica Italiana.

Loughran, J. J., Hamilton, M. L., Laboskey, V. K., & Russell, T. (2007). *International handbook of self-study of teaching and teacher education practices.* Springer.

Maubant, P., & Martineau, S. (2013). *Fondements des pratiques professionelles des enseignants*. [Foundations of teachers' professional practices]. Les Presses de l'Université d'Ottawa.

Miller, V. (2015). Resonance as a social phenomenon. *Sociological Research Online*, *20*(2), 1–9.

*Ministerial Decree No. 249.* (2010). Definizione della disciplina dei requisiti e delle modalità della formazione iniziale degli insegnanti della scuola dell'infanzia, della scuola primaria e della scuola secondaria di primo e secondo grado [Definition of the discipline of requirements and methods for the initial training of teachers in kindergarten, primary school, and secondary school of first and second degree]. Gazzetta Ufficiale della Repubblica Italiana.

*Ministerial Decree No. 81.* (2013). Regolamento recante modifiche al decreto [Regulation amending the decree]. Gazzetta Ufficiale della Repubblica Italiana.

Moumoutzis, K. (2011). Still fashionable yet useless? Addressing Problems with research on the Europeanization of foreign policy. *JCMS: Journal of Common Market Studies*, *49*(3), 607–629.

OECD. (2005). *Teachers matter: Attracting, developing and retaining effective teachers*. OECD.

OECD. (2017). *Development co-operation report.* OECD. https://www.oecd-ilibrary.org/development/development-co-operation-report-2017_dcr-2017-en

Olivier, J., & Rambow, A. (2023). Contextualising open educational resources in higher education. *Open Educational Resources in Higher Education: A Global Perspective* (pp. 1–13). Springer Nature.

Orland-Barak, L., & Maskit, D. (2017). *Methodologies of mediation in professional learning*. Springer.

Paino, R. (2012). Processo di europeizzazione. Analisi delle politiche pubbliche in materia di alta formazione e governance. [The Europeanisation process: Analysis of public policies in higher education and governance]. *Quaderni di intercultura*, *IV*. https://doi.org/10.3271/N39

Pastré, P. (2011). *La didactique professionnelle: approche antropologique du développement chez les adultes*. [Professional didactics: An anthropological approach to the development in adults]. PUF.

Perla, L., Scarinci, A., & Amati, I. (2021). Metamorphosis of space into digital scholarship. A research on hybrid mediation in a university context. In L. Agrati, D. Burgos, P. Ducange, P. Limone, R. Pecori, L. Perla, P. Picerno, P. Raviolo, & C. M. Stracke (Eds.), *HELMeTO 2020. Bridges and mediation in higher distance education. Second International Workshop*, *CCIS*, 1092 (pp. 226–239). Springer.

Perla, L., Vinci, V., & Agrati, L. (2017). The DidaSco Project: A training program for the teachers'

professional development. In J. Mena, A. García Valcarcel Muñoz Repiso, F. J. García Peñalvo, & M. Martín del Pozo (Eds.), *Search and research: Teacher education for contemporary contexts* (pp. 921–930). Ediciones Universidad de Salamanca.

Prieto, J. F., Lacasa, P., & Martínez-Borda, R. (2022). Approaching metaverses: Mixed reality interfaces in youth media platforms. *New Techno-Humanities, 2*, 136–145. https://doi.org/10.1016/j.techum.2022.04.004

Radaelli, C. M. (2002). The domestic impact of European union public policy: Notes on concepts, methods, and the challenge of empirical research. *Politique européenne, 1*(5), 105–136.

Radaelli, C. M. (2008). Europeanization, policy learning, and new modes of governance. *Journal of Comparative Policy Analysis: Research and Practice*, *10*(3), 239–254.

Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2021). Balancing technology, pedagogy and the new normal: Post-pandemic challenges for higher education. *Postdigital Science and Education*, *3*(3), 715–742.

Røe, Y., Wojniusz, S., & Bjerke, A. H. (2022). The digital transformation of higher education teaching: Four pedagogical prescriptions to move active learning pedagogy forward. *Front. Educ.*, *6*, Article 784701. https://doi.org/10.3389/feduc.2021.784701

Schratz, M. (2014). The European teacher: Transnational perspectives in teacher education policy and practice. *Center for Educational Policy Studies Journal*, *4*(4), 11–27.

Stéger, C. (2014). Review and analysis of the EU teacher-related policies and activities. *European Journal of Education*, *49*(3), 332–347.

Symeonidis, V. (2018). *Europeanisation in teacher education. Comparative case studies of teacher education policies and practices in Austria, Greece and Hungary*. [Doctoral dissertation, University of Innsbruck and Eötvös Loránd University]. EDiTE.

Symeonidis, V. (2021). *Europeanisation in teacher education: A comparative case study of teacher education policies and practice*. Routledge.

Tømte, C. E., Fossland, T., Aamodt, P. O., & Degn, L. (2019). Digitalisation in higher education: Mapping institutional approaches for teaching and learning, *Quality in Higher Education*, *25*(1), 98–114.

UNESCO. (2023). *Preparing teachers to deliver hybrid education. A framework for Latin America and the Caribbean*. UNESCO and IDB.

Viac, C., & Fraser, P. (2020). Teachers' well-being: A framework for data collection and analysis. OECD. https://doi.org/10.1787/c36fc9d3-en

Vidović, V. V., & Domović, V. (2013). Teachers in Europe - Main trends, issues and challenges. *Croatian Journal of Education*, *15*(3), 219–250.

Williamson, B., Eynon, R., & Potter, J. (2020). Pandemic politics, pedagogies and practices: Digital technologies and distance education during the coronavirus emergency, *Learning, Media and Technology*, *45*(2), 107–114.

Zgaga, P. (2013). The future of European teacher education in the heavy seas of higher education. *Teacher Development*, *17*(3), 347–361.

Zhang, X., Chen, Y., Hu, L., & Wang, Y. (2022). The metaverse in education: Definition, framework, features, potential applications, challenges, and future research topics. *Front. Psychol., 13*, Article 1016300. https://doi.org/10.3389/fpsyg.2022.1016300

Zhao, Y., Jiang, J., Chen, Y., Liu, R., Yang, Y., Xue, X., & Chen, S. (2022). Metaverse: Perspectives from graphics, interactions and visualization. *Visual Informatics, 6*(1), 56–67. https://doi.org/10.1016/j.visinf.2022.03.002

## Biographical note

**Loredana Perla**, PhD, is a full professor in the field of didactics and Director of the Department of Education Sciences, Psychology, Communication at the University of Bari, Italy. She is the Italian representative of ISATT and the Reseau Ideki. She is responsible for Citel (Telemedicine Center), the research unit "E-learning and health promotion". She won the Italian Pedagogy Prize in 2015. She coordinates the DidaSco continuous professional development programme and the ANVUR national working group "Recognition and valorization of the teaching skills of university professors". Her research interests span several key areas in education. She focuses on teacher professionalism and curriculum development, exploring ways to enhance teaching effectiveness. Additionally, she investigates the integration of AI and technology in education, particularly in optimizing learning experiences. She is also involved in higher education and faculty development, aiming to empower educators with innovative teaching strategies. Furthermore, she contributes to Ph.D. programs to advance future scholars. Beyond education, she explores e-health initiatives, social robotics, and telemedicine, seeking to leverage technology for improved healthcare and educational outcomes.

**Viviana Vinci**, PhD, is a full professor in the field of Experimental Pedagogy at the University of Foggia. She won the "Aldo Visalberghi" Prize in 2021 and the 1st edition of the Italian Pedagogy Prize in 2013. Her primary research interests include: the study of assessment within educational institutions, both in schools and universities, from a systemic perspective that emphasizes the close connection between evaluative competencies, documentation, and participatory models of training-research; the study of teaching-learning processes in terms of educational mediation, curriculum processes, and the digitalization/hybridization of learning environments, at both school and university levels; teacher training and professional development, focusing on models, methods, and expected competencies.

**Laura Sara Agrati**, PhD, is a full professor in the field of Experimental Pedagogy at the Pegaso Telematic University. She won the Italian Pedagogy Prize in 2016. Coordinator of the National Interest Ph.D. program "Equity, Diversity, and Inclusion". Her research interests encompass the effectiveness of educational interventions across various learning environments (including face-to-face, online, and hybrid modalities), the professional development of teachers at different stages (including initial training, in-service, and professional development), as well as the roles of mentors and tutors. She also investigates the internal relational dynamics within specific educational settings, such as laboratories, internships, and e-tivities. Furthermore, her research focuses on the study of teaching-learning processes and their impact on mediating learning content.

Received: 31 July 2023, Accepted: 21 March 2024,
Published on-line as Recently Accepted Paper: April 2024 DOI: https://doi.org/10.26529/cepsj.1715

# Beyond Learning by Videoconference: Findings From a Capacity-Building Study of Kosovan Teachers in the Post-Covid-19 Era

Antigona Uka*[1], Marigona Morina[2] and Eugene G. Kowch[3]

During the Covid-19 pandemic, teachers were exposed to technology-enhanced learning as an emergency measure, yet despite decades of advancement in educational technology, the online learning experiences lacked deliberate design. Recent research highlights a gap concerning the design elements of online professional development and teachers' needs for professional development in online education. Through this Design-Based Research, we therefore sought to offer an intervention in the form of a professional development programme built on the specific needs of teachers. In the present study, we report on the findings from this two-cycle, five-phase online professional development, taken by 90 practising high school teachers across Kosova. The study sheds light on teachers' experiences and attitudes, as well as their readiness to take hands-on approaches to integrate, when available, complex technologies while leveraging the power of instructional design concepts in the post-Covid-19 era. The evidence indicates that, in order to develop effective teaching capacity in this environment, online professional development programmes must go beyond simple off-the-shelf technology (i.e., videoconferencing) applications. Similarly, our data shows that the inclusion of prior needs assessment in online and blended teacher development instruction positively impacts the development of teachers' attitudes towards online education. The present paper provides specific recommendations for any innovative education system leader, teacher or scholar hoping to leverage new online learning knowledge to strengthen teacher practice.

**Keywords:** online education, professional development programmes, teachers' needs, instructional design, innovation

1 *Corresponding Author. Founder and Executive Director at Kosova Center for Digital Education (KCDE), Prishtina, Kosova, and PhD student at the Central European University, Vienna, Austria; antigona.uka@kcde-ks.org.
2 PhD candidate at the Werklund School of Education, University of Calgary, Alberta, Canada.
3 Associate Professor at the Werklund School of Education, University of Calgary, Alberta, Canada.

# Iti dlje od učenja prek videokonference: ugotovitve študije o krepitvi zmožnosti kosovskih učiteljev v obdobju po epidemiji covida-19

Antigona Uka, Marigona Morina in Eugene G. Kowch

Med pandemijo covida-19 so bili učitelji izpostavljeni s tehnologijo podkrepljenemu učenju, kar je bila posledica ukrepov v izrednih razmerah, vendar kljub desetletjem napredka na področju izobraževalne tehnologije spletne učne izkušnje niso bile premišljeno načrtovane. Najnovejše raziskave opozarjajo na vrzel med elementi načrtovanja spletnega strokovnega izpopolnjevanja in potrebami učiteljev po strokovnem izpopolnjevanju v spletnem izobraževanju. S to raziskavo, ki temelji na načrtovanju, smo zato skušali ponuditi intervencijo v obliki programa strokovnega izpopolnjevanja, ki bi temeljil na specifičnih potrebah učiteljev. V tej študiji poročamo o ugotovitvah tega dvostopenjskega petfaznega spletnega strokovnega izpopolnjevanja, ki se ga je udeležilo 90 aktivnih srednješolskih učiteljev na Kosovu. Študija osvetljuje izkušnje in stališča učiteljev ter njihovo pripravljenost na praktične pristope za vključevanje kompleksnih tehnologij, kadar so na voljo, ob hkratnem izkoriščanju moči konceptov načrtovanja pouka v obdobju po epidemiji covida-19. Dokazi kažejo, da morajo programi spletnega strokovnega izpopolnjevanja za razvijanje učinkovitih učnih zmožnosti v tem okolju presegati preproste, že pripravljene tehnološke (npr. videokonferenčne) aplikacije. Podobno naši podatki kažejo, da vključitev predhodne ocene potreb v spletno in kombinirano izobraževanje učiteljev pozitivno vpliva na razvoj odnosa učiteljev do spletnega izobraževanja. Ta članek vsebuje konkretna priporočila za vse inovativne vodje izobraževalnih sistemov, učitelje ali znanstvenike, ki upajo, da bodo lahko uporabili novo znanje o spletnem izobraževanju za krepitev učiteljske prakse.

**Ključne besede:** spletno izobraževanje, programi strokovnega izpopolnjevanja, potrebe učiteljev, načrtovanje pouka, inovacija

## Introduction

With the recognition of the importance of technology-mediated learning in schools, instructional design has gained considerable attention (West, 2023). The Covid-19 pandemic brought about radical shifts in education, for which nearly all educational workers, especially frontline K-12 teachers, were ill-prepared (Carrillo & Flores, 2020; Kaden, 2020; Kuhfeld et al., 2022; Scull et al., 2020), thus further emphasising the need for teacher professional development (PD) in online learning practices (Hodges et al., 2021). The aim of teacher professional development programmes is to improve teacher practice and beliefs (Guskey, 2002); however, it is widely acknowledged that changing teacher beliefs and attitudes is challenging. Along with gaining new skills, teachers need to 'unlearn' virtually unconscious ideas, presumptions and ideals about the nature of teaching, learning and schooling in order to implement transformative shifts in education (Dede, 2014, p. 21).

Many online course design teams adopt traditional frameworks, such as Moore's Interaction Framework (Bernard et al., 2009; Karataş et al., 2017) as well as the Universal Design for Learning Framework (Rao et al., 2015), in attempts to create purposeful and well-designed online learning experiences together with effective PD. While many teachers had embraced traditional frameworks before the arrival of Covid-19, during the pandemic, most teachers failed to shape intentional online learning experiences from systematic support for PD due to the emergency. The rapid response to the pandemic resulted in emergency remote teaching, which can diminish the quality of course design and delivery compared to an intentional, well-designed online course. The latter can take months to prepare when done properly, whereas in emergency situations, the need to 'just get it online' contradicts some of the more advanced methods used to design online learning normally dedicated to developing quality programmes (Hodges et al., 2021).

Martin et al. (2019) identified the fact that consistent course organisation is also crucial for a well-designed online learning experience. They found that highly effective programmes were designed by systematically aligning learning outcomes with course content and organising the material into modules or weekly segments. In addition, this approach to programme design considers learners' needs, creates opportunities for online interaction, integrates a variety of assessments, and uses systemic grading of activities and assignments. For an online course to be effective, Martin and Bolliger (2018) identified four types of critical support: design personnel, administrative support, pedagogical support and technical support. While online instructors look for various engagement

strategies to implement in their online courses, instructional designers assist in designing and developing online courses from inception to assessment (Reigeluth, 1999). Many system administrators first and foremost search for ways to increase engagement in online courses institution-wide, while many contemporary online course instructors are only content domain experts without a deep knowledge of online teaching theories and instructional design principles (Merrill, 2002). On the other hand, educational experts in course development teams can lack domain-specific knowledge, so they depend on subject matter experts in design work. This gap between content expertise and course design expertise prevents the effective application of teaching methods in online courses. Hence, identifying a grounded instructional framework that facilitates collaboration between domain experts and educational technology experts is crucial for building successful online courses. The success of online courses is also factored in by perceived usefulness, expectancy and engagement on the part of participants (Eickelmann & Vennemann, 2017), factors that also describe and shape attitudes towards online courses.

To date, many frameworks have been developed to support the design of online learning. For example, Czerkawski and Lyman (2016) offer a design framework for e-learning engagement with four essential components: learning needs, learning objectives, learning environments and summative assessment. Conole (2014) offers the 7Cs of the Learning Design Framework, developed in collaboration with the Open University and the University of Leicester, to meet the needs of modern learners with access to a wide range of media and digital learning tools. Gao and Ji (2019) have created an online course design framework based on Merrill's fundamentals, or the First Principles of Instruction (Merrill, 2002). These models and frameworks offer possible solutions for designing effective online learning experiences beyond emergency application contexts like the pandemic.

Both globally and specifically in Kosova, several digital pedagogy professional training programmes appeared in 2020, witnessing high participation in the first months due to the urgent demand for professional development (PD) and the demand for teaching staff to offer distance and online courses in the summer and autumn of that year (Fuch & Phillips, 2022). The development of digital competencies for educators, school staff and students, as well as the establishment of institutional mechanisms to coordinate the digital transition and the use of technology in education, is among the main areas prioritised in the Kosovo Strategic Plan (KESP) 2022–2026. According to the Framework for Teacher Professional Development (MESTI, 2017), teachers need to incorporate technology into their lessons to enhance both instruction and learning. Although the percentage

of schools with teachers who possess the necessary technical and pedagogical skills to integrate digital devices in instruction increased from 2018 to 2022, it is still lower than in OECD countries (OECD, 2018, 2022). Unfortunately, there is limited academic literature on the digital skills of Kosovan teachers and the available information is restricted to grey literature.

In terms of motivating teachers to engage in online education, a major challenge in the field of digital-based education is overemphasising the role of technology in learning without complementary, nuanced design thinking to consider the integration of pedagogy and teaching strategy foundations that leverage technology with instructional design. We know that new learning technologies provide new teaching and learning opportunities that can anchor new approaches to teaching and learning, and that technological innovation can precede pedagogical creativity (West, 2023); however, Kowch (2021) argues that simply adopting technology is not enough for actual teaching and learning process transformation. What is required is a combination of experimental, evidence-informed and risk-taking efforts by teams working in adaptive organisations with design thinking. The latter highlights the importance of understanding education ecosystems as complex and interconnected systems where learning environments are carefully designed for online learners and teachers alike.

## Aim of the Research

During the Covid-19 pandemic, many European teachers were introduced to and even mandated to use technology-enhanced learning as an emergency measure. This came with various implementation challenges. In Slovenia, for example, teachers lacked clear guidelines for distance learning (Urankar & Jamšek, 2022), while in Kosova, teachers identified a lack of opportunities for online professional development (OPD) as one of the main challenges for implementing effective (or quality) online teaching and instruction (Morina et al., 2021). In response to this issue, researchers from the Kosova Center for Digital Education (KCDE) developed an OPD programme for high school teachers by focusing on the teachers' needs as part of the design process. The purpose of the present study is to understand the importance of needs assessment in the design of teacher OPD programmes and to investigate teachers' experiences and attitudes with this PD as well as their readiness to take hands-on approaches to integrate, when available, complex technologies.

### Research Questions

- How do teachers' needs inform the design and content of OPD programmes and determine the training goals?
- How do teachers' experiences with an OPD programme (i.e., Teaching Online at the Right Level) shape their attitudes and readiness to leverage the power of instructional design for their students in the post-Covid-19 period?

## Method

Design-Based Research (DBR) seeks to develop solutions to practical problems through intervention (Herrington et al., 2007; McKenney & Reeves, 2018). In the present study, researchers applied a DBR approach, seeking to improve Kosovan teachers' experiences with online teaching through adequate professional development. Bannann (2003) found that problem identification and definition are common for most research approaches but are particularly important in DBR. Furthermore, in DBR, an intervention is applied in a naturalistic setting with multiple iterations and continuous outcomes analysis (Forman & McPhail, 1993). Herrington et al. (2007) argue that a single implementation is insufficient to determine the success of the intervention, suggesting two or even more cycles; after the first cycle, changes should be made to the intervention to address the problem better. Anderson and Shattuck (2012) affirm that "[DBR] interventions are rarely if ever designed and implemented perfectly; thus, there is always room for improvements in the design and subsequent evaluation" (p. 17). Similarly, Crossman (2014) states that, with multiple iterations, the DBR study is recurrent and long term.

Intervention remains at the core of DBR, and in our study, we sought to design, develop and implement a PD programme on online teaching for Kosovan teachers. We adapted Ge and Huang's (2019) framework for online course design based on the first principles of instruction. This framework recognises that online course instructors are often subject matter experts with deep knowledge and skills in their respective fields; however, they may have a limited understanding of teaching methods and theories. Conversely, educational teams working towards online course development often include pedagogical or educational technology experts who may lack domain-specific knowledge. This gap in design and content knowledge hinders the effective application of valuable teaching methods and theories in online courses. Ge and Huang's (2019) framework therefore facilitates collaboration between domain experts

and educational technology specialists, divided into four stages: the teaching planning stage, the teaching design stage, the course implementation stage and the course improvement stage (p. 33). In addition, our adapted framework also includes a testing phase, where the team sought to improve the programme before implementing it with a larger group of participants.

### Participants

The present study included public high school teachers employed in urban and rural areas of Kosova who participated in a five-week OPD held in 2022. A total of 603 high school teachers applied to attend the OPD, 92 (or 15.25%) of whom were selected to participate in the training. Purposeful sampling was employed to investigate the experiences of the teachers recruited to attend the OPD. The study included 61 public high school teachers who attended the OPD and agreed to participate in the study. Of the 61 participating teachers, 31 were part of the first cycle and 30 were part of the second cycle. Table 1 provides a more detailed overview of the participants' demographics for the Training Programme 1 (TP1) and Training Programme 2 (TP2) cycles.

**Table 1**

*Participant demographics throughout the Design-Based Research process: The present study*

| | Cycle 1 participants (TP1) | | | Cycle 2 participants (TP2) | | |
|---|---|---|---|---|---|---|
| | *n* | % | Mean | *n* | % | Mean |
| Gender | 31 | 100 | | 30 | 100 | |
| Female | 23 | 75 | | 22 | 73 | |
| Male | 8 | 25 | | 7 | 27 | |
| Age | | | 40 | | | 41 |
| Total years of experience | | | 8 | | | 8 |
| Online teaching experience | | | 2 | | | 2 |
| Subjects | | | | | | |
| Social Sciences & Humanities | 12 | 39 | | 15 | 49 | |
| Hard Sciences & ICT | 14 | 45 | | 11 | 38 | |
| Vocational Education | 5 | 16 | | 4 | 13 | |

### Instruments

Three main instruments were used to collect the data throughout the study: (1) a teacher needs assessment survey, (2) a feedback survey for TP1, and (3) an end-of-PD semi-structured focus group for TP2.

Our initial instrument, the needs assessment survey, helped set the foundation of the programme design, as it was mainly utilised to determine programme objectives. The needs assessment survey consisted of four key sections to the online survey: teachers' experiences with e-learning, use of available platforms, online teaching methods and techniques, and needs for professional development. The needs assessment was designed using a questionnaire, including different question types, such as dichotomous, open-ended, multiple choice and rating scale questions.

The second instrument developed by the team was a feedback survey with different question types, which participants were invited to complete anonymously by the end of TP1. The participants' opinions on the timeliness, overall quality and satisfaction, mode of instruction, learning management system, and utility/effectiveness of each online module and item of course material were solicited.

The last instrument, an end-of-PD focus group semi-structured interview, included open-ended questions to provide thicker descriptions of any shifts in teachers' experiences and attitudes after the OPD experience. These questions were adapted from the capstone project of a teachers' development programme offered by the Taylor Institute for Teaching and Learning (2022). The focus group events, which lasted for about an hour, were facilitated by the programme director and the instructional designer in online settings. Focus group interviews were audio-recorded, transcribed in the original language (Albanian), translated into English and coded thematically for data analysis using NVIVO.

## Research design

Through the programme Teaching Online at the Right Level, we sought to address Kosovan teachers' needs for PD in digital teaching and learning, as well as to improve their experiences and attitudes towards the topic. We adapted Ge and Huang's (2019) framework for PD design based on the first principles of instruction. Four people were directly involved in the programme development process: the director of programme development, two instructional designers and the LMS technical administrator. Once the programme had been developed, the team opened a call for applications. Our study participation call invited public high school teachers to apply for an OPD experience by expressing their motivation to join the programme, their alignment with the KCDE's vision for e-learning, and their technical and leadership capacities. A total of 603 high school teachers applied to attend the training. The distribution of PD hours can be seen in Table 2, which provides a detailed overview of the programme content and format.

**Table 2**

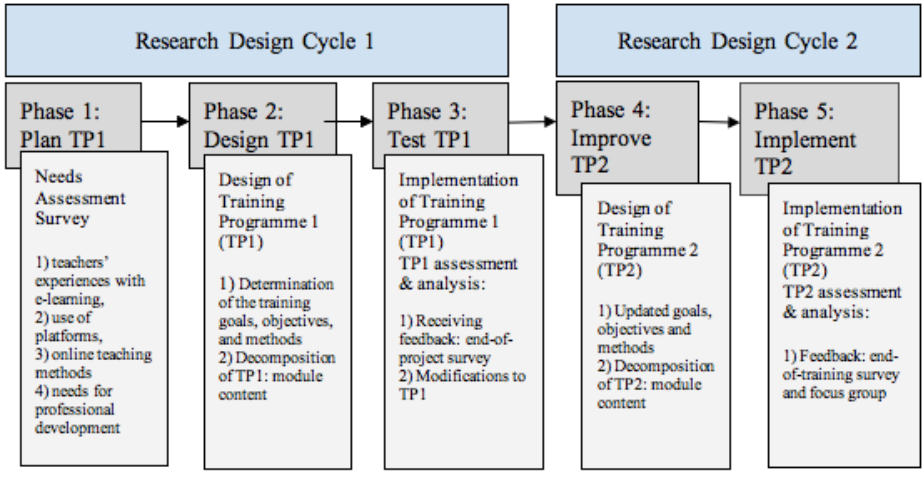
*TP2 Programme content, session types, and distribution of hours by modules and sessions*

| Module | Session | Event Mode | Hours |
|---|---|---|---|
| Module 1: Introduction to Online Teaching | Online Learning Platforms | Synchronous | 2 |
| | Theory and Concepts of Online Teaching | Asynchronous | 1.5 |
| | Creating the Course Shell | Synchronous | 2 |
| Module 2: Online Teaching Methods | Online Teaching Methods | Asynchronous | 1.5 |
| | Synchronous and Asynchronous Teaching | Synchronous | 2 |
| | Drafting an Online Lesson Plan | Asynchronous | 1.5 |
| Module 3: Audio-Visual Materials | Visual Materials in Online Learning | Asynchronous | 1.5 |
| | Interactive Materials for Synchronous Sessions | Synchronous | 2 |
| | Interactive Materials for Asynchronous Sessions | Synchronous | 2 |
| Module 4: Online Assessment | Introduction to Online Student Assessment | Asynchronous | 1.5 |
| | Online Assessment Tools | Synchronous | 2 |
| | Online Assessment Rubrics | Asynchronous | 1.5 |
| Module 5: Learning Management System | Integration of Other Platforms in Moodle | Synchronous | 2 |
| | Designing a Complete Instructional Unit | Asynchronous | 1.5 |
| | Presentation of a Virtual Instructional Unit | Synchronous | 2 |

Our adaptation of Ge and Huang's (2019) framework, that is, the two-cycle and five-phase PD Teaching Online at the Right Level, is shown in Figure 1.

**Figure 1**

*Design-Based Research Process: The Present Study*



The first and second cycles of our study consisted of five phases: planning, designing, testing, improving and implementing.

Phase one of the process, planning, aimed to understand the experiences of Kosovan teachers with online teaching, as well as their needs for PD. A needs assessment survey was distributed to teachers through partner organisations, KCDE email distribution lists and social media. A total of 235 teachers completed the survey, the majority of whom (96.6%) had engaged in some form of online teaching throughout the pandemic.

Phase two, programme design, was built from data gathered in the first phase, aiming to address the identified PD needs and provide teachers with the necessary skills and knowledge for effective online teaching. This included defining the learning modules and their content, resources and activities. To ensure the effectiveness of the OPD, the team tested it with a cohort of teacher participants in Phase 3.

Phase three, testing, included the implementation of TP1 with the first cohort of teachers. This cohort underwent the entire programme and their progress was closely monitored to identify areas for improvement and to assess the programme's overall impact on teachers' acquired skills. For a complete picture of the programme's impact, the teacher participants were required to complete a feedback survey for TP1 and provide their evaluation of the programme.

Phase four, improving, sought to improve the designed programme. This phase was dependent on the data that emerged from phase three. After analysing the teacher survey responses, phase four also involved refining and enhancing the PD design, addressing any shortcomings or concerns raised by the teachers, and incorporating the suggestions and recommendations to make it more effective.

Phase five, implementing, consisted of the refined programme (TP2), which was offered to more cohorts and was therefore implemented with additional groups of teacher participants. However, phase five was also monitored for learner outcome evaluation, which included an end-of-PD focus group with the teacher participants. Out of the 30 participants in TP2, 7 attended the focus group interviews. The purpose of the focus group was to gain a deeper understanding of the programme's impact on teachers' attitudes and perceptions regarding online education, as well as to assess the overall effectiveness of our programme development.

The data derived from the instruments of the study were both quantitative and qualitative. Quantitative data was derived mainly from the teacher needs assessment surveys and the feedback surveys for TP1, while qualitative data was derived from the end-of-PD semi-structured focus group for TP2. All of the closed-ended survey responses were analysed descriptively, focusing on percentages, mean values and frequencies. Focus group responses, on the other hand,

were analysed using an inductive approach to qualitative analysis proposed by Braun and Clarke (2008). More specifically, all of the responses were transcribed, read through reflectively, noting any immediate insights related to the topic, and then coded using an open-coding technique. The last stage of the qualitative analysis involved grouping the most salient codes into themes related to the second research question. The themes encompassed two main aspects: teachers' OPD experiences and their attitudes towards them. The validity of these findings was determined by the elements described by Lincoln and Guba (1985): a) credibility, b) transferability, c) dependability, and d) confirmability throughout the study implementation. Thus, we used prolonged engagement in the field, cross-member checking and data triangulation for credibility. As qualitative data in this study overruled quantitative data, we sought transferability rather than generalisability. The findings are discussed in detail in the Results and Discussion sections.

## Results

In order to provide a comprehensive understanding of the results, this section has been divided into subheadings corresponding to the key objectives of the research. Firstly, we present the baseline data on teachers' needs and how they informed the OPD design, including the objectives, content and format. Subsequently, we discuss the teachers' experiences with the OPD, further examining how these experiences shape attitudes and readiness to leverage the power of instructional design.

### Teachers' Needs as a Means of OPD Programme Design

The OPD programme Teaching Online at the Right Level was developed by the KCDE team to enhance teachers' capacity to use educational technology during regular or supplementary teaching processes. The initial phase of the project involved designing, distributing and analysing the results of teachers' needs assessments. However, the participating teachers were also assessed continuously through the programme evaluation survey offered to participants at the end of each training cycle.

#### *OPD Objectives*

The needs assessment survey responses informed the determination of training goals, objectives and the fundamental design of our OPD. For instance, among the topics that survey participants selected as 'most important' for them to be more effective in online teaching were: online teaching methods (57.4%)

and platforms for online classes and digital content (29.8%). In one matrix question, teachers were asked about various needs for PD in online education, and their responses revealed additional vital areas, such as digital content development. Specifically, the respondents claimed that the digital content development area is highly important (22.97%), important (20.85%) and somewhat important (27.65%). From these results, five main training objectives were identified based on the needs assessment:

(a) to establish a foundational knowledge of online education,
(b) to build skills in utilising e-learning tools for creating engaging and interactive digital content through appropriate online teaching and learning methods,
(c) to generate audio-visual content and activities that contribute to building an online presence,
(d) to create different forms for online student assessment, and
(e) to apply the acquired skills to design and facilitate an engaging experience in a learning management system (LMS).

***OPD Content***

The team used these objectives to design and develop the foundation of the programme content or learning goals by identifying five main modules and developing suitable content. Specifically, the five modules of our OPD were: *Introduction to Online Learning*, *Online Teaching Methods*, *Creating Audio-Visual Methods*, *Online Assessment*, *and Using Moodle as an LMS*. While we decided to include three sessions per module, the content of the online training sessions was not fully pre-planned, thus enabling the trainers to cater to the specific needs of the selected participants. More specifically, the KCDE programme development team separated the modules into three named sessions, but the TP1 trainers had the autonomy to decide which activities to do with the selected participants based on their level and needs.

Although the modules were created based on the initial needs assessment, at the end of TP1, through the feedback survey, we asked teachers about the relevance of the modules. The feedback survey results indicated that all of the predesigned modules were highly relevant to teachers' needs, thus ensuring content validity. Specifically, Modules 1, 2 and 3 were considered highly relevant by 92% of the TP1 teacher participants; similarly, Modules 4 and 5 were considered highly relevant by 96% of the TP1 respondents. Feedback surveys for TP1 also helped create detailed sessions for TP2; for example, sessions such as creating the course shells, online assessment tools and online assessment rubrics were highlighted by the majority (76%) of the teacher respondents.

***OPD Format***

The needs assessment and feedback surveys for TP1 also helped determine other elements of the PD programme, such as the mode of delivery (i.e., online vs. in person, as well as synchronous vs. asynchronous) and the number and length of sessions (i.e., three sessions per module and 1.5 two-hour sessions), especially for TP2. For instance, 96.6% (227 out of 235) of the needs assessment respondents claimed that they had tried teaching an online class before, whereas only 3.4% (8 out of 235) reported having yet to experience online teaching. However, when asked about how prepared they feel to deliver online classes, while most of the respondents (44.4%) felt prepared, only 15.8% felt very prepared; the rest felt somewhat prepared (33.8%), a little prepared (5.1%) and not at all prepared (0.9%). Thus, although most of the teachers had experienced online teaching themselves, a significant number still did not feel fully confident in delivering online classes. The KCDE programme development team therefore decided to offer the PD programme online to enable teachers to experience the online format of training from a learners' perspective.

Although the teachers needed some instructions throughout the OPD, which could be ensured through synchronous sessions, the results of the TP1 surveys suggested that they also needed the flexibility and personalised learning experience that asynchronous sessions provide. When asked about the preferred mode of instruction, 53% of the participants claimed that they preferred synchronous sessions, while the other 47% preferred either asynchronous or a combination of the two. For example, one teacher stated, "The synchronous sessions for teachers assigned to the afternoon shift were inconvenient, and the programme's inflexibility did not help". Therefore, while all 15 sessions were synchronous in TP1, the programme development team decided to include asynchronous sessions in TP2 as well. Specifically, the team sought a balance between synchronous and asynchronous sessions and therefore divided them into eight synchronous and seven asynchronous sessions for TP2. Assessing various levels of digital competence during TP1, the team noted that the participants reported an average confidence level of 3.5 out of 5 when asked about their comfort using the Learning Management System (LMS) Moodle, indicating moderate digital competence. Additionally, when questioned about the allocated time for practical work during synchronous sessions, 25% expressed that they did not have enough time to finish the tasks. In response, the team opted for synchronous sessions lasting two hours each, while asynchronous sessions were assigned slightly less time, at 1.5 hours (anytime during the day). This adjustment accommodated participants with lower digital proficiency by providing them additional time to complete tasks during synchronous sessions.

As a result of these adjustments, the entire TP2 included 27 hours of training. Specifically, as a synchronous OPD session lasted for 120 minutes, the total duration of synchronous sessions was 16 hours, while an asynchronous session lasted approximately 90 minutes, making a total of 11 hours. Besides the 27 hours of training, the programme also included the preparation of four assignments, which required approximately 8 hours of engagement, as well as optional participation in a two-hour focus group discussion after completing the training. In total, our OPD required 35 hours of engagement for the participating teachers.

## OPD Experience and Attitudes Towards Online Education

The final themes that emerged from the focus group analysis captured the teachers' e-learning experience and attitudes towards e-learning post-TP2. These themes encompassed various aspects, such as motivation for joining an OPD experience, perceptions of the online mode of delivery and methods used, and assessment of the support provided throughout the learning process (Table 3). Additionally, aspects such as e-learning usefulness, content design and ease of use (Table 4) collectively contributed to understanding the attitude towards e-learning.

### *Teachers' OPD Experience*

The teachers' experience with TP2 allowed them to share perceptions on online modes of delivery, autonomous learning and the support needed in such settings. Their comments on the ability to attain results, the availability of multiple tools and learning experiences also shaped themes related to their experiences during the focus group analysis.

**Table 3**
*Teachers' OPD Experience*

| Theme | Code | Frequency |
|---|---|---|
| Motivation to Attend TP2 | Lack of competence and training in utilising online platforms | 6 |
| | Challenges faced from autonomous learning | 6 |
| | Opportunity to attain credit hours for licensing | 1 |
| Delivery Mode | Positive perceptions of the online mode of delivery | 5 |
| | Neutral perceptions of the online mode of delivery | 1 |
| | Negative perceptions of the online mode of delivery | 1 |
| Method and Support | Partial autonomous learning/learner-centred | 5 |
| | Lack of autonomous learning/tutor-centred | 1 |
| | Lack of sufficient time to cover all content | 2 |
| Learning Outcomes/Results | Ability to attain better results | 6 |
| | Added value to learning outcomes | 6 |
| | Diminished value to learning outcomes | 1 |

**Motivation to Attend TP2.** The teachers' motivation to attend TP2 mainly concerned factors such as lack of previous training and underutilisation of e-learning, the challenges faced in autonomous learning during the Covid-19 pandemic, and the opportunity to attain credits towards their licensing.

The teachers mentioned that their "shortcomings in digital competence became evident during the Covid-19 pandemic". Therefore, they believed that by gaining more knowledge about e-learning, they could integrate technology into their teaching. Despite some previous experience with online teaching, most of them (6) believed that they "have not explored the right tools or methods", which motivated them to seek out and engage in further learning.

It was found that the teachers discussed the challenges they faced when resorting to self-taught teaching and learning during the pandemic. Although they recognised the benefits of an online presence, they were reluctant to embrace online teaching due to the sudden shift caused by the pandemic. Most of the teachers (6) in the focus groups initially admit that, "their experience with online training was limited and not in the same format they encountered during the pandemic". The Covid-19 pandemic made it evident that digital skills were necessary, and teachers realised the need to learn about the right tools and approaches for online teaching.

One teacher admitted they "initially started the training reluctantly, but the motivation to attain credits for licensing motivated them to participate in TP2". This implies that some teachers saw the training as a way to fulfil their licensing requirements for their teaching careers.

**Perceptions of the Delivery Mode of TP2.** Most of the teachers (5) expressed a positive perception of the online mode of delivery of TP2. The teachers believed that TP2 positively impacted their work as well as that of their colleagues, "making learning more attractive for students". They appreciated the practicality of the online format, especially in terms of "timesaving compared to physically attending meetings". Additionally, the use of the Moodle platform and other online tools transformed their beliefs, proving that "online learning could be effectively developed, even when combined with traditional teaching methods".

Despite the positive aspects, one teacher also had some negative perceptions of the online mode of delivery. This perception was more relevant to the advantages of in-person training. Specifically, the teacher felt that "in-person training offered opportunities for direct communication with other participants, something that online training lacks". Challenges were also noted with completing tasks online, indicating that the virtual setting presented

difficulties. While both of the teachers concerned appreciated the training for "inspiring new ideas that they could integrate into their in-person classes", the lack of physical presence was considered a drawback, limiting certain interactions and communications.

One teacher had a neutral perception of the training being conducted online, recognising that the purpose of the training itself was to take place in a virtual environment. Furthermore, they believed that "similar results could have been achieved even if the training had been held in person", indicating a neutral stance on the effectiveness of the delivery mode in achieving learning outcomes.

**TP2 Method and Support.** The teachers' perceptions of the methods and support during the online training can be summarised into two main points: autonomy and time sufficiency. Five of the seven teachers who participated in the focus groups appreciated the support provided by the trainers and tutors, both in real time and via email, while allowing partial autonomous learning. Specifically, during synchronous sessions, "the breakout rooms were beneficial for partially autonomous hands-on practice with platforms". On the other hand, two of the teachers felt that the training was too fast paced and wanted more time to "explore specific platforms autonomously rather than relying solely on demonstrations".

**TP2 Learning Outcomes and Results.** The teachers' perceptions of learning management platforms like Moodle are that these platforms could be effectively used to develop online learning content, complementing traditional teaching methods. According to the teachers' reflections, the training positively affected their work by "adding value to their teaching practice". The teachers expressed confidence in organising online classes, including assignments, and in using interactive tools such as H5P and Mentimeter. They saw the potential of online learning by offering multiple opportunities for students to choose their preferred learning methods. Overall, the training improved the teachers' ability to attain better results through effective online lesson planning, quizzes and interactive videos.

The teachers expressed increased confidence in achieving better results through online learning, acknowledging that "e-learning could make their work easier and more attractive for students compared to traditional methods". The training empowered them to create engaging lessons with their students. The participants highlighted the potential of online learning to deliver successful lessons and improve class results.

One teacher, while acknowledging the benefits of e-learning for theory-based subjects, also expressed a limitation for arts profile teachers who engage in practical activities such as playing instruments. They perceived e-learning as less suitable for entirely replacing physical practice in their field.

***Teachers' Shape of Attitude***

The teachers' perceptions of the content's intuitive nature for navigation, use and completion, as well as their control over the pace of work, were among the main factors influencing the attitude themes. The presence or absence of differentiated learning and how online/interactive content added or diminished value further contributed to the themes that emerged from the focus group analysis.

**Table 4**

*Teachers' Shape of Attitude*

| Theme | Code | Frequency |
|---|---|---|
| Content Design | Intuitive content to navigate, use and complete | 5 |
| | Adequate use of multimedia and interactive learning materials | 5 |
| | Limited use of multimedia and interactive learning materials | 2 |
| Ease of Use | Easy use and reproduction of the content | 5 |
| | Flexible pace of work | 5 |
| | Need for a more flexible pace of work | 2 |
| E-learning Usefulness | Enriching learning experience | 6 |
| | Differentiated learning | 6 |
| | Limited differentiated learning | 1 |

**Content Design, Ease of Use and Usefulness of TP2.** During the training, the teachers found the content "user-friendly and easily reproducible". They appreciated the intuitive design, which allowed them to navigate through the modules seamlessly. Overall, the training provided them with valuable skills in creating interactive material. As one teacher states, "[...] after attending TP2, I am convinced that each of us can organise online classes, including assignments". These skills were seen as highly beneficial for engaging students and enhancing the learning experience.

Most of the teachers (5) also valued the flexibility of the training, as it allowed them to learn at their own pace, especially in asynchronous settings. One teacher states that "in particular, asynchronous learning was greatly appreciated, as it allows for self-paced learning, without compromising our work schedule". This aspect was particularly appreciated, as it enabled them to adjust their learning to suit their schedules as in-service teachers. Incorporating

videos, interactive tasks and different online tools kept the teachers actively involved and motivated throughout the OPD.

While most of the teachers praised the flexible pace of the training, some expressed the need for even more flexibility. They suggested that the "time constraints on certain tasks caused stress and limited their ability to fully explore and apply the concepts learned". Additionally, two of the teachers noted a limited use of multimedia and interactive learning materials in certain modules. They felt that "adding follow-up tasks to audio-visual content would enhance engagement and encourage them to complete all of the modules thoroughly".

All of the teachers expressed the opinion that TP2 positively shaped their attitude towards using e-learning in the future. One teacher said, "I was sceptical about whether students can attain knowledge in an online learning environment; however, during TP2, I got to acknowledge that it [e-learning] is a very effective mode". The training has triggered some of the teachers to create and implement digital education with their students, even while they were participating in our OPD. Aspects such as e-learning content usefulness, content design and ease of use collectively contributed to the positive attitude development towards e-learning in general.

## Discussion

In this section, we a) discuss the methodological limitations of the current study that could have affected the interpretation of the results, b) analyse the findings of the study in relation to existing literature, and c) examine the implications of the research findings for OPD theory and practice.

As with DBR, a notable limitation of our study is that a lot of data is gathered, but not a lot of it is reported, so it could be possible to overlook valuable data that might be important for other researchers (Wang & Hannafin, 2005, p. 20). However, utilising DBR as a research design for studying OPD is significant, as it addresses the identified gap in Bragg et al. (2021)'s scoping review, which found that, among OPD studies, "not enough attention is focused on the design elements and activities […] to support positive outcomes, as well as the theoretical underpinnings informing the program design" (p. 11). Another limitation of the present study is the involvement of the researchers in the design and development of PD. As Barab and Squire (2004) argue, "if a researcher is intimately involved in the conceptualization, design, development, implementation, and re-searching of a pedagogical approach, then ensuring that researchers can make credible and trustworthy assertions is a challenge" (p. 10). Given that this is problematic, in order to overcome the potential bias in

the interpretation of the findings, the study involved a third researcher who was not directly affiliated with the OPD or organisation in any way.

A literature review highlights the fact that consistent course design, organisation and support, taking into account learners' needs, is crucial for a well-designed online learning experience and for online programme design and delivery to be effective (Martin et al., 2019; Martin & Bolliger, 2018). The present DBR study offers insights into how OPD may shape teachers' experiences and attitudes, as well as their readiness to teach with technology. It also confirms that teachers' perspectives were positively influenced by the programme's content design, usability and convenience of use. Previous research shows that the flexibility that OPD affords allows teachers to process information at their own pace, return to online content as needed and collaborate with other teachers through various networks (Wynants & Dennis, 2018). Similarly, our study found that teachers valued the flexibility of the training, especially in asynchronous settings, where they had the freedom to learn at their own pace, for example. It was noted that the programme's integration of multimedia and interactive learning resources, including videos, quizzes and online tools, kept the teachers motivated and interested throughout. Gorozidis and Papaioannour (2014) also confirm that teachers are more likely to apply new knowledge when intrinsically motivated, driven by an inherent engagement in learning rather than external rewards. In addition, engagement increases when the material is "relevant and personally meaningful to the learner" (Chametzky, 2014). Our data confirms the relevance of our OPD to teachers' needs, while our end-of-PD focus group discussions highlight factors for motivation similar to the study from Beach et al. (2022), such as lack of training, convenience and credit attainment.

The participants in Beach et al.'s study preferred certain forms of online PD when given the chance. Popular options included online communities, video libraries of exemplary practice, instructional videos of teacher-student interactions and student videos sharing academic engagement insights. The participants in our study also recommended supplementing audio-visual content with follow-up exercises to increase engagement and guarantee that all of the modules were fully completed. Most of our findings also echo online learning theory and practice, emphasising the use of design principles tailored for learners and learning environments carefully designed to promote inquiry, collaborative thinking and social learning with technology (Garrison, 2015).

As noted above, our study is in line with earlier research (Fuch & Phillips, 2022; Hodges et al., 2021; Kowch, 2021; Martin et al., 2019; Martin & Bolliger, 2018; West, 2023). The pandemic presented an urgent need for online programmes,

while also emphasising a critical need for balancing technology and pedagogy with design principles, along with the importance of support and flexibility to keep teachers positively motivated to teach online when teacher needs are considered in the design.

## Conclusions

Due to the Covid-19 pandemic, the Kosova Center for Digital Education launched a design-based professional development programme in response to teachers' demand for online professional development. The present study investigated teachers' experiences, attitudes and readiness regarding e-learning through a two-cycle research-based OPD intervention involving teachers nationwide in five phases: planning, developing, testing, improving and implementing.

The results of the study highlight the fact that going beyond simply offering PD by adopting videoconferencing or any one technology, and by using a multiple-cycle programme design that includes a needs assessment as well as testing, crucial elements emerge for designing a PD programme that improves teacher attitudes towards teaching online. Our needs assessment, in particular, informed the training objectives, course content and format of the OPD. The study also highlights the fact that an online PD developed based on teachers' needs helps shape teachers' experiences, attitudes and readiness regarding teaching with technology.

The results suggest that using a multiple-cycle research design for programme development has practical and methodological implications. From both perspectives, including needs assessment and testing in the phases of programme development is highly significant, as it optimises OPD success. The study also suggests that OPD programmes for teachers should provide space for reflection and practical work, so that teacher participants can think of ways to utilise the acquired knowledge and skills to benefit their students. Our research design could also serve as a model for how, when teachers' needs are met in a PD programme, they can lead to more positive attitudes and a greater readiness for implementing learned strategies in practice.

Despite the significant implications of our work, it is essential to recognise its limits, which call for additional research. A noteworthy limitation is the participants' diverse demographic, which makes it challenging to create a one-size-fits-all OPD programme for teachers. In addition, because attitudes are arbitrary, they can differ significantly between subjects and people, making them difficult to measure. Future studies should therefore concentrate on analysing the

particular needs of teachers in online PD catered to their various subject areas, such as social sciences, hard sciences, language and literacy, and the arts.

## Disclosure statement

The authors have no conflict of interest to declare.

## Acknowledgements

We are grateful to the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH Kosovo for funding the Kosova Center for Digital Education (KCDE) to develop the OPD programme Teaching Online at the Right Level. We would like to thank all of the teachers who participated in the OPD as well as our study. The programme sought to contribute to the continuous professional development of teachers, and it was accredited by the Ministry of Education, Science, Technology and Innovation (MESTI), both in 2022 and 2024.

## References

Anderson, T., & Shattuck, J. (2012). Design-based research: A decade of progress in education research? *Educational Researcher, 41*(1), 16–25. https://doi.org/10.3102/0013189X11428813

Bannan-Ritland, B. (2003). The role of design in research: The integrative learning design framework. *Educational Researcher, 32*(1), 21–24. https://doi.org/10.3102/0013189X032001021

Beach, P., Favret, E., Minuk, A., & Martinussen, R. (2022). Canadian teachers' perceptions of online professional development. *Journal of Educators Online, 19*(3). https://doi.org/10.21432/cjlt27948

Bernard, R. M., Abrami, P. C., Borokhovski, E., Wade, C. A., Tamim, R. M., Surkes, M. A., & Bethel, E. C. (2009). A meta-analysis of three types of interaction treatments in distance education. *Review of Educational Research, 79*(3), 1243–1289. https://doi.org/10.3102/0034654309333844

Bragg, A. L., Walsh, C., & Heyeres, M. (2021). Successful design and delivery of online professional development. *Computers & Education*, *166*, 1–23. https://doi.org/10.1016/j.compedu.2021.104158

Carrillo, C., Flores, M. A. (2020). COVID-19 and teacher education: A literature review of online teaching and learning practices. *European Journal of Teacher Education, 43*(4), 466–487. https://doi.org/10.1080/02619768.2020.1821184

Conole, G. (2014). The 7Cs of learning design – A new approach to rethinking design practice. In S. Bayne, C. Jones, M. de Laat, T. Ryberg, & C. Sinclair (Eds.), *Proceedings of the 9th International Conference on Networked Learning* (pp. 502–509). University of Edinburgh. https://www.lancaster.ac.uk/fss/organisations/netlc/past/nlc2014/abstracts/pdf/conole.pdf

Crossman, K. E. (2014). *Intensive English for academic purposes: A curriculum designed and developed*

*for local English language learners entering university.* [Doctoral dissertation, University of Calgary, Graduate Studies].

Czerkawski, B. C., & Lyman, E. W. (2016). An instructional design framework for fostering student engagement in online learning environments. *TechTrends, 60*(6), 532–539. https://doi.org/10.1007/s11528-016-0110-z

Dede, C. (2014). *The role of digital technologies in deeper learning* (Students at the Center: Deeper Learning Research Series). Jobs for the Future. https://studentsatthecenterhub.org/wp-content/uploads/The-Role-of-Digital-Technologies-in-Deeper-Learning-120114-1.pdf

Eickelmann, B., & Vennemann, M. (2017). Teachers' attitudes and beliefs regarding ICT in teaching and learning in European countries. *European Educational Research Journal EERJ, 16*(6), 733–761. https://doi.org/10.1177/1474904117725899

Forman, E. A., & McPhail, J. (1993). Vygotskian perspective on children's collaborative problem-solving activities. In E. A. Forman, N. Minick, & C. A. Stone (Ed.), *Contexts for learning: Sociocultural dynamics in children's development* (pp. 213–229). Oxford University Press.

Fuch, C., & Phillips, C. R. (2022). Working together to get it right: Creating a just-in-time professional development course for faculty during the COVID-19 pandemic. *International Journal on Innovations in Online Education, 6*(1), 15–28. https://doi.org/10.1615/IntJInnovOnlineEdu.2022045084

Gao, D., & Ji, Y. (2019). Research on the framework of online course design based on "First Principles of Instruction". In K. Tutschku (Ed.), *The 2nd Conference on Education and Cognition, Behavior, Neuroscience, ESSP proceedings series* (pp. 30–38). Francis Academic Press. https://webofproceedings.org/proceedings_series/ESSP/ICECBN%202019/CBN16006.pdf

Garrison, D. R. (2016). *Thinking collaboratively: Learning in a community of inquiry* (1st ed). Routledge. https://doi.org/10.4324/9781315740751

Gorozidis, G., & Papaioannou, A. G. (2014). Teachers' motivation to participate in training and to implement innovations. *Teaching and Teacher Education, 39*, 1–11. https://doi.org/10.1016/j.tate.2013.12.001

Guskey, T. (2002). Professional development and teacher change. *Teachers and Teaching, 8*(3), 381–391. https://doi.org/10.1080/135406002100000512

Herrington, J., McKenney, S., Reeves, T., & Oliver, R. (2007). Design-based research and doctoral students: Guidelines for preparing a dissertation proposal. In C. Montgomerie, & J. Seale (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications* (pp. 4089–4097). AACE.

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, B. (2021, March 27). *The difference between emergency remote teaching and online learning*. EDUCAUSE Review. https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Kaden, U. (2020). COVID-19 School closure-related changes to the professional life of a K-12 Teacher. *Education Sciences, 10*(6), 165–178. https://doi.org/10.3390/educsci10060165

Karataş, S., Yilmaz, A. B., Dikmen, C. H., Ermiş, U. F., & Gürbüz, O. (2017). Interaction in distance education environments: A trend analysis. *Quarterly Review of Distance Education, 18*(1), 63–82.

Kowch, E. (2021). Leading transformation with digital innovations in schools and universities: Beyond adoption. In D. I. Fenthaler, S. Hofhues, M. Egloffstein, & C. Helbig (Eds.), *Digital transformation of learning organizations* (pp. 145–168). Springer. https://doi.org/10.1007/978-3-030-55878-9_9

Kuhfeld, M., Soland, J., Lewis, K., Ruzek, E., & Johnson, A. (2022). The COVID-19 school year: Learning and recovery across 2020-2021. *AERA Open, 8*. https://doi.org/10.1177/23328584221099306

Lai, C. L., & Hwang, G. J. (2021). Strategies for enhancing self-regulation in e-learning: A review of selected journal publications from 2010 to 2020. *Interactive Learning Environments, 31*(6), 3747–3779. https://doi.org/10.1080/10494820.2021.1943455

Lincoln, Y. S., & Guba, E. (1985). *Naturalistic inquiry*. SAGE.

Martin, F., & Bolliger, D. U. (2018). Engagement matters: Student perceptions on the importance of engagement strategies in the online learning environment. *Online Learning, 22*(1), 205–222. https://doi.org/10.24059/olj.v22i1.1092

Martin, F., Ritzhaupt, A., Kumar, S., & Budhrani, K. (2019). Award-winning faculty online teaching practices: Course design, assessment and evaluation, and facilitation. *The Internet and Higher Education, 42*, 34–43. https://doi.org/10.1016/j.iheduc.2019.04.001

McKenney, & Reeves, T. C. (2018). *Conducting educational design research* (2nd ed.). Routledge. https://doi.org/10.4324/9781315105642

Merrill, M. D. (2002). First principles of instruction. *Educational Technology Research and Development, 50*(3), 43–59. https://doi.org/10.1007/bf02505024

Ministry of Education, Science, Technology and Innovation of the Republic of Kosova. (2017). *Framework for Teacher Professional Development.* https://masht.rks-gov.net/korniza-strategjike-per-zhvillimin-e-mesimdhenesve-ne-kosove/

Ministry of Education, Science, Technology and Innovation of the Republic of Kosova. (2022). *Education Strategy 2022–2026.* https://masht.rks-gov.net/wp-content/uploads/2022/11/03-Strategja-e-Arsimit-2022-2026-Eng-Web.pdf

Morina, M., Uka, A., & Raza, K. (2021). A case study on Kosovan teachers' transition to distance education during COVID-19 pandemic. *International Journal on Innovations in Online Education, 5*(2), 33–54. https://doi.org/10.1615/IntJInnovOnlineEdu.2021038933

Rao, K., & Meo, G. (2016). Using universal design for learning to design standards-based lessons. *SAGE Open, 6*(4), 1–12. https://doi.org/10.1177/2158244016680688

Reigeluth, C. M. (1999). *Instructional-design theories and models: A new paradigm of instructional theory* (1st ed., Vol. II). Routledge. https://doi.org/10.4324/9781410603784

Scull, J., Philips, M., Sharma, U., & Garnier, K. (2020). Innovations in teacher education at the time of COVID19: An Australian perspective. *Journal of Education for Teaching: International Research and Pedagogy, 46*(4), 497–506. https://doi.org/10.1080/02607476.2020.1802701

Taylor Institute for Teaching and Learning (2022). *Emerging Teachers Development Program:*

*Capstone Project* [Class handout]. University of Calgary, TI 0898 002.

Urankar, B., & Jamšek, J., (2022). Insights into engineering education teaching practice in Slovenian primary schools during the Covid-19 pandemic: Distance learning model. *Center for Educational Policy Studies Journal, 12*(4), 258–261. https://doi.org/10.26529/cepsj.1153

Wang, F., & Hannafin, M. J. (2005). Design-based research and technology-enhanced learning environments. *ETR&D, 53*, 5–23. https://doi.org/10.1007/BF02504682

West, R. E. (2022). Introduction to design, delivery, and assessment in ODDE: Theories, research, and practices to guide ODDE design and assessment. In O. Zawacki-Richter, & I. Jung (Eds.), *Handbook of open, distance and digital education* (pp. 1155–1157). Springer. https://doi.org/10.1007/978-981-19-0351-9_89-1

Zawacki-Richter, O., & Jung, I. (Eds.). (2023). *Handbook of open, distance and digital education*. Springer. https://doi.org/10.1007/978-981-19-0351-9_79-1

## Biographical note

**Antigona Uka** is a PhD student, specializing in education policy from the Central European University's (CEU) Doctoral School of Political Science, Public Policy and International Relations. She is a co-founder and serves as executive director at Kosova Center for Digital Education (KCDE). Her areas of interest include digital transformation in education, online teaching and learning, ICT development and education policy. She is particularly interested in leveraging digital education for online teacher professional development (OPD), advocating for its transformative potential in enhancing teaching practices.?

**Marigona Morina** is a PhD candidate in Educational Research at the University of Calgary, specializing in Language and Literacy. She is one of the co-founders of the Kosova Center for Digital Education (KCDE) and has extensive professional experience, particularly in language education. Her research interests, among others, include exploring the impact of digital technologies on developing students' multimodal literacy as well as investigating the role of online professional development programs in shaping educators' abilities to foster their students' literacy attainment.

**Eugene G. Kowch**, PhD, is an associate professor in the fields of education administration and educational technology in the Werklund School of Education at the University of Calgary. He is a past President of AECT and member of several editorial boards with research interests including higher education capacity building. Taking an ecosystem perspective to explore innovative

designs and the development of leaders and education organizations globally, his research draws from both the fields of education administration and learning science, particularly in technology-integrated instruction and learning environments. This includes harmonizing policy and professional development with learning and leader capacity-building strategies. Taking a complexity and chaos theory approach in multicultural settings, he offers more adaptable team and organization design parameters for technology-enabled administration and learning impacted by shifting cultures and innovations. With over two hundred publications and two dozen recent keynote addresses in Asia, Europe and North America, his research guides government and university leaders and scholars adapting and preparing universities, colleges and school systems with distance learning an Artificial Intelligence era.

Received: 9 November 2022, Accepted: 13 July 2023,
Published on-line as Recently Accepted Paper: October 2023 DOI: https://doi.org/10.26529/cepsj.1524

# Intercultural Competence, A Necessity in 21st Century Classrooms: Are Teacher Educators in Tanzania Interculturally Competent?

Patrick Severine Kavenuke*[1] and Grace Ezekiel Kihwele[2]

Recently, teacher educators have been required to possess strong academic credentials and intercultural competencies to teach successfully. The purpose of the present study is to investigate the extent to which teacher educators possess the skills of intercultural competence. Also, the study examines the factors that influence the intercultural competence of teacher educators. A sample of 300 teacher educators selected from two Tanzanian university colleges is used. The results indicate that teacher educators had higher mean scores in the dimensions of attitude, external outcomes, internal outcomes, and skills but significantly lower mean scores in the dimension of knowledge. Furthermore, factors such as living abroad, duration of staying abroad, level of education, academics' teaching experience, and the faculty from where the academics come are significantly related to at least one dimension of intercultural competence. For instance, academics' level of education is significantly related to the attitude, knowledge, and skills dimensions of intercultural competence. Therefore, the results have far-reaching implications for policy and future research.

**Keywords:** intercultural competence, internationalisation, Tanzania, teacher educators, 21st century classrooms

1 *Corresponding Author. Dar es Salaam University College of Education, University of Dar es Salaam, Tanzania; patrickkavenuke@gmail.com / patrick.kavenuke@duce.ac.tz.
2 Dar es Salaam University College of Education, University of Dar es Salaam, Tanzania.

# Medkulturna kompetenca, nujnost v učilnicah 21. stoletja: ali so izobraževalci učiteljev v Tanzaniji medkulturno kompetentni?

Patrick Severine Kavenuke in Grace Ezekiel Kihwele

V zadnjem času se od izobraževalcev učiteljev pričakuje, da imajo dobre akademske reference in medkulturne kompetence, da bi lahko uspešno poučevali. Namen te študije je raziskati, v kolikšni meri imajo izobraževalci učiteljev veščine medkulturne kompetence. Študija prav tako preučuje dejavnike, ki vplivajo na medkulturno kompetenco izobraževalcev učiteljev. Uporabljen je bil vzorec 300 izobraževalcev učiteljev, izbranih z dveh tanzanijskih fakultet. Izsledki kažejo, da so imeli izobraževalci učiteljev višje povprečne ocene pri dimenzijah odnosa, zunanjih izidov, notranjih izidov in veščin, vendar bistveno nižje povprečne ocene pri dimenziji znanja. Poleg tega so dejavniki, kot so: prebivanje v tujini, trajanje prebivanja v tujini, stopnja izobrazbe, pedagoške izkušnje akademikov in fakulteta, s katere akademiki prihajajo, pomembno povezani z vsaj eno dimenzijo medkulturne kompetence. Na primer, raven izobrazbe akademikov je pomembno povezana z naslednjimi dimenzijami medkulturne kompetence: odnos, znanje in veščine. Posledično imajo rezultati daljnosežne posledice za politiko in prihodnje raziskave.

**Ključne besede:** medkulturna kompetenca, internacionalizacija, Tanzanija, izobraževalci učiteljev, učilnice 21. stoletja

## Introduction

Teaching in the 21st century classroom requires teacher educators to possess intercultural competencies. Intercultural competence is considered a goal of any education (Duvivier, 2017; Miller & Tucker, 2015; Portera, 2020; Portera & Milani, 2021). Intercultural competence has also been considered a result of internationalisation (Deardorff, 2006; Odağ et al., 2016; Salisbury et al., 2013). Nonetheless, it is regrettable that internationalisation has been narrowly limited to discussing issues across nations and borders (Feng, 2016; Garson, 2016; Salisbury et al., 2013; Wang & Kulich, 2015). As a solution, scholars (Garson, 2016; Wang & Kulich, 2015) have emphasised internationalisation or developing intercultural competence at home. This internationalisation operates by incorporating the international and intercultural dimensions into formal and informal curricula for all people within a local learning environment. Despite these efforts, Garson (2016) has asserted that internationalisation at home has been neglected and challenged by increased academic mobility and how it is placed within a market framework.

Intercultural competence has remained emphasised in the 21st century, given that academics travel outside their countries of origin for academic undertakings such as conferences and studies (Vižintin, 2018, 2022). As they go abroad, they are expected to be exposed to foreign languages and possibly submerge themselves in foreign cultural experiences. In these circumstances, academics must use their critical thinking skills to make well-considered decisions in culturally complex environments (Miller & Tucker, 2015). In that respect, critical thinking skills are linked with intercultural competence. Thus, it is not surprising that scholars (Deardorff, 2006; Miller & Tucker, 2015) have documented that critical thinking and intercultural competence overlap. For instance, Deardorff (2006) has observed that skills such as respecting and valuing others' ideas and cultures, being ready and open to learning other people's cultures, and withholding judgment form parts of both intercultural competence and critical thinking.

### Literature Review

There is an assumption that people who are well-connected locally find it easy to accommodate themselves in other cultures (Chi & Suthers, 2015). In other words, people with more social and local relations have less difficulty experiencing global acculturation. Numerous studies have examined intercultural competence issues among individuals over the previous three decades

(Deardorff, 2006; Portera, 2020; Portera & Milani, 2021). Many other studies have been conducted to assess the intercultural competence of individuals in different disciplines, such as military force (Miller & Tucker, 2015), education (Duvivier, 2017; Gong et al., 2018; Jackson, 2015; Odağ et al., 2016; Streitwieser & Light, 2018; Peng & Wu, 2016), business (Feng, 2016; Nair-Venugopal, 2015), management (Presbitero & Attar, 2018) and other multidisciplinary fields (Lieberman & Gamst, 2015). Recently, there have been considerable academic and student exchanges across the globe for further education (Portera, 2020; Portera & Milani, 2021; Vögtle & Windzio, 2023). In that respect, teacher educators (whose role is to prepare prospective teachers) should be familiar with intercultural competence skills. Such skills are important in helping teacher educators accommodate academics and students from diverse cultures (Vižintin, 2022). Given the importance of individuals' intercultural competence in this globalised era, teacher educators must familiarise themselves with the factors that influence their intercultural competence.

***Factors influencing intercultural competence***

This section has reviewed the literature on factors influencing individuals' intercultural competence. It is important to note that we reviewed the literature based on the dimensions of intercultural competence (i.e., attitude, knowledge, skills, internal outcomes, and external outcomes) used in this present study (Deardorff, 2006; Messner, 2015; Odağ et al., 2016; Peng et al., 2009). Sex as one factor influencing intercultural competence was included based on its importance in any study, as it affects many other variables (Morley & Lugg, 2009). Garrote (2016) found that sex and intercultural competence had no significant relationship. Contrary to that observation, Polat and Barka (2014) noted that male pre-service teachers were more competent than female pre-service teachers regarding the dimensions of intercultural competence, such as emotional stability. Assuming that men and women have similar cognitive abilities (Hyde & Linn, 2006), we hypothesised that there would be no significant relationship between sex and intercultural competence.

Also, the relationship between living abroad and intercultural competence has been recognised. Thus, we included living abroad as an independent measure. The assumption is that intercultural competence as an outcome of internationalisation increases due to academics' mobility (Deardorff, 2006; Odağ et al., 2016; Peng & Wu, 2016; Salisbury et al., 2013). Studies (Behrnd & Porzelt, 2012; Garrote, 2016; Holland, 2013) have noted no significant relationship between living abroad and intercultural competence. Contrary to that, other studies found that studying abroad significantly positively affected some

dimensions of intercultural competence (Maharaja, 2018; Salisbury et al., 2013). The years of stay abroad may also influence individuals' intercultural competence. However, a study by Behrnd and Porzelt (2012) indicated that the duration of stay had no significant relationship with intercultural competence.

Moreover, a relationship between academics' teaching experience and intercultural competence has been established. Work experience at the local or global level plays a crucial role in improving one's intercultural competence. In support of this argument, studies have observed that work experience can help to develop the intercultural competence of academics (Hudelson et al., 2011; Peng & Wu, 2016). In particular, Hudelson et al. (2011) noted that the intercultural competence scores were higher for participants with work experience. In that respect, the study examined the relationship between work experience and intercultural competence.

Likewise, level of education has been associated with intercultural competence. It has been observed that individuals with higher levels of education are more competent in intercultural competence than those with a lower level of education. For instance, Polat and Barka (2014) found that pre-service teachers in primary education departments in Switzerland and Turkey were more competent in intercultural competence, such as emotional stability, than pre-service teachers in pre-school education. Given that there were some contradicting results in many of the variables reviewed, we considered including these variables in this study to investigate if the examined variables significantly relate to academics' intercultural competence.

## Theoretical Framework

Intercultural competence makes an individual fit in any environment, both at the local and global levels. In that case, interculturally competent people hardly find themselves divorced from their environment. Plenty of terms in the literature have described the concept of intercultural competence, including 'intercultural sensitivity', 'global literacy', 'cultural competence', 'intercultural communicative competence', and many more (Deardorff, 2006). Moreover, no consensus on reputable researchers on what constitutes intercultural competence exists (Deardorff, 2006; Rathje, 2007). Rathje (2007) has noted that there is no mutual agreement to any particular account of the concept; instead, there are only varieties of models on several features that describe the term differently. Irrespective of the missing consensus, Rathje (2007) asserted that intercultural scholars have made several efforts to define the term, which intercultural scholars frequently adopt. Thus, intercultural competence is reflected in several dimensions.

Some of these models have conceptualised intercultural competence as communicating effectively and appropriately in intercultural situations (Nadeem et al., 2020). Nonetheless, to communicate effectively and appropriately in intercultural situations, one's intercultural knowledge, skills and attitude are paramount. In particular, scholars have mentioned knowledge, skills, and attitude (Scarino, 2009), awareness, attitude, skills, knowledge, and meta-awareness (Peng et al., 2009), knowledge, motivation, skills, outcomes, and adaptability (Odağ et al., 2016) and attitude, knowledge, skills, internal outcomes and external outcomes (Deardorff, 2006; Streitwieser & Light, 2018) as dimensions of intercultural competence.

Similarly, Messner (2015) used internal outcomes and external outcomes as other dimensions of intercultural competence. It is common for researchers to use different terms to communicate the same matter. For instance, while Nadeem et al. (2020) report individuals' ability to effectively and appropriately communicate with people from other cultures as a dimension of intercultural competence, Deardorff (2006), Messner (2015), and Streitwieser and Light (2018) paraphrase it as external outcomes dimension.

The literature reviewed shows that an individual's intercultural competence starts at the individual level (attitude) and at the interaction level (outcomes). Given that this area of study is under-researched in the Tanzanian context, we adopted the most commonly used dimensions of intercultural competence. Therefore, we picked five dimensions from the studies by Deardorff (2006), Messner (2015), Odağ et al. (2016), Peng et al. (2009), Scarino (2009), and Streitwieser and Light (2018). The dimensions are described hereunder as our theoretical framework.

### *Attitude*

In the context of intercultural competence, Peng et al. (2009) defined attitude as an individual's readiness and willingness to accept information from other cultures. It is one's attitude that influences one's intercultural competence—a concept that is closely related to the idea of global citizenship education (Deardorff, 2006; Trede et al., 2013). In particular, Deardorff (2006) maintained that respecting and valuing others' cultures, being ready and open to learning other cultures, and being curious about new cultural environments are integral parts of intercultural competence.

### *Knowledge*

Peng et al. (2009) conceptualised knowledge as an individual's understanding of one's culture and other people's cultures. For that matter, knowledge,

and comprehension form another dimension of intercultural competence. Culture-specific information, cultural self-awareness, and a thorough understanding of one's culture and others' cultures are prerequisites to possessing the knowledge necessary for intercultural competence (Deardorff, 2006; Holmes & O'Neill, 2012; Peng et al., 2009).

***Skills***

Skills are another dimension of intercultural competence that individuals need to possess in this era of globalisation and its subsequent feature of internationalisation. Listening, observing, interpreting, analysing, evaluating, negotiating, and relating are important skills for intercultural competence (Deardorff, 2006; Holmes & O'Neill, 2012). Peng et al. (2009) added that skills enable an individual to use relevant techniques of relating with people while living in such intercultural contexts.

***Internal Outcomes***

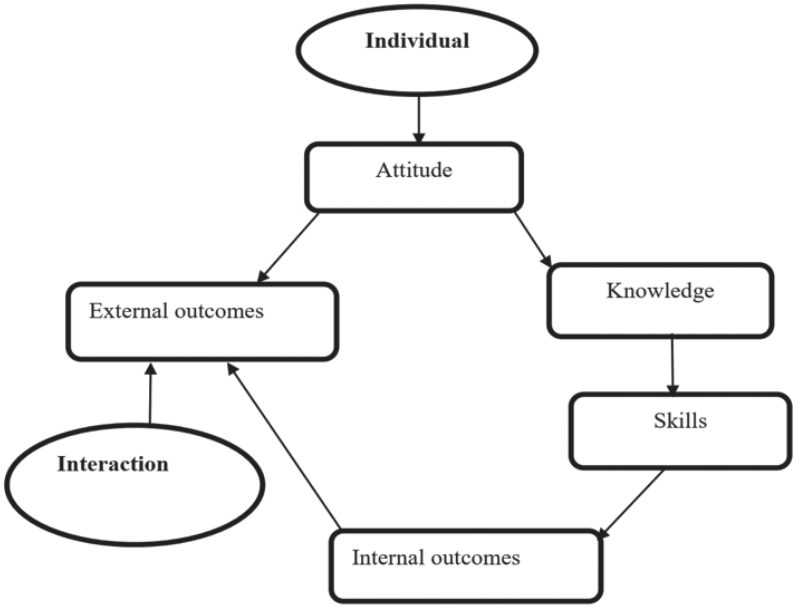
Internal outcomes as a dimension of intercultural competence focus on an individual's adaptability and flexibility (Deardorff, 2006; Odağ et al., 2016). Interculturally competent individuals are expected to be adaptive to diverse communication styles and easily adjust to new cultural environments. In other words, interculturally competent individuals should adapt and appreciate complex cultural differences. Deardorff (2006) also maintained that interculturally competent individuals must be flexible. Their flexibility has been reflected in selecting and using appropriate communication styles and behaviours.

***External Outcomes***

The concept of external outcomes as a dimension of intercultural competence is described in terms of the individuals' ability to behave and communicate appropriately and effectively (Deardorff, 2006; Scarino, 2009). It is through interaction that communication can easily be undertaken. For that matter, communication becomes a defining characteristic of intercultural competence. According to Deardorff (2006), these external outcomes are also based on the individual's intercultural attitude, knowledge, skills, and internal outcomes. In other words, to communicate effectively with people from a different culture, they need to be ready and willing to learn and accept the information from that culture. Modified from Deardorff (2006), Figure 1 below illustrates the relationship among these five dimensions of intercultural competence.

**Figure 1**

*A Theoretical Framework adapted from Deardorff (2006)*




## Research problem and hypothesis

It is unfortunate that, of all the reviewed studies (e.g., Deardorff, 2006; Duvivier, 2017; Feng, 2016; Gong et al., 2018; Jackson, 2015; Lieberman & Gamst, 2015; Miller & Tucker, 2015; Nair-Venugopal, 2015; Odağ et al., 2016; Peng & Wu, 2016; Portera & Milani, 2021; Presbitero & Attar, 2018; Streitwieser & Light, 2018; Vižintin, 2022), no studies have focused on intercultural competence of teacher educators in an African context, specifically Tanzania. Many of the relevant and accessible literature were from outside Africa and Tanzania in particular. Thus, little is known about the extent to which teacher educators in Tanzania possess the required intercultural competence. For that matter, this study aimed to investigate the extent to which teacher educators possess intercultural competence and examine the factors that influence the intercultural competence of academics. In that regard, following the theoretical framework and the reviewed literature, the hypotheses that were developed to guide the study are:

H1: There will be no significant difference among teacher educators' intercultural competence dimensions.

H2: There will be no significant difference between men and women concerning their intercultural competence.
H3: There will be a significant relationship between living abroad and academics' intercultural competence.
H4: There will be a significant relationship between the years of staying abroad and the academics' intercultural competence.
H5: There will be a significant difference between academics' level of education and intercultural competence.
H6: Academics with different teaching experiences will differ regarding their intercultural competence.
H7: Academics from different faculties will have no significant differences in intercultural competence.
H8: Academics from different colleges will have no significant differences in intercultural competence.

## Method

***Participants***

The study was carried out in two higher learning institutions in Tanzania, specifically university colleges established to train prospective teachers. The study used a sample of 300 teacher educators. The researchers termed the university colleges 'College A' and 'College B' to maintain the anonymity and confidentiality of research ethics (Hett & Hett, 2013; Shamim & Qureshi, 2013). At the time of data collection, the population from which the sample was selected was 370 teacher educators; 240 were from College A, and 130 were from College B. The initial plan was to collect data from all teacher educators in both colleges. Following the colleges and the faculties where they came from, we treated these two colleges and their respective faculties as strata.

The questionnaires were divided per the proportion of the population of each college and its respective faculty members. For instance, in College A, which had three faculties, the questionnaires distributed were 55, 70, and 115 for the faculties of science, education, and humanities and social sciences, respectively. Similarly, in College B, which had three faculties named in the same order as above, the questionnaires distributed were 35, 45, and 50, respectively. Finally, 300 questionnaires from both colleges were returned, yielding a response rate of 81.1% distributed across the two colleges (see details in Table 1).

Of the 300 participants, 198 (66%) were men, and 102 (34%) were women. Among these, 212 (70.7%) participants were from College A, and 88 (29.3%) were from College B. Moreover, 86 (28.7%) participants were from the faculty

of science, 90 (30%) were from the faculty of education, and 124 (41.3%) were from the faculty of humanities and social sciences. Before data collection, we obtained an institutional research permit. We prepared a consent form that participants completed to affirm their willingness before participating in the study. The form included research ethical issues such as participants' rights and responsibilities. For instance, participants were assured that their responses would be kept confidential.

Moreover, demographic data showed that most participants had a master's degree level of education. Those with doctoral degrees followed the number. A few participants, 34 (11.6%) working as tutorial assistants, had a bachelor's degree. In addition, half of the participants had lived abroad, and half had not studied or lived abroad. Most of those who had studied or lived abroad lived only for less than five years. Only 6 (4.1%) participants had lived abroad for over five years. Regarding teaching experience, 92 (31.9%) had taught at the university colleges for less than five years. Additionally, 92 (31.9%) had taught for over ten years. The remaining 104 (36.1%) participants had taught for five to ten years. Table 1 summarises the demographic data of the study participants.

**Table 1**

*Sample Demographics*

| Characteristics (*n* = 300) | *N* | % |
|---|---|---|
| **Sex** | | |
| Male | 198 | 66 |
| Female | 102 | 34 |
| **College** | | |
| College A | 212 | 70.7 |
| College B | 88 | 29.3 |
| **Faculty** | | |
| Education | 90 | 30 |
| Humanities & Social Sciences | 124 | 41.3 |
| Science | 86 | 28.7 |
| **Having Studied/Stayed Abroad** | | |
| Yes | 148 | 49.7 |
| No | 148 | 49.7 |
| **Duration of Staying Abroad** | | |
| Below 1 year | 34 | 23 |
| From 1 to 3 years | 58 | 39.2 |
| From 3 to 5 years | 50 | 33.8 |
| 5 years and above | 6 | 4.1 |

| Characteristics (*n* = 300) | *N* | % |
|---|---|---|
| **Level of Education** | | |
| Bachelor Degree | 34 | 11.6 |
| Master Degree | 128 | 43.5 |
| Doctoral Degree | 132 | 44.9 |
| **Teaching Experience** | | |
| Below 5 years | 92 | 31.9 |
| From 5 to 10 years | 104 | 36.1 |
| 10 years and above | 92 | 31.9 |

### *Instruments*

#### *Attitude*

The attitude dimension was measured using a four-point scale (1=strongly disagree, 4=strongly agree) for items measuring the extent of possession of intercultural competence among academics. The dimension was measured using nine items (e.g., 'I willingly interact with people from other cultures'). The items were modified from a study by Peng et al. (2009). After running the reliability test, all nine items were retained. The reliability coefficient in terms of Cronbach's alpha for the dimension was .93. The reliability coefficient in terms of Cronbach's alpha for the dimension in the present study is .77.

#### *Knowledge*

Knowledge was measured using a four-point scale (1=strongly disagree, 4=strongly agree) for items measuring the extent to which academics possess intercultural competence. Seven items (e.g., 'I know the essential norms and taboos of other people's culture') were used to measure the dimension. Similar to the dimension of attitude, the items were adopted and modified from a study by Peng et al. (2009). Again, after running the reliability test, all seven items were retained. The reliability coefficient in terms of Cronbach's alpha for the dimension was .91. In the present study, Cronbach's alpha for the dimension is .78.

#### *Skills*

Using a four-point scale (1=strongly disagree, 4=strongly agree), we measured 'skills' as a dimension of intercultural competence. Five items (e.g., 'I listen to others who are different from me') were used to measure the dimension. However, one item that led to low reliability was omitted after running a reliability test. Hence, four items were used to measure this dimension. The items were adopted from a study by Peng et al. (2009) and customised to fit

the local study context. The reliability coefficient in terms of Cronbach's alpha for the dimension was .88. In the present study, the reliability coefficient is .70.

*Internal outcomes*

We measured the internal outcomes dimension of intercultural competence using a four-point scale (1=strongly disagree, 4=strongly agree). Four items (e.g., 'I am flexible when I encounter people who are very different from me') were used to measure the dimension. Like the 'skills' dimension, one item was deleted in the internal outcomes dimension. Therefore, the dimension was measured using three items. The items were adopted and modified from a study done by Messner (2015). The reliability coefficient in terms of Cronbach's alpha for the items measuring this dimension was .71. The reliability coefficient for this dimension in this present study is .63.

*External outcomes*

External outcomes dimension of intercultural competence was measured using a four-point scale (1 = strongly disagree, 4 = strongly agree). Four items (e.g., 'I learn through interaction with others') were used to measure this dimension. The items were adopted from a study done by Messner (2015). Then, they were modified to fit the local study context. Also, after running the reliability test, all four items were retained in this dimension. The reliability coefficient in terms of Cronbach's alpha for the items measuring this dimension was .73. The reliability coefficient for this dimension in this present study is .74.

***Independent measures***

Based on the literature reviewed, we included several independent measures to establish their relationship with the dependent measures. Thus, independent measures such as sex were included. Also, the faculty and college which the academics came from were included. In that regard, academics were asked to indicate their sex (1 = Male, 2 = Female), their faculty (1 = Education, 2 = Humanities and Social Sciences, 3 = Science) as well as their college (1 = College A, 2 = College B). The purpose was to determine if there is a relationship between sex, the faculty and the college where academics came from, and intercultural competence. Moreover, we included the academics' teaching experience as an independent measure. Academics were required to report their years of teaching experience. The purpose was to determine if teaching experience significantly relates to academics' intercultural competence.

Furthermore, living abroad and the duration of staying abroad were considered to be other important independent measures. Thus, academics

were asked to indicate whether or not they have lived abroad by indicating (1 = Yes, 2 = No). Moreover, the participants were asked to indicate the number of years they have studied or lived abroad. The purpose was to find out if academics' intercultural competence increases with the number of years spent abroad. Additionally, the academics were asked to provide their level of education. In Tanzania, it is common for a university academic to start working as a tutorial assistant with a minimum of a bachelor's degree. Thus, a 3-point scale (1 = Bachelor's Degree, 2 = Master's Degree, and 3 = Doctoral Degree) was used. Generally, the decision to include many independent measures adds value to the exploratory nature of this study, given that little research on this theme has been done in the context of Tanzania.

***Data analysis***

Data were analysed using SPSS version 26. To respond to the hypotheses delineated earlier, we computed several analyses. Firstly, a descriptive statistical analysis was conducted to calculate the frequencies, percentages, mean, and standard deviation. Also, we conducted a reliability test to calculate Cronbach's alpha for each dimension measuring intercultural competence. The reliability scores reported in this study represent the consistency among the items for each dimension. We calculated the mean scores and standard deviations for different dimensions to respond to the first research objective. Finally, we computed an Independent Samples *t*-test and Analysis of Variance (ANOVA) to respond to the second research objective and subsequent hypotheses.

## Results

To reiterate the study purpose, the study aimed to investigate the extent to which teacher educators possess intercultural competence. It also intended to examine the factors that influence the intercultural competence of academics. The results are presented per the research objectives and hypotheses as follows.

***The extent to which teacher educators possess the intercultural competence***

To respond to this research objective and the subsequent hypothesis, we computed the mean scores and the standard deviation for the dimensions measuring intercultural competence, as illustrated in Table 2. In terms of the order from high to low, the results indicated that academics had higher mean scores in the dimensions of attitude, external outcomes, internal outcomes, skills, and knowledge (see Table 2).

**Table 2**

*Mean scores for dimensions measuring intercultural competence*

| | Attitude | Knowledge | Skills | Internal Outcomes | External Outcomes |
|---|---|---|---|---|---|
| *M* | 3.3054 | 3.0045 | 3.1241 | 3.1712 | 3.2568 |
| *SD* | .3640 | .4462 | .4652 | .4501 | .4483 |

To thoroughly understand how teacher educators scored on the individual items, we analysed the mean scores and standard deviation for individual items (see Table 3). On the one hand, teacher educators scored higher in many items measuring their intercultural competence. On the other hand, the results indicated that teacher educators scored lower in some of the individual items measuring skills and knowledge as dimensions of intercultural competence (Table 3).

**Table 3**

*Mean scores of dimensions and their respective individual items*

| | Min | Max | *M* | *SD* |
|---|---|---|---|---|
| **Attitude** | 1 | 4 | 3.3054 | .3640 |
| I willingly interact with people from other cultures | 1 | 4 | 3.53 | .587 |
| I communicate in others' language in appropriate ways | 1 | 4 | 3.15 | .700 |
| I learn the culture of other people | 1 | 4 | 3.07 | .695 |
| I respect other people's culture | 1 | 4 | 3.49 | .552 |
| I deal with the emotions and frustrations of my involvement in others' culture | 1 | 4 | 3.17 | .598 |
| I am mindful and able to withhold judgment about different beliefs | 1 | 4 | 3.23 | .593 |
| I reflect on the effect of my decisions and behaviour on other people | 1 | 4 | 3.34 | .578 |
| I am curious and eager to discover cultural differences | 1 | 4 | 3.31 | .616 |
| I am open to learning from other people about different cultural practices | 1 | 4 | 3.39 | .589 |
| **Skills** | 1 | 4 | 3.1241 | .4652 |
| I understand factors that have shaped other people's culture | 1 | 4 | 2.81 | .729 |
| I use appropriate strategies for coping with others' culture | 1 | 4 | 3.13 | .606 |
| I interpret, analyse, and relate to others in different contexts | 1 | 4 | 3.18 | .594 |
| I listen to others who are different from me | 1 | 4 | 3.32 | .640 |
| **Knowledge** | 1 | 4 | 3.0045 | .4462 |
| I use suitable strategies for adjusting to my own culture upon returning to my home (region or country) | 1 | 4 | 3.21 | .675 |
| I use a variety of techniques to enhance my learning about others' culture | 1 | 4 | 3.01 | .629 |
| I contrast aspects of the culture of my own and other people | 1 | 4 | 3.03 | .657 |
| I know the essential norms of other people's culture | 1 | 4 | 2.75 | .730 |
| I know how to overcome signs of cultural stress | 1 | 4 | 2.90 | .696 |

| | Min | Max | *M* | *SD* |
|---|---|---|---|---|
| I understand the impact of culture on the different contexts involved | 1 | 4 | 3.12 | .595 |
| I know the techniques to maximise the learning of the language and culture of others | 1 | 4 | 2.75 | .817 |
| **Internal Outcomes** | 1 | 4 | 3.1712 | .4501 |
| I see from others' perspectives and respond as per their desire to be treated | 1 | 4 | 3.03 | .643 |
| I adjust to the new cultural environment | 1 | 4 | 3.21 | .573 |
| I am flexible when I encounter people who are very different from me | 1 | 4 | 3.29 | .559 |
| **External Outcomes** | 1 | 2 | 3.2568 | .4483 |
| I adapt to different communication and learning styles | 1 | 4 | 3.23 | .591 |
| I learn through interaction with others | 1 | 4 | 3.42 | .594 |
| I adapt my behaviour in line with what I learn about communication in others' culture | 1 | 4 | 3.13 | .628 |
| I tolerate the behaviour demonstrated by people from other cultures | 1 | 4 | 3.24 | .564 |

***Factors influencing teacher educators' intercultural competence***

We computed an Independent Samples *t*-test and Analysis of Variance (ANOVA) to attempt this research objective. The results indicated that sex and the college where the academics came from had no significant relationship with all the dimensions of intercultural competence (Table 4). Thus, we accept hypotheses (H2 and H8). Moreover, the rest of the independent variables had a significant relationship with at least one dimension of intercultural competence. In particular, the results indicated that living abroad had a significant relationship ($p < .01$) with the internal outcomes dimension only (Table 4). An analysis of mean scores indicated that teacher educators who had lived abroad had a relatively higher mean score ($M = 3.2374$, $SD = .4411$) than those who never lived abroad ($M = 3.1005$, $SD = .4418$). Impliedly, living abroad influences teacher educators in the dimension of internal outcomes only. Therefore, we accept the hypothesis (H3) for this dimension only.

**Table 4**

*T-test and ANOVA for the dimensions of intercultural competence*

| | Attitude | Knowledge | Skills | Internal Outcomes | External Outcomes |
|---|---|---|---|---|---|
| Sex | .843 | .762 | .415 | .074 | .537 |
| Living abroad | .065 | .867 | .423 | .008** | .950 |
| Duration of staying abroad | .017* | .078 | .150 | .285 | .337 |
| Level of education | .000** | .000** | .026* | .196 | .103 |
| Teaching experience | .042* | .876 | .453 | .057 | .402 |
| The faculty where the academics came from | .009** | .615 | .176 | .167 | .052 |
| The college where the academics came from | .071 | .228 | .094 | .298 | .644 |

$p < .01$**, $p < .05$*

Furthermore, the results indicated that years of staying abroad significantly ($p < .05$) influence academics' intercultural competence in the dimension of attitude only (Table 4). Descriptive statistics indicated that teacher educators who studied or stayed abroad for more than five years had higher mean scores than those who studied or stayed abroad for less than five years (see Table 5). Therefore, the duration of staying abroad influences academics' intercultural competence only in the attitude dimension. Thus, we accept the hypothesis (H4) for this dimension only.

**Table 5**

*Mean scores for the attitude dimension by the duration of staying abroad*

| Duration of staying abroad | *M* | *SD* |
|---|---|---|
| Below 1 year | 3.3185 | .2255 |
| From 1 to 3 years | 3.2356 | .4818 |
| From 3 to 5 years | 3.4356 | .3403 |
| 5 years and above | 3.6296 | .3036 |

From the findings, we note that teacher educators who had stayed abroad for five years and above had higher mean scores compared with those who stayed for a period below five years (Table 5). Nevertheless, it is surprising that teacher educators who studied or stayed abroad for some months had relatively higher mean scores than those who had studied or stayed abroad for one to three years (see Table 5).

**Table 6**

*Mean scores for attitude, knowledge, and skills dimensions by level of education*

| Level of education | Attitude | Knowledge | Skills |
|---|---|---|---|
| Bachelor Degree | *M* = 3.4837, *SD* = .3165 | *M* = 3.2653, *SD* = .4325 | *M* = 3.2206, *SD* = .5565 |
| Master Degree | *M* = 3.1724, *SD* = .3638 | *M* = 2.8439, *SD* = .4155 | *M* = 3.0323, *SD* = .4382 |
| Doctoral Degree | *M* = 3.3692, *SD* = .3375 | *M* = 3.0813, *SD* = .4256 | *M* = 3.1667, *SD* = .4517 |

Regarding the level of education, the results indicated that there was a significant relationship between the level of education and attitude ($p < .01$), knowledge ($p < .01$), and skills ($p < .05$) only (see Table 4). Surprisingly, descriptive statistics indicated that teacher educators with bachelor's degrees had higher mean scores in all three dimensions. Under normal circumstances, teacher educators with higher levels of education are expected to possess intercultural competence. Unexpectedly, teacher educators with master's degrees demonstrated lower mean scores in all dimensions, with knowledge scoring the lowest (see Table 6). Therefore, we accept hypothesis (H5) in these three dimensions only.

**Table 7**

*Mean scores for the attitude dimension by academics' teaching experience*

| Academics' teaching experience | *M* | *SD* |
|---|---|---|
| Below 5 years | 3.2646 | .3802 |
| From 5 to 10 years | 3.2622 | .3641 |
| 10 years and above | 3.3813 | .3313 |

With regard to teaching experience, results indicated that academics' teaching experience was significantly related ($p < .05$) to the dimension of attitude only (see Table 4). After running descriptive statistics, results indicated that teacher educators with a university teaching experience of 10 years and above had higher mean scores than those who had taught for less than ten years (see Table 7). We accept the hypothesis (H6) from the results that academics with different teaching experiences will only differ regarding their intercultural competence in the attitude dimension.

**Table 8**

*Mean scores for the attitude dimension by the faculty where the academics came from*

| Faculty | *M* | *SD* |
|---|---|---|
| Education | 3.3730 | .3122 |
| Humanities and Social Sciences | 3.3239 | .3315 |
| Science | 3.2018 | .4399 |

Concerning the faculty from which the academics came, the results indicated that there was a significant relationship ($p < .01$) between the faculty where teacher academics came from and the attitude dimension of intercultural competence (see Table 4). Descriptive statistics showed that teacher educators from the faculty of education had higher mean scores than those from the faculty of humanities and social sciences and the faculty of science (Table 8). Therefore, we nullify the hypothesis (H7) in the attitude dimension and accept the hypothesis (H7) in all other dimensions of intercultural competence.

## Discussion

The general purpose of the study was to investigate the extent to which teacher educators possess intercultural competence. Also, the study intended to examine the factors that influence the intercultural competence of academics. Descriptive statistics indicated that of all the study participants, 148 (49.7%) had not studied or lived abroad; this implies that many teacher educators lack at least one dimension of intercultural competence. For instance, in this study, results indicated that living abroad influences the dimension of internal outcomes only. On the one hand, the results contradict studies (Behrnd & Porzelt, 2012; Garrote, 2016; Holland, 2013), which found no significant relationship between living abroad and intercultural competence. On the other hand, the results support the previous studies (Maharaja, 2018; Salisbury et al., 2013), which have indicated that living abroad significantly relates to some dimensions of intercultural competence.

Since these two universities have small numbers of international academics and students, we assume that this might have been the reason for those who had never lived abroad to score relatively lower mean scores compared with those who had studied or lived abroad. Thus, they lacked internationalisation across nations and borders (Feng, 2016; Garson, 2016; Salisbury et al., 2013; Wang & Kulich, 2015) and internationalisation at home (Garson, 2016;

Wang & Kulich, 2015). As a solution, individuals must continue to familiarise themselves with intercultural competence. Familiarity with intercultural competence might be useful to teacher educators when they go abroad for further education, conferences, and other academic ventures. Both colleges have internationalisation and convocation departments which link the colleges with other international institutions across the globe, search for scholarships to study abroad, and organise exchange programmes for academics and students. Therefore, it is mandatory that teacher educators acquire intercultural competencies for interaction with people from other cultures. Apart from the colleges, the government of Tanzania has also established various bilateral relations with other countries for the purpose of securing scholarships and exchange programmes for academics (Tingting, 2014). Such efforts by colleges and governments respond to the emphasis made in the studies (Maharaja, 2018; Salisbury et al., 2013), which have suggested that individuals' academic mobility and internationalisation experiences improve their intercultural competence.

Furthermore, although the results indicated that teacher educators had significantly low mean scores in the knowledge dimension, generally, teacher educators reported having moderate levels of intercultural competence. The fact that academics scored low in the items measuring the dimension of knowledge is a sign for academics to continue to familiarise themselves with the knowledge dimension of intercultural competence.

With regard to the contradictory results of sex and intercultural competence noted in the previous studies (Garrote, 2016; Hyde & Linn, 2006; Polat & Barka, 2014), the present study indicates that men and women have no significant relationship with any of the intercultural competence. Such contradicting results continue to place sex as an important variable that researchers must consider when conducting intercultural competence studies. Moreover, the results from this study replicate earlier findings (Hudelson et al., 2011; Peng & Wu, 2016) that teaching experience significantly relates to the dimensions of intercultural competence. In this study, teaching experience is significantly only associated with the dimension of attitude. Furthermore, this study replicates the earlier studies (Hudelson et al., 2011; Peng & Wu, 2016), which found that academics with many years of teaching experience had higher mean scores than those with few years of teaching experience.

Our results contradicted the previous study on the duration of living abroad (Behrnd & Porzelt, 2012), which indicated that the duration of stay had no significant relationship with intercultural competence. Our results indicated that living abroad significantly relates to at least one dimension of intercultural competence: attitude. Similar to our expectations, the results indicated that

teacher educators who had lived abroad for many years had higher mean scores than those who had studied or lived for a few years. Surprisingly, teacher academics who lived abroad for a period below one year had higher mean scores than those who studied or lived for one to three years.

Polat and Barka (2014) found that pre-service teachers in primary education departments were more competent in intercultural competence than pre-service teachers in preschool education. Such results communicate that the higher the level of education, the more the individual becomes interculturally competent. Similarly, logic also tells us that those with higher levels of education are expected to demonstrate higher mean scores in intercultural competence. This is because those with higher education levels tend to have local and global connections (Chi & Suthers, 2015). In contradiction with these studies, our results indicated that teacher educators with bachelor's degrees had higher mean scores in the dimensions of attitude, knowledge, and skills. They outshone teacher educators with master's and doctoral degrees.

Regarding the faculty from which the academics came, the results indicated that teacher educators from the faculty of education had higher mean scores than those from other faculties. Those from the faculty of science had the lowest mean scores. We assume the programme course content taught by academics from humanities and social sciences, and education might have influenced the results. Those from the faculty of education, and humanities and social sciences teach courses related to intercultural competence, such as internationalisation, globalisation, modernisation, and public relations.

## Conclusions

The study concludes that teacher educators possessed much intercultural competence, particularly in attitude, external outcomes, internal outcomes, and skills dimensions. Nevertheless, they have to improve in the dimension of knowledge, which had significantly lower mean scores. Furthermore, the study concludes that factors such as living abroad, duration of staying abroad, level of education, academics' teaching experience, and the faculty where the academics came from significantly influence at least one dimension of intercultural competence. From the study findings, we recommend the following for future research. First, a qualitative study may explore why teacher educators with bachelor's degrees surpassed those with master's and doctoral degrees in possessing intercultural competence. Second, a study may examine why teacher educators who lived abroad for a period below one year had higher mean scores than those who lived abroad for one to three years. Finally, since the

instruments for this study were modified from the Asian and Western studies, it is recommended that a study be conducted to validate the tools for measuring intercultural competence among academics in the context of Tanzania.

## Disclosure statement

The authors have no conflict of interest to declare.

## References

Behrnd, V., & Porzelt, S. (2012). Intercultural competence and training outcomes of students with experiences abroad. *International Journal of Intercultural Relations*, *36*(2), 213–223. https://doi.org/10.1016/j.ijintrel.2011.04.005

Chen, G. M., & Starosta, W. J. (1996). Intercultural communication competence: A synthesis. *Communication Yearbook*, *19*(1), 353–383. https://doi.org/10.1080/23808985.1996.11678935

Chi, R., & Suthers, D. (2015). Assessing intercultural communication competence as a relational construct using social network analysis. *International Journal of Intercultural Relations*, *48*, 108–119. https://doi.org/10.1016/j.ijintrel.2015.03.011

Costello, J. (2015). Students' stories of studying abroad: Reflections upon return. *Journal of International Students*, *5*(1), 50–59. https://doi.org/10.32674/jis.v5i1.442

Deardorff, D. K. (2006). Identification and assessment of intercultural competence as a student outcome of internationalization. *Journal of Studies in International Education*, *10*(3), 241–266. https://doi.org/10.1177/1028315306287002

Duvivier, R. (2017). Effects of study abroad on graduate student dispositions, knowledge and skills. *College Student Affairs Journal*, *35*(2), 15–28. https://doi.org/10.1353/csj.2017.0010

Feng, J. B. (2016). Improving intercultural competence in the classroom: A reflective development model. *Journal of Teaching in International Business*, *27*(1), 4–22. https://doi.org/10.1080/08975930.2016.1172540

Garrote, M. (2016). Intercultural competence in teaching: Defining the intercultural profile of student teachers. *Bellaterra Journal of Teaching & Learning & Literature*, *9*(4), 41–58. https://doi.org/10.5565/rev/jtl3.670

Garson, K. (2016). Reframing internationalization. *Canadian Journal of Higher Education*, *46*(2), 19–39. https://doi.org/10.47678/cjhe.v46i2.185272

Gong, Y., Hu, X., & Lai, C. (2018). Chinese as a second language teachers' cognition in teaching intercultural communicative competence. *System*, *78*, 224–233. https://doi.org/10.1016/j.system.2018.09.009

Hett, G., & Hett, J. (2013). Education ethics in intercultural research: Reflections on the challenges of conducting field research in a Syrian context. *Compare: A Journal of Comparative and International*, *43*(4), 37–41. https://doi.org/10.1080/03057925.2013.797753

Holland, C. K. (2013). *Classroom intercultural competence in teacher education students, interns, and alumni*. University of North Florida.

Holmes, P., & O'Neill, G. (2012). Developing and evaluating intercultural competence: Ethnographies of intercultural encounters. *International Journal of Intercultural Relations*, *36*(5), 707–718. https://doi.org/10.1016/j.ijintrel.2012.04.010

Hudelson, P., Perron, N., & Perneger, T. (2011). Self-assessment of intercultural communication skills: A survey of physicians and medical students in Geneva, Switzerland. *BMC Medical Education*, *11*(1), 1–9. https://doi.org/10.1186/1472-6920-11-63

Jackson, J. (2015). Becoming interculturally competent: Theory to practice in international education. *International Journal of Intercultural Relations*, *48*, 91–107. https://doi.org/10.1016/j.ijintrel.2015.03.012

Kealey, D. J. (2015). Some strengths and weaknesses of 25 years of research on intercultural communication competence: Personal reflections. *International Journal of Intercultural Relations*, *48*, 14–16. https://doi.org/10.1016/j.ijintrel.2015.03.005

Lieberman, D. A., & Gamst, G. (2015). Intercultural communication competence revisited: Linking the intercultural and multicultural fields. *International Journal of Intercultural Relations*, *48*, 17–19. https://doi.org/10.1016/j.ijintrel.2015.03.007

Maharaja, G. (2018). The impact of study abroad on college students' intercultural competence and personal development. *International Research and Review: Journal of Phi Beta Delta*, *7*(2), 18–41. https://doi.org/10.14746/ssllt.2019.9.4.6

Messner, W. (2015). Measuring existent intercultural effectiveness in global teams. *International Journal of Managing Projects in Business*, *8*(1), 107–132. https://doi.org/10.1108/IJMPB-05-2014-0044

Miller, J. W., & Tucker, J. S. (2015). Addressing and assessing critical thinking in intercultural contexts: Investigating the distance learning outcomes of military leaders. *International Journal of Intercultural Relations*, *48*, 120–136. https://doi.org/10.1016/j.ijintrel.2015.07.002

Morley, L., & Lugg, R. (2009). Mapping meritocracy: Intersecting gender, poverty and higher educational opportunity structures. *Higher Education Policy*, *22*(1), 37–60. https://link.springer.com/article/10.1057/hep.2008.26

Nadeem, U. M., Mohammed, R., & Dalib, S. (2020). Retesting integrated model of intercultural communication competence (IMICC) on international students from the Asian context of Malaysia. *International Journal of Intercultural Relations*, *74*, 17–29. https://doi.org/10.1016/j.ijintrel.2019.10.005

Nair-Venugopal, S. (2015). Issues of language and competence in intercultural business contexts. *Language and Intercultural Communication*, *15*(1), 29–45. https://doi.org/10.1080/14708477.2014.985304

Odağ, Ö., Wallin, H. R., & Kedzior, K. K. (2016). Definition of intercultural competence according to undergraduate students at an international university in Germany. *Journal of Studies in International Education*, *20*(2), 118–139. https://doi.org/10.1177/1028315315587105

Peng, H., Lu, W., & Wang, C. (2009). A framework for assessing high school students' intercultural communicative competence in a computer-mediated language learning project. *Journal of Interactive Learning Research*, *20*(1), 95–116. https://eric.ed.gov/?id=EJ826784

Peng, R., & Wu, W. (2016). Measuring intercultural contact and its effects on intercultural competence: A structural equation modeling approach. *International Journal of Intercultural Relations*, *53*, 16–27. https://doi.org/10.1016/j.ijintrel.2016.05.003

Polat, S., & Barka, T. O. (2014). Preservice teachers' intercultural competence: A comparative study of teachers in Switzerland and Turkey. *Eurasian Journal of Educational Research*, *14*(54), 19–38. https://dergipark.org.tr/en/download/article-file/59884#page=21

Portera, A. (2020). Intercultural competence in education to foster European identity. *Journal of Educational Sciences*, *40*(2), 14–27. https://doi.org/10.35923/jes.2019.2.02

Portera, A., & Milani, M. (2021). Intercultural education and competences at school. Results of an exploratory study in Italy. *Profesorado*, *25*(3), 49–67. https://doi.org/10.30827/PROFESORADO.V25I3.21527

Presbitero, A., & Attar, H. (2018). Intercultural communication effectiveness, cultural intelligence and knowledge sharing: Extending anxiety-uncertainty management theory. *International Journal of Intercultural Relations*, *67*, 35–43. https://doi.org/10.1016/j.ijintrel.2018.08.004

Rathje, S. (2007). Intercultural competence: The status and future of a controversial concept. *Language and Intercultural Communication*, *7*(4), 254–266. https://doi.org/10.2167/laic285.0

Salisbury, M. H., An, B. P., & Pascarella, E. T. (2013). The effect of study abroad on intercultural competence among undergraduate college students. *Journal of Student Affairs Research and Practice*, *50*(1), 1–20. https://doi.org/10.1515/jsarp-2013-0001

Scarino, A. (2009). Assessing intercultural capability in learning languages: Some issues and considerations. *Language Teaching*, *42*(1), 67–80. https://doi.org/10.1017/S0261444808005417

Shamim, F., & Qureshi, R. (2013). Informed consent in educational research in the South: Tensions and accommodations. *Compare: A Journal of Comparative and International Education*, *43*(4), 37–41. https://doi.org/10.1080/03057925.2013.797729

Streitwieser, B. T., & Light, G. J. (2018). Student conceptions of international experience in the study abroad context. *Higher Education*, *75*(3), 471–487. https://link.springer.com/article/10.1007/s10734-017-0150-0#

Tingting, Y. (2014). Diploma serves diplomacy: China's "donor logic" in educational aid. *China: An International Journal*, *12*(2), 87–109. http://muse.jhu.edu/article/553150

Trede, F., Bowles, W., & Bridges, D. (2013). Developing intercultural competence and global citizenship through international experiences: Academics' perceptions. *Intercultural Education*, *24*(5), 442–455. https://doi.org/10.1080/14675986.2013.825578

Vižintin, M. A. (2018). Developing intercultural education. *Dve Domovini*, *47*, 89–106. https://doi.org/10.3986/dd.2018.1.06

Vižintin, M. A. (2022). *The role of teachers in the successful integration and intercultural education of migrant children*. Cambridge Scholars. https://www.cambridgescholars.com/product/978-1-5275-8780-9

Vögtle, E. M., & Windzio, M. (2023). Does academic freedom matter for global student mobility? Results from longitudinal network data 2009–2017. *Higher Education*, *87*, 433–452.

https://doi.org/10.1007/s10734-023-01015-x

Wang, Y., & Kulich, S. J. (2015). Does context count? Developing and assessing intercultural competence through an interview- and model-based domestic course design in China. *International Journal of Intercultural Relations*, *48*, 38–57. https://doi.org/10.1016/j.ijintrel.2015.03.013

## Biographical note

**Patrick Severine Kavenuke**, PhD, is a Senior Lecturer in Educational Foundations, Management and Lifelong Learning department at Dar es Salaam University College of Education, University of Dar es Salaam. His main areas of research are teacher education, critical pedagogy, critical thinking skills in students, teacher-student relationships, international and comparative education, and teacher professional development.

**Grace Ezekiel Kihwele** is an Assistant Lecturer in Educational Foundations, Management and Lifelong Learning department at Dar es Salaam University College of Education, University of Dar es Salaam. Her main areas of research are equity and equality in education, international and comparative education, gender and education, teacher ethics, teacher-student relationships, and students' discipline.

Received: 9 September 2022, Accepted: 13 July 2023,
Published on-line as Recently Accepted Paper: October 2023 DOI: https://doi.org/10.26529/cepsj.1522

# The Real and the Virtual in the Spatial Perception of Education Students

Bea Tomšič Amon[1]

The article presents an investigation conducted with education students at the Faculty of Education, University of Ljubljana. The aim was to determine whether the perception and image of urban space have changed over the years, as the same questionnaire was used in 2001 and 2019. The students had to choose which of the eleven questions contained in the questionnaire they wanted to answer in order to describe their favourite place in the city. Questions that were not significant to them were left unanswered. Here we present a comparison between the results from 2001 and 2019, analysed quantitatively and qualitatively. Despite the fact that spatial perception involves all of the senses, it was the sense of touch, as opposed to vision, that was mentioned the least in both cases. Our original assumption was that with the advance of digital media, perception of real space would be more concise. However, there were a number of students in 2019 who expressed themselves more accurately than those in 2001, suggesting that students have developed a greater sensitivity towards space. The general findings suggest that we should rethink the pedagogical process and some suggestions are presented in the conclusion.

**Keywords:** multisensory experience, pedagogical strategies, real space, urban space perception, virtual space

1 Faculty of Education, University of Ljubljana, Slovenia; Bea.Tomsic@pef.uni-lj.si.

# Realno in virtualno dojemanje prostora bodočih učiteljev

Bea Tomšič Amon

Članek predstavlja raziskavo, ki smo jo opravili s študenti razrednega pouka Pedagoške fakultete Univerze v Ljubljani. Namen je bil ugotoviti, ali sta se dojemanje in podoba urbanega prostora skozi leta spreminjala, saj je bil isti vprašalnik uporabljen v letih 2001 in 2019. Vseboval je enajst vprašanj. Študentje so morali izbrati, na katera vprašanja želijo odgovoriti, da bi opisali svoj najljubši kraj v mestu, in pustiti neodgovorjene tiste, ki jim niso bili pomembni. Predstavljamo primerjavo med obema rezultatoma, tj. iz let 2001 in 2019. Analizirani so bili kvantitativno in kvalitativno. Čeprav prostorsko zaznavanje vključuje vsa čutila, je dotik v nasprotju z vidom najmanj omenjen v obeh primerih. Naša prvotna predpostavka je bila, da bo z napredkom digitalnih medijev dojemanje realnega prostora bolj jedrnato, vendar pa je bilo leta 2019 kar nekaj študentov, ki so se natančneje izražali kot leta 2001, kar kaže na to, da so razvili večjo občutljivost za prostor. Splošne ugotovitve nakazujejo, da bi morali ponovno razmisliti o pedagoškem procesu. Nekaj predlogov je podanih v zaključku.

**Ključne besede:** multisenzorna izkušnja, pedagoške strategije, realni prostor, percepcija urbanega prostora, virtualni prostor

## Introduction

Issues related to perception in general and in the educational process have been addressed in various issues of the CEPS Journal over the years, such as Teaching and Learning through Art (Tomšič Čerkez, 2015), Sustainable Development in Education (Devetak & Krek, 2013), Visualization in Education (Devetak, 2011), and Physical Space and the Process of Education (Tomšič Čerkez & Zupančič, 2011). These articles show how spatial awareness is present in different aspects of the educational process. The present article aims to discuss students' awareness of the qualities and characteristics of a space. By comparing the results of a questionnaire on this topic that was first conducted in 2001 and repeated in 2019, we wanted to determine whether there were any differences between the results of the first and the second evaluation.

The interest in conducting the research presented here arose when we noticed that the results of an exercise conducted by our students, inspired by the particular image of the city that each individual creates through his or her life experience, had changed significantly over the years. The exercise consisted of creating a graphic representation of the journey from home to college, highlighting the mental schema created by the daily serial repetition of this experience (Cullen, 2006, p. 17). The idea was to determine how different urban elements become landmarks in individual perception (Lynch, 1990, p. 9).

We began conducting the exercise in 2001 and over the years noticed that the individual schemas were losing richness. Many students perceived fewer elements and were less attentive to what was going on around them.

In an informal conversation with the students, we shared our observations with them and asked whether they could identify any reason why this had changed over the years. Many of them gave a very simple but logical answer: they are more focused on their digital devices, such as cell phones, and are no longer aware of their surroundings, which no longer occupy their attention as much. It is obvious that students' lives, mindsets and habits have changed a lot in the last two decades.

After this exercise, the students completed a questionnaire with eleven questions about the characteristics of their general spatial awareness. The aim was to determine which elements of space attract their attention in order to develop appropriate pedagogical strategies to improve spatial awareness based on this information.

***About the perception of space***

Perception in general assumes that the brain organises and interprets sensory information. The sources of information are elements in the space surrounding the observer. Before this information can be processed by the brain, it must first be received. This is done through receptors, which, in the case of humans, are the five basic senses: sight, hearing, smell, taste and touch.

A comparison of the perception of the environment by the human senses shows that the sense of sight predominates with 83%, followed by the sense of hearing with 11%, the sense of smell with 3.5%, the sense of touch with 1.5% and the sense of taste with 1% (Skaza, 2019, p. 4). Although the data presented show the overwhelming superiority of the sense of sight, the other senses should not be ignored. It is necessary to point out some characteristic features that distinguish the senses from each other. Since some receptors in the eye are responsible for colour detection and others for brightness detection, vision can be considered as a sense consisting of two separate senses. One needs to see much more than what our eyes perceive. One should hear and feel much more than what the receptors of our nervous system register.

At the same time, one must take into account the simultaneity of sensory stimuli related to pressure, temperature, balance (related to the labyrinth of the ear) and proprioception (the sense of the relative position of one's body parts and muscle tension) (Skaza, 2019, p. 4). On the other hand, in humans, even if a correct form of perception is observed, the content of the observation may not correspond to reality. It should also be taken into account that the involvement of each sense in the perceptual process varies, since some stimuli are more important for the receiver and others are merely complementary to the perceptions (Franchak, 2020).

Until relatively recently, perception was viewed as a largely passive and inevitable response to stimuli (Bintari, 2018). Although this notion is still valid, several studies add elements that complement and enrich the possible definitions of perception (Skaza, 2019; Bintari, 2018; Mitrache, 2013; Banaei et al. 2017).

Contemporary cognitive scientists explain perception as an active process in which the brain treats external stimuli as raw material that is shaped using our past experiences. Perceptions are shaped by three sets of influences: the physical properties of the stimuli, the relationship of the stimuli to their environment, and the conditions within the individual. With respect to stimuli, the last group of influences is the only reason why perception is a personal characteristic. The factors that influence this frame of reference include learning experiences, attitudes and personality (Bintari, 2018; Rocha, 2017), but perception is also influenced by several other factors, such as mood, physical

abilities to experience sensations, motivation, the social and physical context in which things are perceived, and the physical composition of the stimuli received (Bintari, 2018).

The view of the last two decades assumes that perception and its conceptualisation are not instantaneous. Rather, humans perceive first, think second and conceptualise or express their thoughts third (Franchak, 2020). Conceptually, the perceptual experience of urban space is related to sensory pleasure, a fleeting action or reaction triggered by a particular context. Generally, it is considered as an internal feeling perceived by each individual according to his or her personal interpretive filters, with cultural and social dimensions; however, it can also be recognised as a feeling shared by a community with a common denominator. Both the enjoyment and the appropriation of space by its inhabitants give it properties that complete its semantic and physical definition. The experience does not emanate directly from the space, but is created in part by the inhabitant, who changes, defines and completes it through his or her active and creative appropriation. The inhabitant is a producer and creator, rather than a mere spectator of an "empty container" (Coelho, 2015). Embodied experience means that we relate to space with all of our senses in motion, so that qualities that were considered secondary in the Cartesian tradition – such as colour, texture, the glint of sunlight on a windowpane, the echo of footsteps – become primary to space. Thus, spatial sensibility can be defined as the unconscious awareness of the transient fusion of sensory signals that make up the sense of place at a given moment (Mitrache, 2013, p. 545).

***The individual in space***

Our perception of space is not continuous, but partial and fragmentary. All of the senses are in action and the image we receive is a combination of them all with none predominating, except in moments of concentration on something specific. It is a multisensory experience. We are sure of the characteristics of some aspects of space, while other are less obvious (Rossi, 1984).

Through the selection and combination of materials, colours and shapes, the architect creates messages that we not only see, but also hear, smell and feel. Although we are often unaware of the quantity of stimuli, we nonetheless respond to them. We may perceive a living room as cool or warm, regardless of the actual temperature in the room; the acoustics of a large cathedral uplift and excite us, while a small chapel gives us a sense of intimacy; we may feel claustrophobic in an elevator; the acoustics of an open space can create a sense of freedom, but also of uncertainty; based on the characteristics of sounds in a room, we can guess whether we are in a public or private place. Although the variety of

sensory impressions helps to create an internal experience of an external reality, it is different for each user and depends on his or her previous experiences and sensitivity, as well as on culture (Blesser & Salter, 2009, pp. 2–3).

Pallasmaa (2011, p. 50) reinforces these ideas by saying that the image is generally considered from a purely visual point of view, whereas the qualitative characteristic of our senses is their tendency to integrate: the visual image is always accompanied by connotative effects that encompass all of the senses. The author highlights fundamental aspects of perceptual experience in space, such as individuality, subjectivity and originality. It is indeed a specific experience of each person. In *Art as Experience*, Dewey (1980) says that the properties of the senses – touch, taste, sight and hearing – have aesthetic qualities, not in isolation, but connected in a whole in which they interact, rather than functioning as separate entities. These entities are never related to themselves, colour to colour or sound to another sound.

On the other hand, the perception of space does not only refer to the material aspects. Tschumi (2001) argues that the disjunction between spaces and their use – between objects and events, being and meaning – is not accidental. This disjunction can turn into a confrontation in which a new relationship of desire and violence at the same time inevitably emerges (Tschumi, 2003).

Today, the world of architecture offers new experiences. A space without boundaries and almost without predictability is slowly replacing the traditional architectural space centred on the human body.

***Virtual space***

In recent years, many students have emphasised the increasing use of digital media resulting in reduced perception of the features of the environment. We therefore consider it necessary to review the importance of the virtual space in which they are immersed.

Vidler (2001, pp. 6–7) claims that the contemporary graphic effects of digital space owe a great deal to the representational experiments of modernism, in ways that imply important features in theorising about the virtual. It is true that although the forms and approaches of presentation techniques are multiplying, little has changed in the notion of space. Perspective is still the law in virtual and real environments. However, the simulation technique has changed, as has the location or position of the subject, the traditional viewer of the representation. Most questionable in this context is the self-generation of the computer program and its blindness to the presence of the viewer. The screen is located in a place that is indeterminate for the subject. On the other hand, the individuality of the gaze confirms the existence of different

"spectatorial techniques" and a particular attentional awareness in perception as a model for the way the subject builds a coherent conception of the world. The model is not only visual, as perception is not measured exclusively in terms of proximity or timeliness. According to Crary (2001, pp. 2–13), perception is a function that ensures activity, productivity, adaptability and predictability, as well as the social integration of the subject. He argues that a reconceptualisation of perception is therefore very important in the transformation of mass culture, and that it may be necessary to recognise that digitisation has changed the way we look at and see space. In terms of the importance of seeing, Grau (2003, p. 17) affirms that what we call reality is simply a statement of what we can actually perceive, what we see.

Dynamic digital imagery presupposes immersion in a virtual reality. Interactive media has transformed our notion of the image into a multisensory, interactive experiential space with a timeframe, as Grau points out. Most virtual realities, which are almost fully experienced, hermetically isolate the viewer from external visual impressions, widen the perspective from real space to illusion space, pay attention to scale correspondence and colour, and use effects to make the image appear like the real source. The term "virtual reality" is a paradox, a contradiction in terms, describing a space composed of illusory sensory directions. Furthermore, and for this very reason, virtual reality is essentially immersive (Grau, 2003).

Digitisation has also changed the way we perceive our bodies. It promises the possibility of interaction between one or more subjects, spatially dispersed but able to interact with each other in a shared environment through a computer terminal, acting invasively in increasingly complex situations characterised by increasingly hybrid and subtly designed technology (Hoelzl, 2021, p. 19). Much of the excitement generated by virtual reality has to do with the expendability or redundancy of the body. It is a unique and unchanging body that is much more liberal than restrictive, argues Grosz (2001, p. 51).

It is in this broad context that we can understand and frame the importance of the research we present below: major changes in the conceptualisation, perception and evaluation of events in real space, parallel to major transformations in the pedagogical sphere, the emergence of a new "spectator" and rapid functional changes in his or her life and self-perception.

The main problem we wanted to investigate was a comparison between the results of the questionnaire that was first conducted in 2001 and repeated in 2019, in order to verify whether there were differences between the results of the first and the second evaluation. We wanted to identify which aspects of spatial perception had changed and which had not. In addition, we sought

to determine why there were differences and how the experiences of virtual and real space interacted in the students' perceptions of them. In conclusion, there is a need to determine which pedagogical tools can be used to reshape and enrich these worldviews despite the growing role that technology plays in students' lives.

## Method

In order to answer the main question of the investigation, we needed to obtain a more detailed picture of the situation. For this purpose, we distributed a questionnaire with eleven questions. The students had to choose which questions to answer in order to describe their favourite place in the city, but were instructed not to answer questions that they felt were unimportant. Here we present a comparison between the results of the questionnaire when it was first administered in 2001 and the results obtained in 2019, thus enabling us to identify any differences.

### *Sample*

In both 2001 and 2019, the questionnaire was administered to 60 final-year education students at the Faculty of Education, University of Ljubljana. The sample included students from different cities of Slovenia, and special attention was paid to the competencies they had acquired, as the second group studied after the introduction of the Bologna reform (Sagadin, 1997, p. 216).

### *Research design and instruments*

The questionnaire was completed in written form, which allowed us to retain the material from 2001 and compare it with the responses obtained almost two decades later. In both cases, it consisted of following the general instruction: "Imagine describing your favourite place in your city to a blind friend. Answer only the questions that you think most convincingly, clearly and completely describe that place." We should emphasise that the goal of alluding to blindness was to motivate students to think beyond the traditional five-senses-based approach to remembering space. It was not a limitation. This detail was explained to the students before the work began. Each student was asked eleven questions related to each of the typical senses for estimating and perceiving space and spatial features:

1. What can you hear?
2. What can you smell?
3. What can you feel with your fingertips?

4. How would you describe the temperature of the space?
5. How would you describe the light in the space?
6. How would you describe the humidity in the space?
7. How would you describe the space in general?
8. What colours do you perceive?
9. Describe your sense of size. Do you feel constrained or limited in any way?
10. Do you feel free in this place?
11. Would you suggest anything else or add anything to your description?

The questionnaire had been previously tested in a pilot group of 20 students from a statistically similar population. The nature of the responses in the pilot test allowed for the construction of a scale and the elaboration of categories to classify the responses. The responses were analysed in two phases: first, the number of positive responses was considered, i.e., the number and type of questions each student answered because they felt the information was important in describing the place, then the content of the positive responses and the type of information given were analysed. Five categories were developed to classify the responses:

A. Narrow objective description: no more than two objective descriptive elements are mentioned.
B. Broad objective description: more than two objective descriptive elements are mentioned.
C. Narrow subjective description: no more than two subjective elements are mentioned.
D. Broad subjective description: more than two subjective elements are mentioned.
E. Positive or negative answer without description.

It is important to indicate the meaning of objective and subjective adjectives in the classification. Objective adjectives refer to facts that can be measured, numbered or clearly specified (such as colour, name and type of materials used, etc.), whereas subjective adjectives are descriptions in which adjectives predominate, as in the case of very personal, metaphorical or non-measurable events (e.g., the statement "In this place I feel like a bird"). The number of items for each category was determined based on the results of the pilot test. Three evaluators assessed the answers to ensure the validity and objectivity of the evaluation, and the results were analysed with descriptive statistics.

## Results

Table 1 shows the comparative results expressed as percentages for each of the questions in the first phase of the study in 2001 and the second phase in 2019. Approximate figures are used in the subsequent text, as the detailed totals and percentages are clearly presented in the table.

**Table 1**

*Comparative results*

| Questions | Year | Answers | |
|---|---|---|---|
| | | Results | |
| | | Percentage of answered questions | Percentage of unanswered questions |
| 1. What can you hear? | 2001 | 65.13 | 34.87 |
| | 2019 | 75.15 | 24.85 |
| 2. What can you smell? | 2001 | 56.78 | 43.22 |
| | 2019 | 61.79 | 38.21 |
| 3. What can you feel with your fingertips? | 2001 | 41.75 | 58.25 |
| | 2019 | 35.07 | 64.93 |
| 4. How would you describe the temperature of the space? | 2001 | 65.13 | 34.87 |
| | 2019 | 68.47 | 31.53 |
| 5. How would you describe the light in the space? | 2001 | 63.46 | 36.54 |
| | 2019 | 81.83 | 18.17 |
| 6. How would you describe the humidity in the space? | 2001 | 43.42 | 56.58 |
| | 2019 | 56.78 | 43.22 |
| 7. How would you describe the space in general? | 2001 | 75.15 | 24.85 |
| | 2019 | 56.78 | 43.22 |
| 8. What colours do you perceive? | 2001 | 85.17 | 14.83 |
| | 2019 | 80.16 | 19.84 |
| 9. Describe your sense of size. Do you feel constrained or limited in any way? | 2001 | 83.50 | 16.50 |
| | 2019 | 85.17 | 14.83 |
| 10. Do you feel free in this place? | 2001 | 88.51 | 11.49 |
| | 2019 | 75.15 | 24.85 |
| 11. Would you suggest anything else or add anything to your description? | 2001 | 33.40 | 66.60 |
| | 2019 | 25.05 | 74.95 |

Most of the students considered the information about the sense of touch irrelevant when describing a space: slightly more than 58% of the students did not answer the question in 2001, while the results were even higher in 2019, with almost 65% not answering. Similarly, the majority of the students, slightly more than 56%, did not answer the question about the description of the humidity of the place in 2001. In 2019, the number of students not answering this question

decreased by more than 10%. The question about the sense of smell was answered by almost 56% of the students in 2001 and decreased by almost 10% in 2019.

The above figures are relevant because they are different from the results for the topics related to the sense of hearing and the description of the temperature and light in the space. In these cases, an average of 65% of the students answered the questions in 2001, compared to 75% in 2019. The highest scores were for the question about the colours and general characteristics of the space. In 2001, an average of 86% of the students answered these questions, whereas an average of 77% responded to these questions in 2019. The two questions related to the feeling of size or limitation in space and to the feeling of freedom in general were answered by a high number of respondents: about 83% for the first question in 2001 and 85% in 2019. The question about the feeling of freedom in the place was answered by 88% of the students in 2001, but only about 75% in 2019. Just over 66% of the students did not answer in 2001 when asked if they would add anything to the description, and a much higher percentage, nearly 75%, did not answer in 2019.

Table 2 shows the relationship between the different ratings. The type of data refers to the percentage (%) and the number of students who responded in a particular way (*N*). The letters refer to each of the categories analysed.

**Table 2**

*The relationship between the different ratings.*

| Questions | Year | Answers | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Type of data | Positive responses in the first phase | Categories | | | | |
| | | | | A | B | C | D | E |
| 1. What can you hear? | 2001 | % | 65.13 | 81.92 | 12.8 | 0.00 | 2.54 | 2.54 |
| | | *N* | 39 | 32 | 5 | 0 | 1 | 1 |
| | 2019 | % | 75.15 | 86.58 | 6.66 | 2.22 | 4.44 | 0.00 |
| | | *N* | 45 | 39 | 3 | 1 | 2 | 0 |
| 2. What can you smell? | 2001 | % | 56.78 | 82.32 | 8.82 | 5.88 | 0.00 | 2.94 |
| | | *N* | 34 | 28 | 3 | 2 | 0 | 1 |
| | 2019 | % | 61.79 | 81.00 | 5.40 | 2.70 | 8.10 | 2.70 |
| | | *N* | 37 | 30 | 2 | 1 | 3 | 1 |
| 3. What can you feel with your fingertips? | 2001 | % | 41.75 | 87.00 | 8.00 | 0.00 | 4.00 | 4.00 |
| | | *N* | 25 | 21 | 2 | 0 | 1 | 1 |
| | 2019 | % | 35.07 | 71.40 | 14.28 | 0.00 | 9.52 | 4.76 |
| | | *N* | 21 | 15 | 3 | 0 | 2 | 1 |
| 4. How would you describe the temperature of the space? | 2001 | % | 65.13 | 74.24 | 12.80 | 2.56 | 0.00 | 10.24 |
| | | *N* | 39 | 29 | 5 | 1 | 0 | 4 |
| | 2019 | % | 68.47 | 78.08 | 9.76 | 2.88 | 7.32 | 0.00 |
| | | *N* | 41 | 32 | 4 | 2 | 3 | 0 |

| Questions | Year | Answers | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Type of data | Positive responses in the first phase | Categories | | | | |
| | | | | A | B | C | D | E |
| 5. How would you describe the light in the space? | 2001 | % | 63.46 | 89.42 | 7.89 | 0.00 | 2.63 | 0.00 |
| | | *N* | 38 | 34 | 3 | 0 | 1 | 0 |
| | 2019 | % | 81.83 | 89.76 | 8.16 | 2.04 | 0.00 | 0.00 |
| | | *N* | 49 | 44 | 4 | 1 | 0 | 0 |
| 6. How would you describe the humidity in the space? | 2001 | % | 43.42 | 84.48 | 7.68 | 0.00 | 3.84 | 0.00 |
| | | *N* | 26 | 22 | 3 | 0 | 1 | 0 |
| | 2019 | % | 56.78 | 91.14 | 5.88 | 2.94 | 0.00 | 0.00 |
| | | *N* | 34 | 31 | 2 | 1 | 0 | 0 |
| 7. How would you describe the space in general? | 2001 | % | 75.15 | 66.60 | 31.08 | 0.00 | 2.22 | 0.00 |
| | | *N* | 45 | 30 | 14 | 0 | 1 | 0 |
| | 2019 | % | 56.78 | 49.98 | 20.58 | 14.70 | 11.76 | 2.94 |
| | | *N* | 34 | 17 | 7 | 5 | 4 | 1 |
| 8. What colours do you perceive? | 2001 | % | 85.17 | 82.32 | 15.68 | 0.00 | 1.96 | 0.00 |
| | | *N* | 51 | 42 | 8 | 0 | 1 | 0 |
| | 2019 | % | 80.16 | 79.04 | 20.80 | 0.00 | 0.00 | 0.00 |
| | | *N* | 48 | 38 | 10 | 0 | 0 | 0 |
| 9. Describe your sense of size. Do you feel constrained or limited in any way? | 2001 | % | 83.50 | 50.00 | 8.00 | 0.00 | 0.00 | 42.00 |
| | | *N* | 50 | 25 | 4 | 0 | 0 | 21 |
| | 2019 | % | 85.17 | 58.80 | 13.72 | 7.84 | 9.80 | 9.80 |
| | | *N* | 51 | 30 | 7 | 4 | 5 | 5 |
| 10. Do you feel free in this place? | 2001 | % | 88.51 | 58.28 | 3.76 | 3.76 | 0.00 | 33.84 |
| | | *N* | 53 | 31 | 2 | 2 | 0 | 18 |
| | 2019 | % | 75.15 | 59.94 | 15.54 | 6.66 | 8.88 | 8.88 |
| | | *N* | 45 | 27 | 7 | 3 | 4 | 4 |
| 11. Would you suggest anything else or add anything to your description? | 2001 | % | 33.40 | 25.00 | 5.00 | 5.00 | 0.00 | 65.00 |
| | | *N* | 20 | 5 | 1 | 1 | 0 | 13 |
| | 2019 | % | 25.05 | 26.64 | 0.00 | 6.66 | 0.00 | 66.60 |
| | | *N* | 15 | 4 | 0 | 1 | 0 | 10 |

Source: self-generated table.

As shown in Table 2, in the first implementation of the questionnaire in 2001, the majority of the students answered almost all of the questions with concrete facts; only the questions about colours and the description of the space had a better average. In the questionnaire administered in 2019, the majority of the students answered almost all of the questions with concrete facts, just as the students had 18 years earlier, but with a lower average of narrow descriptions than before, and with more subjective descriptions. In some cases, there was a much wider spread of results. The question related to hearing scored highly, with just over 88% in the narrow objective description category. The questions on smell and touch received more than 80% in 2001, while in 2019 the score for the sense of touch decreased by slightly more than 10%. The highest scores in this category were obtained in the questions describing the light at the site

and the humidity, with just over 90%. These results remained about the same in 2019. The results for questions about temperature, description of the space and colours were slightly lower in 2001, averaging 65%. In 2019, the scores for the questions on description of space and colours were more than 10% lower than two decades earlier. The lowest scores were for the last three questions on sense of size, sense of freedom and possible suggestions, with scores of 50%, 58.28% and 25%, respectively, in 2001. In 2019, the scores fell by slightly more than 10% compared to the first time the study was conducted. The questions about the description of space and colours obtained the best results in the category of broad objective description: more than two descriptive facts were mentioned. In each case, the results were around 30%. In 2019, the result of the question on colours increased by 5% and the description of space decreased by 10%. The questions on sense of size, the sense of freedom in the space and possible suggestions scored the best within the category of positive or negative responses without description. In 2001, the results were 42%, 33.84% and 65%, respectively. In 2019, the results decreased significantly only for the question about the feeling of freedom in space; the other results are comparable to those of 2001.

Relatively high results were also obtained for the remaining questions on sense of hearing, smell, touch, temperature, light in the space, humidity, sense of size, and possible suggestions in the aforementioned category, while touch and humidity had lower results in 2019. The highest scores for the category of narrow subjective description were reported for the questions on the sense of smell, touch, feeling of freedom in the place, and additional suggestions, with not a single student answering in this way in 2001. In 2019, the results are generally similar, with the exception of the question about the temperature in the space, which was answered by 4 students, or about 10%. The highest scores in the broad subjective description category are for the questions about hearing, humidity, general description of the space, colours, and occasional suggestions by students, with about 2% each in 2001. In 2019, the results are similar.

In general, when comparing the data from the two years, differences appear in relation to the third question on the sense of touch. In 2019, broad objective descriptions increase and narrow subjective descriptions occur, while 5% of broad subjective descriptions also occur, an increase of nearly 4.5%.

The largest differences between the two implementations of the questionnaire are evident in the questions related to the feeling of size, confinement or freedom in the space. The question about describing space received nearly 15% more in the narrow objective description category in 2019. In the broad objective description category, there was a 10% increase in the first round. Again, slightly more than 10% of the responses are narrow subjective descriptions and

broad subjective descriptions, which was not the case in 2001. In other words, the number of subjective descriptions increased significantly. There are almost no differences in the answers related to the question about colours, but remarkable differences can be seen in the answers to the question about the feeling of size and limitation in space. In 2001, about 50% of the students chose this question with narrow objective descriptions, while in 2019, 60% did the same. For the question about feeling free in the space, the number of responses with narrow objective descriptions is about 60% in both cases, while there are significant differences in the other categories. In 2001, the categories broad objective description, narrow subjective description and broad subjective description have minimum percentages, together amounting to about 7%, while the rest are responses without description. In 2019, however, there is an increase in the categories broad objective description, narrow subjective description, broad subjective description, and responses without description. When asked about the possibility of adding data, in both cases 25% of the responses are registered with a narrow objective description, while the responses without description reach slightly more than 60% in both implementations of the questionnaire.

## Discussion

In general, 36.24% of the students in 2001 and 36.17% in 2019 did not answer the proposed questions. In both 2001 and 2019, the highest numbers of unanswered questions were registered in the sense of touch and humidity of the place. In 2019, the questions about the shape of the space and the temperature were added to the list, while the question about the sense of smell is not far from these results either. However, it is not possible to draw definitive conclusions, especially in view of the increasing use of modern digital media and the low level of awareness about the physical senses.

The relevance of the sense of touch for describing the space is not clear. It could be argued that there is a kind of linguistic play when we question something that we do not consciously talk about but simply feel, and that it is therefore difficult to recognise that it concerns us. The same applies to the question of humidity. It is obvious that the highest proportion of positive answers corresponds to very circumscribed, objective and concrete questions, such as the description of colours. Moreover, this is directly related to vision, a sense that seems to predominate in the acquisition of information from the environment (Skaza, 2019).

The figures describing the qualitative way in which students responded to the questions are interesting. Despite the fact that many questions were not selected, there is a relative number of students who are certainly more sensitive

and gave more information in relation to almost all of the questions. This includes the question about colours in 2001 and the questions about the description of the space and the feeling of freedom or oppression in the space in 2019, which indicate personal feelings in the space, compared to the rest of the results. It is also interesting to note that the highest scores in subjective responses were obtained in the questions about smell and humidity, which are actually intangible phenomena.

The set of questions was particularly interesting and important because it focused on the characteristics of the perception of space from the point of view of individual students. This is confirmed by the ideas of Bintari (2018), Rocha (2017) and Skaza (2019) about the individuality of perception and the influence of several factors that affect its interpretation. Pallasmaa (2008) and Lynch (1990) also confirm this when they note that the experience of space is an individual experience of each observer. Not only did the majority of the respondents choose not to answer the question about the sense of touch, they also generally did not answer questions related to senses other than vision. It can be concluded that, according to the majority of the respondents, the characteristics of a place are perceived exclusively through the sense of sight, which confirms the traditional idea of the primacy of this sense in the perception of space (Skaza, 2019). The other senses are largely excluded, at least consciously, from this experience. The contradiction between these two notions suggests that we have been taught to value vision to the detriment of the other senses when perceiving space, which is also confirmed by theorists of digital or virtual space (Crary, 2001; Grau, 2003; Mitrache, 2013; Franchak, 2020). The results regarding the number of students choosing specific questions have not changed over a period of almost two decades, with the exception of the question describing space in general. It is noteworthy that in several cases the answers are more complex and comprehensive, as well as more subjective. This suggests that perceptions have diversified, that a minimum number of students have undergone a growth process over time in which they have developed a greater empathy for the characteristics of space and seek to describe it through individual experiences that they can draw from their memories. Immersion in virtual space is attractive. The giant strides of software development, giving us more options every day, simultaneously force us to use all of the digital media available to us more and more. Our daily life has reliably proven this since the beginning of the coronavirus epidemic. Teaching all classes remotely required us to examine how and by what means we can plan classes.

Immersion in virtual space cannot compete with the experience of real 3D space, which appeals to all of the senses, not just the eye. We remain a real

body inhabiting the real space we have created over multiple generations. From the research results, we can deduce a process that, although very slow, makes clear the awareness of the difference between the virtual and real experience.

Regarding the limitations of the study, the results cannot be generalised. The group of participants would have to be larger to obtain more accurate results. Since we used material from 2001, when 60 students answered the questionnaire, we had to repeat the conditions of the study in order to compare the groups. In order to obtain the relevant information in the most reliable and valid way, no changes could be made. It is possible that some students gave their answers in more or less detail, which is beyond our control. We can only refer to described patterns of behaviour or tendencies, which are difficult to describe with absolute precision. Nonetheless, the questions were clear and the analysis of the results reflects exactly what was asked of the students.

## Conclusion

The figures that emerged from the evaluation of the presented test and the comparison of the data over a period of almost two decades could be a kind of recognition of the fact that, in general, little attention is paid to the development and enrichment of spatial perception and the detailed observation of phenomena in programmes at all levels of education. It is particularly interesting that these results show a kind of lack of integration between the experiences of the different senses. Spaces are not necessarily places defined by experiences, memories, individual and collective meanings. Spatial intelligence needs to be complemented by spatial sensitivity, and both need to be equally important in education. In our opinion, this is a good starting point to think about the development and implementation of specific strategies in the field of art education and in other disciplines, since a rich perception of space and other phenomena around us is important in mastering any field of study. We think that, in the future, it will be important to pay attention to the pedagogical process in real space and to propose interventions in school spaces so that students identify positive or negative features of the spaces and try to improve them. They should use photography to identify details and make authentic and detailed observations. In this way, education students are also made aware of their individual responsibility for improving the educational environment in which they spend an important part of their daily lives together with their colleagues. We believe that it is necessary to teach perceptiveness in order to create ethical awareness.

We are often reluctant to leave the safe space of the classroom, but we have found that this is not enough to achieve certain goals. Digital media that

fail to provide multi-sensory experiences are also ineffective. The experience of space and the development of visualisation go beyond the often divergent forms of observation that individual disciplines propose (Ware, 2004). In this case, it is necessary for education students to be able to highlight and be sensitive towards the differences, as they will need to teach all disciplines in their careers as primary school teachers. Clearly, there is a need to develop visualisation strategies in order to optimise the way each individual perceives the visual information in the different areas of study. This would lead to greater clarity, usefulness, richness and specificity. As Banaei et al. (2017) note, perception is something that can be learned. When we recognise things in our environment, we gain experience, and this experience in turn improves our perception. Our perception of objects depends on our previous experience with them, and experience sharpens our ability to recognise details. The more we learn about objects and the more familiar they become, the more details we recognise. One of the ideas that emerged from the research findings is that changes and developments in the educational field are very slow processes that require constant review and development of appropriate strategies. In many cases, and considering the variety of means at our disposal in the didactic field, we are nevertheless slow in their application. We are often forced to experiment and improvise. For a future investigation and presentation, we need to develop didactic solutions that promote and definitively include real spatial experience. We can conclude that, in this case, making students aware of their feelings by verbalising and answering questions was a positive and content-rich start.

We live in a time when the image of our environment is changing drastically and becoming increasingly globalised, in many cases unfortunately losing the authenticity and uniqueness associated with place and space. The rapid development and widespread use of digital technologies should not be an obstacle to perceptual learning; on the contrary, we need to make it clear to our students that elements of real and virtual space enrich and sensitise us.

Space is a carrier of various socio-cultural meanings and functions, and we should familiarise students with the role of the individual as an active user and shaper of the place in which he or she lives. In this way, we enable the environment to take on new meaning in the lives of students and become a starting point for creative learning.

## Disclosure statement

The author has no conflict of interest to declare.

## References


Banaei, M., Hatami, J., Yazdanfar, A., & Gramann, K. (2017). Walking through architectural spaces: The impact of interior forms on human brain dynamics. *Frontiers in Human neuroscience, 11*, 360–373.

Bello, H. (2020). *Internet de los sentidos: Qué es y cómo cambiará nuestra vida* [Internet of the senses: What it is and how it will change our life]. IEBS Press. https://www.iebschool.com/blog/internet-de-los-sentidos-tecnologia

Bintari, B. (2018). *Spatial perception strategy in orientation design: How the environment creates harmony between human made and nature to help people to orientate*. Duta Wacana Christian University, Yakarta, Indonesia. https://www.irbnet.de/daten/iconda/CIB_DC22871.pdf

Blesser, B., & Salter, L. R. (2007). *Spaces speak, are you listening? Experiencing aural architecture.* The MIT Press.

Coelho, C. (2015). The living experience as a design content: From concept to appropriation. *Ambiances 1,* 1–19. Direction Générale des Patrimoines – DAPA.

Crary, J. (2001). *Suspensions of perception – attention, spectacle, and modern culture*. The MIT Press.

Cullen, G. (2006). *The concise townscape*. Elsevier.

Devetak, I. (2011). Visualization in education. *Center for Educational Policy Studies Journal*, *1*(4), 5–9.

Devetak, I., & Krek, J. (2013). Sustainable development in education (editorial). *Center for Educational Policy Studies Journal*, *3*(1), 5–8.

Dewey, J. (1980). *Art as experience*. Perigee Books.

Franchak, J. M. (2020). Looking with the head and eyes. In J. B. Wagman, & J. C. Blau (Eds.), *Perception as information detection, reflections on Gibson's ecological approach to visual perception* (pp. 205–220). Routledge.

Grau, O. (2003). *Virtual art. From illusion to immersion*. The MIT Press.

Grosz, E. (2001). *Architecture from the outside, essays on virtual and real space.* The MIT Press.

Hoelzl, I. (2021). Image-transaction, what you see is not what you get. In O. Grau, & I. Hinterwaldner (Eds.), *Retracing political dimensions, strategies in contemporary new media art* (pp. 19–32). Walter De Gruyter GmbH.

Lynch, K. (1990). *The image of the city* (2nd ed.). The MIT Press.

Mitrache, A. (2013). Spatial sensibility in architectural education. *Procedia - Social and Behavioral Sciences, 93*, 544–548.

Pallasmaa, J. (2011). *The embodied image. Imagination and imagery in architecture*. John Wiley & Sons Ltd.

Pérez-Martínez, A. (2020). *La revolución sensorial de la tecnología* [The sensorial revolution of technology]. Universidad del Pacífico, Lima, Perú. https://www.bbvaopenmind.com/tecnologia/futuro/la-revolucion-sensorial-de-la-tecnologia

Rocha, T. (2017, April 6). *Spatial perception and architecture.* tomasrochavision.com. https://www.tomasrochavision.com/percepcion-visual/2017

Rossi, A. (1984). *The architecture of the city*. The MIT Press.

Sagadin, J. (1997). *Poglavja iz metodologije pedagoškega raziskovanja* [Chapters from pedagogical research methodology]. Educational Research Institute, University of Ljubljana.

Skaza, M. (2019). Architecture as a consequence of perception. *IOP conference series: Materials science and engineering*, *471*(2), 1–8. https://doi.org/10.1088/1757-899X/471/2/022033

Tomšič Čerkez, B. (2015). Teaching and learning through art. *Center for Educational Policy Studies Journal*, *5*(3), 5–9.

Tomšič Čerkez, B., & Zupančič, D. (2011). Physical space and the process of education. *Center for Educational Policy Studies Journal*, *1*(2), 5–9.

Tschumi, B. (2001). *Architecture and disjunction*. The MIT Press.

Tschumi, B. & Cheng, I. (2003). *The state of architecture at the beginning of the 21st century*. The Monacelli Press, Inc.

Vidler, A. (2001). *Warped space – art, architecture, and anxiety in modern culture*. The MIT Press.

Ware, C. (2004). *Information, visualization, perception for design*. Morgan Kaufmann Publishers.

## Biographical note

**Bea Tomšič Amon**, PhD, is an assistant professor in the field of didactics of fine arts at the Faculty of Education at University of Ljubljana, Slovenia. Her research interests include problem solving and experience learning in art education, the role of didactical material, the relationship between art materials and art motifs in the different fields of expression. Her special interest is architectural design in elementary education.

Received: 22 December 2022, Accepted: 18 September 2023,
Published on-line as Recently Accepted Paper: October 2023 DOI: https://doi.org/10.26529/cepsj.1564

# Learning to Teach in Out-of-University and Out-of-School Environments in Primary Teacher Education in Estonia, Finland, and Sweden

Helene Uppin*[1], Kimberly Norrman[2], Anne-Mai Näkk[3], Linn Areskoug[2], Inge Timoštšuk[3], Solveig Cornér[4] and Erika Löfström[4]

Learning in diverse settings during pre-service teacher training equips future primary teachers with the knowledge and skills to teach in authentic learning environments later in their work lives. This experience helps to meet the varying needs of their future students who have increasingly diverse cultural and socio-economic backgrounds with varying levels of access to learning and knowledge. During their university studies, pre-service teachers need to recognise the value of out-of-school environments, reinforce awareness in practice, and reflect on experiences to deepen pedagogical thinking about learning environments. This multiple case study describes the common practices in the pre-service training of primary teachers at Tallinn University, University of Helsinki and Uppsala University concerning teaching in out-of-classroom learning environments. Our aim was to explore the ways that the three universities support pre-service primary teachers in using out-of-school learning environments in their future practice. We intended to identify practices regarding our respective national curricula and university courses for pre-service primary teachers. We have three main suggestions for teacher educators regarding learning to teach in diverse environments: enable meaningful and reflective practical tasks in out-of-university learning environments for pre-service teachers; ensure the sustainability of external partnerships by stating collaborative practices in course programmes while leaving flexibility in the details; and reflect on professional networking across the boundaries of institutions.

**Keywords:** learning environments, pre-service teacher training, primary teacher education, reflective practice, case-study

1 *Corresponding Author. School of Educational Sciences, Tallinn University and Estonian Maritime Museum, Estonia; helene.uppin@tlu.ee.
2 Department of Education, Uppsala University, Sweden.
3 School of Educational Sciences, Tallinn University, Estonia.
4 Department of Education, University of Helsinki, Finland.

# Učenje poučevanja v zunajuniverzitetnih in zunajšolskih okoljih v izobraževanju osnovnošolskih učiteljev v Estoniji, na Finskem in Švedskem

Helene Uppin, Kimberly Norrman, Anne-Mai Näkk, Linn Areskoug, Inge Timoštšuk, Solveig Cornér in Erika Löfström

Prek učenja v različnih okoljih v okviru usposabljanja prihodnjih učiteljev opremljamo prihodnje osnovnošolske učitelje z znanjem in s spretnostmi za poučevanje v pristnih učnih okoljih v poznejših obdobjih njihove poklicne poti. Ta izkušnja jim pomaga zadovoljiti različne potrebe njihovih prihodnjih učencev, ki imajo vedno bolj raznolika kulturna in socialno-ekonomska okolja z različnimi stopnjami dostopa do učenja in znanja. Med univerzitetnim študijem morajo predšolski učitelji prepoznati vrednost zunajšolskih okolij, krepiti zavedanje v praksi in razmišljati o izkušnjah, da bi poglobili pedagoško razmišljanje o učnih okoljih. Ta študija več primerov opisuje skupne prakse pri usposabljanju prihodnjih osnovnošolskih učiteljev na Univerzi v Talinu, Univerzi v Helsinkih in na Univerzi v Uppsali glede poučevanja v zunajšolskih učnih okoljih. Naš cilj je bil raziskati načine, kako te tri univerze podpirajo prihodnje osnovnošolske učitelje pri uporabi zunajšolskih učnih okolij v njihovi prihodnji praksi. Nameravali smo identificirati prakse v povezavi z nacionalnimi učnimi načrti vseh treh držav in univerzitetnimi predmeti za prihodnje osnovnošolske učitelje. Za izobraževalce učiteljev imamo tri glavne predloge glede učenja poučevanja v različnih okoljih: omogočiti smiselne in refleksivne praktične naloge v zunajuniverzitetnih učnih okoljih za prihodnje učitelje; zagotoviti trajnost zunanjih partnerstev z določitvijo praks sodelovanja v študijskih programih, pri čemer je treba ohraniti prožnost pri podrobnostih, in razmisliti o poklicnem povezovanju prek meja institucij.

**Ključne besede:** učna okolja, usposabljanje prihodnjih učiteljev, izobraževanje osnovnošolskih učiteljev, refleksivna praksa študija primera

## Introduction

To adapt to the ever-changing world, children need to achieve personal fulfilment, form meaningful relationships, and learn how to learn (Sala et al., 2020). Learning exclusively in the classroom during formal schooling will not provide the wide range of experiences and knowledge students need to achieve such broad goals. Diverse learning environments are seen as a way to engage students in meaningful learning, and introducing 'support actions that engage learners in meaningful real-life problem-solving situations, within education, workplace and other learning environments' has been recommended (European Commission: Directorate-General for Research and Innovation, 2015). Also, field trips offer an opportunity to discover the learning resources of the local community (Nabors et al., 2009), familiarising students with informal learning opportunities. Thus, it is not surprising that field trips are seen as a possibility to support students' life-long learning by some primary teachers (Kisiel, 2005).

Students' access to and habits of using different learning environments varies. Working frequently outside classroom boundaries in different authentic environments is a way to address the unequal distribution of awareness and access to various cultural, societal, and scientific resources and learning environments among primary students (Greene et al., 2014). Such inequities often echo social segregation as it plays out in the intersection of socioeconomic status and access to cultural institutions in society. Moreover, students also aspire to much more diverse and open learning environments during school compared to the settings in which they are normally taught (Kangas, 2010).

Many possibilities to expand learning environments for primary students exist. On the one hand, natural environments and the surroundings of school premises, such as streets, shops, parks, forests, beaches, public transportation, and the like, offer an unstructured environment where teachers are free to explore necessary content together with students. For example, playgrounds are emphasised as effective learning environments to support students' physical activity level (cf. Kangas, 2010). No reliable statistics exist about how often primary teachers in Estonia, Finland, or Sweden teach in such unstructured learning environments, but there are some indications that it is a common but uneven practice (Henriksson, 2018; Kink, 2013; Schmidinger et al., 2014). Moreover, teachers with more teaching experience use such unstructured learning environments more often than teachers with less teaching experience (Novljan & Pavlin, 2022).

On the other hand, institutions of science and culture, such as museums, science centres, art galleries, zoos, and similar, provide a deeply thematic

and organised environment for learning and are often equipped with experienced educators who can support teachers during field trips. For example, curriculum-related learning activities in museums and science centres have been found to be beneficial for learning content matter and inspiring students' career choices (DeWitt & Storksdieck, 2008), as well as increasing motivation (Paris et al., 1998). Taking part in learning activities led by another educator is probably not as common as using unstructured learning environments because organisation, teaching and learning in such situations are more complex (Uppin & Timoštšuk, 2022). The complexity of such field trips is induced by their boundary-crossing nature. Boundaries can be defined as 'socio-cultural differences leading to discontinuity in action or interaction' (Akkerman & Bakker, 2011, p. 21). In the case of working with another educator, the schoolteacher has to not only teach in a novel environment but also deal with the socio-cultural differences of learning environments by collaborating with an educator who might not share the knowledge nor the language about teaching and learning (Vesterinen et al., 2017).

Moreover, learning in out-of-classroom settings is beneficial for students' socio-emotional development (Yıldırım & Akamca, 2017). Socio-emotional skills are crucial for students' well-being and future academic success. For example, some museum learning activities have specifically been designed and proven to support the development of historical empathy of primary school students (Almqvist Nielsen, 2023). Furthermore, experienced Estonian primary teachers consider the possibility of enhancing peer and teacher-student relationships as an added value and sometimes even the primary aim for out-of-school learning activities (Uppin & Timoštšuk, 2022).

Knowledge and awareness about the range of benefits of learning across environments make teachers more prone to teaching in diverse environments (Kisiel, 2013; Seligmann, 2014). Thus, didactic courses in pre-service training should also address teaching in out-of-classroom environments. Moreover, teachers who rarely go on field trips tend to have a significant amount of apprehension towards them, believing they are too time-consuming, expensive and/or difficult to organise. In contrast, avid museum-goers do experience stressful organisational problems (Arık, 2022; Uppin & Timoštšuk, 2022) but are resourceful in overcoming them and believe that the value of field trips compensates the challenges (Uppin & Timoštšuk, 2022). Knowledge about, as well as experience of, logistical issues and curricular norms, can ease anxiety about organising field trips during teacher training.

Practical teaching tasks and observations in out-of-university or out-of-school learning environments, especially when in collaboration with educators

from other institutions, increase awareness about learning in different environments. In addition to awareness, pre-service teachers who have opportunities to learn and teach in out-of-university and out-of-school learning environments start to view them as places that can enhance their classroom instruction with suitable content and pedagogy (Kisiel, 2013). In-service teachers of social studies who have had the opportunity to practise teaching in out-of-school learning environments are prone to use authentic teaching strategies and historical evidence in instruction (Coddington, 2020).

Previous research concerning science teachers has shown that out-of-university teaching experiences have the potential to improve pre-service teachers' methodological knowledge (Morentin & Guisasola, 2015), expand content knowledge (Kisiel, 2013), increase interest in the content matter (Tasdemir et al., 2014), and the ability to meaningfully integrate different subjects (Domenici, 2022). Primary pre-service teachers, in particular, have also been shown to expand their knowledge of contemporary science and science learning through courses held in science centres (Avraamidou, 2015). Moreover, the benefits of pre-service teacher training are manyfold: pre-service teachers' active presence in educational teams of partnering organisations, such as museums, strengthens the teaching practices of museums as well (Seligmann, 2014).

Designing learning experiences for pre-service teachers always entails reflection. It cannot be assumed that all pre-service teachers know how to reflect, and therefore, teacher preparation programmes should introduce and guide pre-service teachers to reflect and identify its value during the learning process (Huisman & Edwards, 2011). The perceived value of reflection is more critical in developing cultural competence than the 'amount' of reflection (Kahn et al., 2014).

The aim of this study is to explore the ways in which universities currently prepare pre-service primary school teachers to use out-of-school learning environments in their future practice in the light of national curricula. Based on the results, we also aimed to identify recommendations for teacher education institutions to strengthen opportunities to integrate out-of-school learning environments in their programmes. To fulfil this aim, we posed two questions:

1. How do national curricula for primary schools in Estonia, Finland, and Sweden support learning in out-of-school environments?
2. How is learning in out-of-university and out-of-school environments supported by selected primary teachers' curricula in Estonia, Finland, and Sweden?

## Method

***Participants***

We present the cases of three primary teacher education programmes at Tallinn University, University of Helsinki and Uppsala University, which jointly undertook a strategic partnership project (2019-2022) to strengthen teacher education through school-based research and innovative practice (see more at *https://www.edu.uu.se/collaboration/depter/*). The core teams of primary education departments from each university formed the initial project team and participated in the preparation of this manuscript. In addition, 22 teacher educators in total and 59 pre-service teachers participated in the project throughout its three years of execution. We do not report data from these participants, this article is solely based on the information about institutional practices shared among project partners in the various activities organised during the project.

The collaboration between these countries and specific primary teachers' programmes was seen as necessary and meaningful because, in addition to being geographically proximate, the education systems of Estonia, Finland and Sweden have important characteristics in common. In these countries, Protestantism has historically influenced the spread of general schooling (Feldmann, 2018), an egalitarian approach towards education is valued (Volmari, 2019), social policies ensuring equal access to education are evident (Volmari, 2019), and a master's level degree is required for primary teacher certification (Volmari, 2019). In-service primary teachers in Estonia, Sweden and Finland work full-time with the same student group, often continuously for three to six years, allowing them to develop deep insight into their students' individual needs and preferences. Subject teachers obtain their degrees and research experiences in their respective fields, complemented with studies in education. Whereas primary teachers are expected to be experts in a variety of subjects *and* educational issues, they are also expected to plan and execute a research project (Master's thesis), which provides them with tools for meaningful pedagogical reasoning (Kansanen, 1991, 2003). In Estonia, Sweden, and Finland, the focus of primary education is on the holistic development of the child.

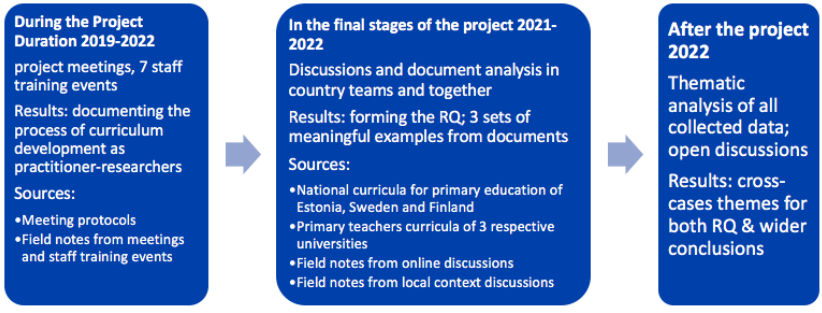
Nevertheless, the organisation and specific aims of primary education programmes in universities and trends in national educational reforms are different. For example, the majority of Estonian pre-service teachers work as full-time teachers by their fourth year of studies (mostly due to economic reasons). Moreover, yearly enrolments of the three primary teacher programmes involved in this research differ (25 students in Tallinn University, 40 in the University of Helsinki, and 170 in Uppsala University).

*Research design*

This multiple case study (Yin, 2009) conceptualises the results of a strategic partnership project between three universities (see Figure 1). We considered the three primary teachers' preparation programmes (curricula in a wider sense) as cases. The aim of the project was to develop our departments' primary education programmes through school-based research, or in other words, find meaningful ways to cross the theory-practice divide. It has been suggested that practice can be oriented towards expansive learning and adaptive expertise through design thinking (Ruus & Timoštšuk, 2014). Thus, we enabled open discussion and inclusion of different stakeholders within teacher education. For example, some seminars and other activities during staff training events were open to all university staff, pre-service teachers, and in-service teachers.

**Figure 1**

*The process of the case-study research*




The project revolved around six core topics, intellectual outputs were created, and a staff training event was held for every topic: innovative practices (January 2020); action research to enhance student teachers as inquiring practitioners (April 2020); research ethics in school-based inquiry (September 2020); subject-integrative/phenomenon-based teaching and learning in primary teacher education (April 2021); out-of-school and engaging learning environments in primary teacher education (September 2021); integration of the innovative practices in primary teaching into teacher education programmes (January 2022). Topics of the intellectual outputs and relevant staff training events were somewhat overlapping, which enabled us to merge ideas and reflect more deeply on each aspect. One of the most discussed topics during the project was the use of different out-of-classroom settings.

The discussion on how to share our experiences concerning out-of-classroom learning environments started at the end of 2021 because, by that

time, it was evident that our experiences could also be valuable for others. We highlight the fact that the document analysis was done by practitioners who have knowledge of both the written and the 'hidden', 'actual', or 'perceived' curriculum (Kelly, 2009; Behar-Horenstein, 2018) regarding both the national curriculum and university primary teachers' curricula. Moreover, we had just been part of a lengthy project, simultaneously sharing our practices and collectively reading academic articles on a given topic. Therefore, on the one hand, the analysis was influenced by our collective experience, but on the other hand, we could use our insights about practice to identify gaps between this and curriculum texts. Thus, we have chosen a way to define the curriculum in a way that, to some extent, reaches the 'actual experiences of the pupils' (Kelly, 2009, p. 13) without having interviewed or surveyed students.

Moreover, the research questions were formed only at the final stages of the project (see Figure 1), at which point we started organising our collective experience as a case study. Nonetheless, a somewhat nonlinear process and the simultaneous writing of the theory and results are consistent with the case-study format (Yin, 2009). We acknowledge the limitations of our deeply contextual results, especially considering that information about learning environments is relatively scarce in the written documents that guide teaching and learning in primary schools and universities.

***Data collection***

As a first step, we collected meeting protocols and field notes from all meetings and training events organised within the strategic partnership project between our three universities. Six staff events and additional preparatory meetings were held. All meeting protocols were written by the authors of this paper and shared with all participants during the project. We, as the authors of this article, acted as practitioner-researchers (Jarvis, 1999) throughout the project, documenting (including collecting personal field notes), presenting, comparing, and analysing relevant information to improve our practice. Throughout the project, we gave insights into the practice of our respective primary teachers' preparatory programmes and local contexts and shared our experience and knowledge as teacher educators of future primary teachers. During the project, we discovered the gap in previous literature regarding using and teaching using out-of-classroom learning environments during primary teachers' preparation, especially from the viewpoint of teacher-educators from our countries. We pursued open discussions to frame the most meaningful insights about out-of-school learning environments. The discussions that took place during the project and collectively revisiting the previously collected documents amongst

the authors gave us the backdrop and a lens to describe and compare the ways the primary teachers learn and are prepared for teaching in out-of-school and out-of-university environments in our respective universities.

To bring our experiences, knowledge, and the results of the project into a wider perspective, we then analysed primary teachers' curricula and national curricula of respective countries and our own institutional course descriptions in the light of previously collected material. The process of analysis of the national curricula and course descriptions followed a thematic analytical procedure (Braun & Clarke, 2006) in which we looked for explicit utterances of out-of-class teaching and learning in our respective national curricula and our local teacher education curricula. We analysed documents in three national contexts; researchers from each country worked as a team to analyse the documents pertaining to their context and ensured an agreement of interpretations in this process in 2022. Finally, we extracted overarching themes for both research questions in cross-case analysis and made wider conclusions.

## Results

In the first subsection, we describe and provide examples of how the national curricula of Estonia, Sweden, and Finland support learning in out-of-school environments. In the second subsection, we describe and provide examples of learning to teach in out-of-school and out-of-university learning environments during primary teachers' programmes in our respective universities.

### Learning in different environments according to national curricula

We found supportive features, ranging from very specific suggestions for certain topics to overarching principles of organising learning for introducing different learning environments from the primary national curricula of all participating countries. We identified three overarching themes while analysing national curricula in the light of data gathered from the project: non-specific language and lack of defined norms considering learning in out-of-school learning environments (e.g., on the state level there are no regulations on how often students should learn outside the classroom or go on longer field trips); contrasting views to justify learning in out-of-classroom environments in the documents: skills and competencies on the overarching (higher, strategic) level but mostly specific content-knowledge or content related skills on discipline (lower) level; interdisciplinary approach (e.g., phenomenon-based learning) as

a supportive mechanism to incorporate out-of-school learning environments.

Thematic or phenomenon-based learning in primary school is relatively common in all three participating countries. Such an integrative approach is suitable for thematic expositions and out-of-classroom environments that are not divided into classical school subjects. Experienced primary teachers are already prone to integrate different fields of study and combine content learning with skill development during field trips (Uppin & Timoštšuk, 2022). The examples chosen by the representatives of each country largely echoed the relevant issues connected to learning in out-of-school environments as perceived by the teacher-educators. We present examples from each country here.

***Learning life skills plays an important role in the Finnish national curriculum***

In Finland, the national curriculum for basic education places increased weight on teacher collaboration and authentic learning surroundings (Vesterinen et al., 2017). The curriculum involves seven transversal competence areas that reflect the aims of Finnish primary school education and the competences needed in all spheres of life. The construction of competences includes knowledge, skills, values, and capacity (National Core Curriculum for Basic Education, 2014). With regard to these areas, the Finnish curriculum emphasises that every student is unique, heard, valued, and encouraged.

The transversal competences include thinking and learning-to-learn, cultural competence, interaction and expression, life skills, multiliteracy, ICT competence, working life competence and entrepreneurship, participation, involvement and building a sustainable future (National Core Curriculum for Basic Education, 2014). For the development of these competencies, the curriculum emphasises and recommends the use of various outdoor environments as learning environments. When learning working life competence and entrepreneurship, the primary students should be provided opportunities to cooperate with stakeholders outside the school. When learning multiliteracy competences, project work and subject integration in and out of school should be utilised on a regular basis. The learning environment should offer creative opportunities for students to analyse and investigate a variety of questions from multiple perspectives and provide opportunities for students to learn new knowledge and skills (National Core Curriculum for Basic Education, 2014). Prior research backs up the implementation of these goals showing that Finnish primary school teachers use out-of-school learning in their teaching and nature is actively drawn upon as a context and a resource (Henriksson, 2018).

***Life-long learning and participating in society are the main focus of the Swedish national curriculum***

The Swedish National Curriculum frames the right to an education that allows students to develop and inspires lifelong learning by preparing students for active engagement in society through participation, evaluation, and choosing of content for their teaching (Curriculum for the Compulsory School, Preschool Class and School-Age Educare (Lgr11), 2018). These activities are connected to the fostering of virtues such as creativity, inquiry, problem-solving, independence, and skills in working collaboratively. Cooperation with the surrounding society is an important factor in achieving these overarching goals. Swedish teachers turn to the individual subject syllabuses' general guidelines for teaching content and knowledge requirements to meet overarching goals. Some specific examples that address teaching in out-of-classroom learning environments are excursions and experiments in Biology, field trips to investigate natural and cultural landscapes in Geography; and year-round, daily physical activities and play in various local outdoor environments in Physical Education.

In Sweden, the introduction chapters to the national curriculum express the importance of making connections between the classroom and greater society (Curriculum for the Compulsory School, Preschool Class and School-Age Educare (Lgr11), 2018). It is clearly stated in the curriculum that the responsibility of opening up access to society at large falls both on the teachers and the entire school community; the curriculum also states that 'teachers should organise and carry out the work so that students have opportunities to work along interdisciplinary lines' (p. 13) This joint effort of outreach initiatives should take place together with organisations and institutions that support activities of the school.

***Learning outside the classroom is highlighted in the Estonian national curriculum***

The Estonian curriculum for basic schools (Estonian National Curriculum for Basic Schools, 2011) states that studies can be organised in virtual spaces and outside the school premises as long as the safety of students is provided. Using out-of-classroom learning environments is suggested in most subject fields but mostly in vague terms (notably, no such examples are recorded in the maths curriculum). Thus, learning in different authentic environments is seen as a natural part of primary education from the legislators' side.

However, Estonian teachers are autonomous in interpreting the curriculum; teachers are not mandated to teach in any suggested learning environment. For example, there are numerous specific examples of practical tasks that

could be implemented outdoors (e.g., learning species of specific ecosystems), but teachers can decide to implement them at school or by using digital tools. The relative autonomy of the teachers is considered one of the strengths of the Estonian education system (Tire, 2021), and by no means do we want to convey the message that specific ways of using out-of-classroom learning environments should be somehow forced upon teachers.

The general competencies also state that students should 'sense and value one's ties with other people, nature, the cultural heritage of one's own country and nation and those of others, and events in contemporary culture; to value art and to shape the sense of aesthetics.' (Estonian National Curriculum for Basic Schools, 2011, para. 4 Competences). Estonian primary school teachers take their students not only out in nature and to museums but also to theatres, concerts, the cinema, and similar places (Kink, 2013).

Although there are numerous opportunities for free-of-charge out-of-classroom activities funded by local municipalities or governmental institutions (especially for learning activities related to science), the know-how of teachers about where to apply for funding or find those free-of-charge activities varies quite a lot (Klettenberg, 2022). Thus, it is standard for Estonian parents to fund a large proportion of such excursions from their own pockets (Klettenberg, 2022*)*. Teachers do consider the socio-economic background of their students and try to make sure that all students are included (Uppin & Timoštšuk, 2022). According to primary school teachers who go on field trips frequently, parents usually value such outings, often ask for them and are willing to pay for them even when they are not directly connected to the curriculum (Uppin & Timoštšuk, 2022). In contrast, parents are also perceived as a great source of external pressure by Estonian primary teachers (Näkk & Timoštšuk, 2021); thus, it is possible that parents influence field trips even more than previously understood.

### Learning about teaching in different environments as part of pre-service teachers' university curriculum

With regard to the second research question, we identified three more general themes that structure the background thinking of our local curricula and their development based on the literature and material collected from the project, specifically, 1) creating awareness, 2) positive experiences about learning across settings, and 3) supporting reflection skills of pre-service teachers. These broad categories were used as a coding frame for analysis. We present examples from these categories which illustrate how learning in different settings is supported in our universities' curricula.

***University of Helsinki***

We limit the examples of outdoor and museum education from Finland to compulsory Master's level studies in primary teacher education, which has gained less attention than those reported within the bachelor's level (Wolff & Ehrström, 2020).

One of the courses offered for the students of the entire faculty, aptly titled *Topical Issues in Educational Research*, takes its point of departure in existing research and a design-based research approach and extends the learning experience to contexts outside the university lecture hall. In this course, students collaboratively identify a challenge, create a means of tackling it, and disseminate knowledge about their solution. The pre-service teachers seek external feedback to develop their ideas. At the end of the course, they present their innovation at a conference organised by the faculty. Finally, they reflect upon the development process in a portfolio. In this course, in which pre-service teachers develop innovative educational products, they learn new working life competencies, develop skills in entrepreneurship and are involved in building a sustainable future. Practising the mentioned competencies provides an opportunity to understand the pedagogical premises that also underpin the requirements of the national curriculum.

The advanced practicum provides another example. It contains observation, co-teaching, individual teaching, and tasks in relation to professional development. While outdoor education and museum pedagogy are not explicitly mentioned, excursions, theme days, and school projects are mentioned in the practice guidelines. Students are encouraged to study the school's local curriculum from the perspective of multilingualism, diversity and/or social justice and plan a theme day or an out-of-classroom learning activity. The thematic focus on diversity, multilingualism, and social justice of the primary school teacher education track for educating teachers for schools with Swedish-language instruction encourages pre-service teachers to reflect on content and practice through a critical lens. Awareness creation and reflection permeate every course.

In their fourth year of study, pre-service teachers take part in a course focusing on teachers' professional identity and teachers as developers of their profession. Pre-service teachers explore pedagogical research, both individually and in collaboration with peers, and deepen their understanding of what it means to be a reflective practitioner (Schön, 1987) and of the relationship between theory and practice. One of the aims of the course is, according to the foci of the teacher education track in question, to encourage pre-service teachers to analyse their professional identity as a teacher in a diverse society.

The unit makes use of interactive and visual practices that connect the student teachers' reflections on their professional identity to external contexts. Student teachers often use their own photographs to illustrate their own learning. The employment of images in the exploration of teacher identity extends learning to include real and metaphorical settings, and it is not uncommon that the images collaboratively chosen by student teachers convey extended notions of settings in which learning takes place. Indeed, the images seldom visualise traditional classrooms or lecture halls. To our understanding, this exercise facilitates student teachers' exploration of identity development and learning as taking place in a variety of different contexts, and this idea is highly transferable to teaching in the school context.

The theme of the thesis research, which all pre-service teachers carry out as part of their master's degree, is chosen by the pre-service teachers themselves. The thesis research often reflects the focus of teacher education (diversity, multilingualism, and social justice), and the theme of out-of-classroom learning contexts has been chosen occasionally.

In addition, the programme offers a non-compulsory course on sustainable World Heritage learning through a phenomenon-based approach. Readers interested in this course are referred to Wolff, Vivitsou, and Aarbakke (2022) and Heikkilä (2022).

***Uppsala University***

The syllabus for the primary teacher programme does not explicitly mention out-of-classroom learning environments. The general description of the programme mentions the possibility for student teachers to study abroad for theoretical or practicum courses, thus learning in different global environments. There are, however, examples at the course level of students exploring various out-of-classroom learning environments within disciplinary courses, such as in Biology or exploring historical environments in Social Sciences.

The size of the primary teacher programme is one constraint in utilising out-of-university environments. It has approximately 1,200 students, and each cohort of students is about 170 students. Thus, the mere logistics for excursions can be daunting. Another obstacle inhibiting using learning environments outside campus is the structure of the programme. The courses follow one after another in a fixed structure, which makes collaboration between courses difficult since courses may not intrude on the weeks of other courses.

Nonetheless, teacher educators at different departments within the programme have had successful collaborations across courses. Educators in Social Sciences and Natural Sciences joined forces in their individual courses, creating

interdisciplinary projects with students in specific locations of historical, geographical, and biological interest. Another example is a student task conducted in 2020, focusing on the observation and documentation of students' outdoor learning environments in schools and beyond. In addition to this, smaller assignments and units are carried out in various courses, such as outdoor maths, visits to the theatre or interdisciplinary thematic planning in language and literature courses.

Although the structure of the teacher education programme at Uppsala University generally does not allow for the integrated organisation of out-of-classroom learning environment projects, evidently, there are occasional activities in individual courses and sometimes across courses. The syllabus for the primary teaching programme addresses a deep knowledge and a high level of critical thinking on decision-making of methods as well as teaching content, grounded in research and assessed practices. Skills and knowledge address the professionalism of teachers, classroom management, equality, sustainable development, and leadership in the development of the school. In the examples mentioned above, opportunities to reflect on an out-of-classroom learning environment for students exist. Like the other universities, the thesis topic is generated by the pre-service teachers themselves, so it is possible, but it has been rare to see a thesis that addresses out-of-classroom learning environments.

***Tallinn University***

Learning environments are not explicitly stated in the university's governing documents of the primary teachers' programme. However, there are many examples of using out-of-school learning environments on the course level. A concrete example of a museum-university partnership is the museum practicum at the Estonian Maritime Museum. For the past six years, first-year pre-service primary teachers have taught their first practical lessons in the museum. It is noteworthy that the description of the course does not distinctly mention that a significant part of the course is held in a museum environment. Museum practice begins with creating awareness through a seminar about learning environments, includes observing 3rd grade students at school, planning and implementing learning activities for them at the museum, and ends with group-based and individual reflection after the visit. A museum educator is in the role of a teacher educator or a mentor during this course and supports pre-service teachers throughout the activities. This intense practicum has received very positive feedback from pre-service teachers; they have said that museum practice has helped them to grow as a team with their coursemates and has confirmed to them that they indeed have chosen the right profession. Such

positive emotions are extremely important because pre-service teachers tend to report more negative than positive emotions during their studies, and positive emotions support creative problem-solving among future teachers (Timoštšuk & Ugaste, 2012). Moreover, reflecting on empowering situations has been suggested to help integrate practical and theoretical knowledge (Allas et al., 2020).

Other courses also support using various learning environments. For example, during the 'Basic Teaching Practice', pre-service teachers are expected to teach in a chosen out-of-classroom learning environment, too, besides planning and executing regular lessons. This task is often realised as an outdoor science lesson since didactic courses in science introduce and practice methods for outdoor learning and problem- and project-based learning. Another practical task that pre-service teachers are expected to carry out with students is subject-integrated learning, and some pre-service teachers conduct such learning activities across learning environments using libraries, cafeterias, school nurses' offices, and similar. There is also a vocational course, *Experiential Learning in Open Learning Environment,* in which participants design learning activities for museum environments in iterative and reflective cycles. Again, the museum educator is partnering as a mentor for pre-service teachers during this course. Also, every year, several pre-service teachers have chosen to write their master's thesis on a topic related to field trips, outdoor learning, or out-of-classroom learning environments in general.

## Discussion

### Practising teaching in different learning environments

Experience is the first step in bridging the theory-practice divide. Nothing can replace the experience of actually visiting novel places to familiarise pre-service teachers with learning in environments such as museums. Being in a novel environment, experiencing its possibilities, and orienting oneself to the space are crucial features in learning to teach there (Hamilton & Margot, 2020). In fact, even experienced in-service teachers struggle to use the full potential of the out-of-classroom environments' physical features (Uppin & Timoštšuk, 2022). We found that all three analysed national curricula use supportive language when talking about using diverse learning environments. They also leave great autonomy and flexibility in details for the teachers to decide. The specific suggestions regarding learning environments are often tied to specific outcomes, such as learning forest plants or exploring artefacts from the Middle Ages, whereas the more ambiguous language is used to refer to the

wider benefits of learning in different environments (e.g., developing general competences).

Moreover, the unspecific language about or lack of attention to using out-of-school learning environments is common for both the national curricula and the primary teachers' curricula. This might indicate either that the collective understanding of the 'real school' (Tyack & Tobin, 1994) revolves so strongly around the school as a building that learning environments are seen as irrelevant or that using out-of-school learning environments in our countries is so 'natural' that it does not need to be stressed in written form. Or it may indicate both because teachers' mindsets towards using out-of-classroom learning environments are diverse (Kisiel, 2005) and influenced by school culture (Uppin & Timoštšuk, 2019), which in turn also differ. Future research could shed some light on the use of different learning environments because there is no large-scale comparable quantitative data from our regions on the extent of out-of-classroom learning in primary education and related contextual factors.

Practising teaching in schools has always been a core component in teacher education, but teaching in out-of-school and out-of-university settings is not so self-evident. This is illustrated by the fact that learning environments that are not school or university are rarely mentioned in course programmes. Practical tasks in out-of-school learning environments in our universities are generally accompanied by some didactic knowledge about certain domains, but the pedagogical knowledge about field trips and learning in novel places, in general, seems to be dispersed over different courses. It is also not sure whether the specifics of primary teachers' work are considered when subject didactics are designing tasks for pre-service primary teachers for out-of-school learning environments. For example, it is worth considering how or why a field trip to a botanical garden might differ when it is organised by a primary teacher versus by a biology teacher. As a wider conclusion, teaching in out-of-university and out-of-school environments is regularly practised but seldom specified in our universities' primary education programmes. Moreover, the use of different learning environments during primary teachers' preparation is rarely critically reflected upon.

Practising teaching in novel environments without reflection has limited benefits. Supporting the reflection skills of pre-service teachers and teacher educators in a way that facilitates the perceived value of reflection (see Kahn et al., 2014) and meaningful incorporation of new pedagogical knowledge about learning in different learning environments is vital. Whereas reflection, in general, is an important and over-arching part of primary teacher education in our countries, there seems to be room for improvement when it comes to reflective

discussions on the specific benefits of out-of-classroom learning environments on children's and young people's development. Thus, even if teachers have received information about how to teach in out-of-school settings and they have even practised it, they might not be sure why they should invest their time in it in their future practice. The question of 'why' becomes especially important when considering that teachers tend to rely on and model their own previous schooling experiences (Britzman, 2007) and beliefs about what a 'real school' is (Tyack & Tobin, 1994). Pre-service teachers need to develop a sense of autonomy and professional-pedagogical thinking in order to reconsider their own practices (and previous experiences as students) and scrutinise personal biases (Kansanen, 1991).

The international project that brought us together enabled us to reflect deeply on *why* we teach *where* we teach and also improved our self-analysis as teacher educators. By critically reflecting on our views (Šarić & Šteh, 2017) of the learning environments, we, as teacher educators, began to create a space for reflection for pre-service teachers as well to spell out, reconsider and reconstruct their preconceptions on the topic. Moreover, several learning resources (video lectures and a handbook) were created to support pre-service teachers' curiosity, exploration, and inquiry into out-of-classroom learning environments.

One of the unexpected outcomes of our joint project might have been the realisation that the same mindset that supports teachers in museums or in the wilderness seems applicable when teaching digitally. Recently, the Covid-19 pandemic increased teaching digitally, and field trips were hindered for two years. However, it has been observed that students are often given more autonomy during museum learning activities (Uppin & Timoštšuk, 2022) and during digital distance learning tasks (Erss et al., 2021) compared to regular classroom lessons. In this sense, developing an open mindset towards teaching in different settings in pre-service teachers allows them to support student autonomy and prepares them to teach across different learning environments (including digital) and in unexpected situations.

## Incorporating out-of-university and out-of-school learning activities into the university curriculum

Within the relatively broad descriptions of our course programmes, teacher educators are quite free to choose activities, methods, and learning environments during their courses. However, in our experience, specific and innovative collaborations between museums and universities tend to depend on the relations of a limited number of educators and are vaguely (if at all)

described in the programme descriptions. On one hand, this gives educators greater flexibility. On the other hand, the opaqueness of the collaborative practices can make them fragile and unsustainable because they depend too much on the efforts of a few dedicated staff members. Although long-term collaborative practices do exist and are highly regarded by both pre-service teachers and teacher educators, in our cases, collaborative practices in out-of-university and out-of-school environments were not explicitly mentioned in course programmes. This makes us ask whether using specific learning environments should be stated in curricula to ensure the sustainability of such learning experiences for pre-service teachers and simultaneously ensure that, in the course of such documentation, flexibility in details remains.

### Collaborating and networking across institutional boundaries

It is important to involve and engage individuals in boundary-crossing collaborations: pre-service and in-service teachers, educators from out-of-school institutions of science and culture (whom we refer to as museum educators) and teacher educators alike. The collaboration between schoolteachers and museum educators requires pedagogical knowledge, resources, and a balance between the different roles of the collaborators (Vesterinen et al., 2017). In addition, institutions such as museums and schools often have diverging ideas about teachers' roles in out-of-school learning environments (Seligmann, 2014). A helpful factor has been that our partners in museums also work part-time at the university (in the cases of Sweden and Estonia).

Collaborating with out-of-school partners provides authentic learning experiences for the students (Vesterinen et al., 2017). Even though no specific attention has been thus far placed on inter-pedagogical collaborations between schoolteachers and museum educators in the primary teachers' curricula, primary teachers are still expected to collaborate with educators from out-of-school institutions in their future practice. Thus, we suggest that the possibilities and complexities of such boundary-crossing collaboration should be explored and networks be created in pre-service teacher training. It should be considered, though, that meaningful learning requires participation in a community of practice (Lave & Wenger, 1991). Thus, expecting pre-service primary teachers to collaborate with not only in-service teachers from schools but also educators from other institutions during their practical tasks is challenging because pre-service teachers might not feel that they are part of any teaching community or community of practice yet (Timoštšuk & Ugaste, 2010). Moreover, practical tasks at school are already a boundary zone for pre-service teachers (Ruus &

Timoštšuk, 2014), and not all schools may be fully developed organisations for collaborative learning in which experienced and newly qualified teachers work together as pedagogical partners (Slabina & Aava, 2019).

Field trips in teacher training make pre-service teachers' practical tasks complex because at least three different contexts are involved: the university, the school, and the 'other place'. For example, in the Estonian Maritime Museum example, the most complicated part of organising the activities has been establishing clear communication with schools. Even if the organisational information reaches the school leader, it is problematic to communicate the message to the level of in-service teachers who are mentoring pre-service teachers and whose students are coming to the museum. In contrast, we documented museum educators successfully mentoring pre-service teachers during university courses, but we have not collected systematic data about whether these personal connections are sustained in primary teachers' future practice.

Moreover, sustaining meaningful out-of-university learning opportunities in pre-service teacher training is difficult and requires boundary-crossing collaboration between numerous professionals from different organisations (Maloney & Hill, 2016). Previous research suggests that time, accountability (including support from leadership), and funding should be invested by all parties to make partnerships between, for example, museums and universities sustainable (Maloney & Hill, 2016; Stetson & Stroud, 2014). However, since teacher educators are quite autonomous in their work and most collaborations, we detected that our universities' curricula are not explicitly detailed in course descriptions, and they are rarely communicated inside the university to the leadership level.

Furthermore, it is quite difficult to measure or compare the funding or time invested by different organisations: there are no concrete contracts in place, and there are major differences in the ways that university staff members and educators from partnering organisations organise their work. In the Swedish and Estonian cases of collaborating with museums, the same museum professionals have organised the collaborations for many years, which has sustained the connection and helped to enhance and continue good practices. However, there is a risk that when these dedicated people change positions, the collaboration will cease to exist. This is especially so when the need to use chosen out-of-classroom learning environments is not clearly expressed in the written curriculum nor collectively reflected upon and when the management levels of participating organisations are not involved or informed of the collaborative practices.

However, acknowledging the boundary-crossing complexities of organising practical tasks in out-of-school and out-of-university environments should not intimidate teacher educators. Instead, it informs us to consciously

try to clearly communicate the need for learning across institutional boundaries and find ways to collaboratively reflect the learning taking place in these situations, including the learning of the teacher educators themselves.

## Conclusion

We set out to explore how our universities support the use of out-of-university and out-of-school learning environments in the teacher training of future primary teachers. We discovered that our respective national curricula for primary schools and teacher training programmes are already relatively supportive but also unspecific about teaching in diverse settings. For example, pre-service primary teachers are expected to learn and practise teaching in out-of-school environments during different courses, mostly as a way to support the development of students' skills or to make learning more authentic and methodologically rich. Nevertheless, the boundary-crossing nature and complexities of encounters with other educators, especially those from out-of-school environments, are rarely reflected upon during those courses. We identified three main suggestions to other teacher educators: 1) incorporate meaningful and reflective practical tasks in museums for pre-service teachers' curricula, 2) ensure sustainability of university partnerships by stating collaborative practices with other institutions such as museums or science centres in written form while leaving enough flexibility in detail for teacher educators and 3) reflect on networking across the boundaries of institutions.

A significant outcome for our universities was a deeper understanding of the possibilities and challenges connected to learning in diverse settings. We uncovered many good examples of out-of-university learning when comparing our experiences. We also recognised the need to emphasise and reflect upon new ways to use diverse learning environments in the future. The current case study has drawn evidence from documents and case notes, and thus, the results are limited by our experiences as teacher educators, written records, and our interpretations of this evidence. Future research and pre-service teacher training in our universities would probably benefit from taking a deeper look at how such collaborations form and how to make them flexible and sustainable. Also, our universities have not systematically researched the attitudes of lecturers or school-based mentors of pre-service teachers towards using out-of-classroom learning environments. Moreover, ways to include pre-service teachers more in building networks and partnerships across institutional boundaries could be explored in greater detail.

Learning in different environments with meaningful tasks supports students' learning, but designing and implementing such tasks requires specific

awareness, knowledge, and skills from teachers. We acknowledge the fact that the development of university course programmes is a long and arduous process, and learning across different environments is just one of many topics that need attention in teacher programmes. Regardless of the limitations of time and financial resources and large student groups, we urge teacher educators to equip future primary teachers with pedagogical knowledge, awareness, and positive experiences and provide sufficient time for reflection concerning teaching and learning in out-of-school environments.

## Data availability statement

Teacher educators from three universities collaborated during an Erasmus+ project, Developing Primary Teacher Education Research (DePTER). The data that support the findings of this study are openly available on the project webpage (https://www.edu.uu.se/collaboration/depter/).

## Disclosure statement

The authors report no competing interests.

## References

Akkerman, S. F., & Bakker, A. (2011). Boundary crossing and boundary objects. *Review of Educational Research*, *81*(2), 132–169. https://doi.org/10.3102/0034654311404435

Allas, R., Leijen, Ä., & Toom, A. (2020). Guided reflection procedure as a method to facilitate student teachers' perception of their teaching to support the construction of practical knowledge. *Teachers and Teaching*, *26*(2), 166–192. https://doi.org/10.1080/13540602.2020.1758053

Almqvist Nielsen, L. (2023). Prehistoric history in Swedish primary school education: pupils' expression of empathy after visiting a cultural heritage site. *Education, 3–13, 53*(3), 378–392. https://doi.org/10.1080/03004279.2023.2191631

Arık, S. (2022). Anxiety levels of science teachers about organizing trips to out-of-school learning environments. *International Journal of Curriculum and Instruction*, *14*(3), 2887–2914. https://orcid.org/0000-0003-4496-8104

Avraamidou, L. (2015). Reconceptualizing Elementary Teacher Preparation: A case for informal science education. *International Journal of Science Education*, *37*(1), 108–135. https://doi.org/10.1080/09500693.2014.969358

Behar-Horenstein, L. S. (2018). Curriculum. In B. B. Frey (Ed.), *The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation* (p. 445). SAGE publications, Inc. https://doi.org/10.4135/9781506326139

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706QP063OA

Britzman, D. P. (2006). Teacher education as uneven development: Toward a psychology of uncertainty. *International Journal of Leadership in Education*, *10*(1), 1–12. https://doi.org/10.1080/13603120600934079

Coddington, N. E. (2020). "Putting it in Technicolor:" The influence of a pre-service teaching residency at a historic site, archive, library, or museum on in-service pedagogical practices. *Journal of Social Studies Research*, *44*(2), 219–238. https://doi.org/10.1016/j.jssr.2020.01.003

*Curriculum for the compulsory school, preschool class and school-age educare (Lgr11)*. (2018). Swedish National Agency for Education. https://www.skolverket.se/publikationsserier/styrdokument/2018/curriculum-for-the-compulsory-school-preschool-class-and-school-age-educare-revised-2018

DeWitt, J., & Storksdieck, M. (2008). A short review of school field trips: Key findings from the past and implications for the future. *Visitor Studies*, *11*(2), 181–197. https://doi.org/10.1080/10645570802355562

Domenici, V. (2022). STEAM Project-Based Learning Activities at the Science Museum as an Effective Training for Future Chemistry Teachers. *Education Sciences*, *12*(1). https://doi.org/10.3390/educsci12010030

Erss, M., Lauristin, M., Loogma, K., Sarv, E.-S., & Sirp, L. (2021). *The Second COVID-19 Spring from the Perspectives of Students, Teachers and Parents: The Follow-up Study of Estonian Distance Learning by Estonian Education Forum.* Eesti Haridusfoorum. https://haridusfoorum.ee/

*Estonian National Curriculum for Basic Schools*. (2011). Riigi Teataja [State Gazette of the Republic of Estonia]. https://www.riigiteataja.ee/en/eli/ee/VV/reg/524092014014/consolide

European Commission: Directorate-General for Research and Innovation. (2015). *Science education for responsible citizenship: Report to the European Commission of the expert group on science education*. Publications Office. https://doi.org/10.2777/12626

Feldmann, H. (2018). Still influential: The protestant emphasis on schooling. *Comparative Sociology*, *17*(5), 641–678. https://doi.org/10.1163/15691330-12341474

Greene, J. P., Kisida, B., & Bowen, D. H. (2014). Value of Field Trips. *Education Next*, *Winter*, 78–86. http://educationnext.org/supplemental-study-long-term-benefits-of-field-trips-to-the-walton-arts-center/%5Cnhttp://educationnext.org/files/ednext_XIV_1_greene.pdf

Hamilton, E. R., & Margot, K. C. (2020). Learning to Teach in a Museum: Benefits of a Museum-University Partnership. *Journal of Museum Education*, *45*(4), 462–475. https://doi.org/10.1080/10598650.2020.1807242

Heikkilä, E. (2022). *Sustainability through a Phenomenon-based learning approach: A study of student reflections* [Master's thesis, University of Helsinki]. https://blogs.helsinki.fi/sveasusproject/files/2022/04/Heikkila%CC%88_Emma_MastersThesis_2022.pdf

Henriksson, A. C. (2018). Primary school teachers' perceptions of out of school learning within science education. *LUMAT*, *6*(2), 9–26. https://doi.org/10.31129/LUMAT.6.2.313

Huisman, S., & Edwards, A. (2011). Experiential learning: An exploration of situated and service learning. *AILACTE Journal*, *8*(1), 15–35.

Jarvis, P. (1999). *The Practicioner-Researcher. Developing theory from practice*. Jossey-Bass Publishers.

Kahn, L. G., Lindstrom, L., & Murray, C. (2014). Factors contributing to preservice teachers' beliefs about diversity. *Teacher Education Quarterly*, *41*(4), 53–70.

Kangas, M. (2010). Finnish children's views on the ideal school and learning environment. *Learning Environments Research*, *13*(3), 205–223. https://doi.org/10.1007/s10984-010-9075-6

Kansanen, P. (1991). Pedagogical Thinking: The Basic Problem of Teacher Education. *European Journal of Education*, *26*(3), 251–260.

Kansanen, P. (2003). Teacher Education in Finland: Current Models and New Developments. In B. Moon, L. Vlasceanu, & L. C. Barrows (Eds.), *Studies on Higher Education Institutional Approaches to Teacher Education within Higher Education in Europe: Current Models and New Developments* (pp. 85–108). UNESCO.

Kelly, A. V. (2009). *The Curriculum: Theory and Practice* (6th ed.). SAGE Publications Limited.

Kink, K. (2013). *Klassiõpetajate arusaamad õppekäigu olemusest, olulisusest, efektiivsusest ning õpetaja rollist õppekäigu protsessis [How Classroom Teachers Understand the Essence of Field Trip, its Importance, Efficiency And See Their Role During the Process]* [Master's thesis, University of Tartu].

Kisiel, J. F. (2005). Understanding elementary teacher motivations for science fieldtrips. *Science Education*, *89*(6), 936–955. https://doi.org/10.1002/sce.20085

Kisiel, J. F. (2013). Introducing Future Teachers to Science Beyond the Classroom. *Journal of Science Teacher Education*, *24*(1), 67–91. https://doi.org/10.1007/s10972-012-9288-x

Klettenberg, H.-M. (2022). *Kooli asukoha seos muuseumitundide külastamise sagedusega õppeaastatel 2014/2015 – 2019/2020 Eesti Meremuuseumi näitel [The connection between school location and frequency of taking part in museum learning activities in the school years 2014/2015 - 2019/2020 in Estonian Maritime Museum]* [Master thesis, Tallinn University].

Lave, J., & Wenger, E. (1991). *Situated Learning. Legitimate Peripheral Participation*. Cambridge University Press. http://www.cambridge.org/de/academic/subjects/psychology/developmental-psychology/situated-learning-legitimate-peripheral-participation

Maloney, B., & Hill, M. D. (2016). Museums and Universities: Partnerships with Lasting Impact. *Journal of Museum Education*, *41*(4), 247–249. https://doi.org/10.1080/10598650.2016.1235814

Morentin, M., & Guisasola, J. (2015). The Role of Science Museum Field Trips in the Primary Teacher Preparation. *International Journal of Science and Mathematics Education*, *13*(5), 965–990. https://doi.org/10.1007/s10763-014-9522-4

Nabors, M. L., Edwards, L. C., & Murray, R. K. (2009). Making the Case for Field Trips: What Research Tells Us and What Site Coordinators Have To Say. *Education*, *129*(4), 661–668. http://web.a.ebscohost.com.ezproxy.tlu.ee/ehost/pdfviewer/pdfv

Näkk, A.-M., & Timoštšuk, I. (2021). In pursuit of primary teachers' work motivation amid increased external neoliberal pressure in education. *Teacher Development*, 1–19. https://doi.org/10.1080/13664530.2021.1899040

*National core curriculum for basic education*. (2014). Finnish National Agency for Education.

Novljan, M., & Pavlin, J. (2022). Experiences of Slovenian In-Service Primary School Teachers and Students of Grades 4 and 5 with Outdoor Lessons in the Subject Science and Technology. *Center for Educational Policy Studies Journal*, *12*(1), 189–215. https://doi.org/10.26529/cepsj.919

Paris, S. G., Yambor, K. M., & Packard, B. W. L. (1998). Hands-On Biology: A Museum-School-University Partnership for Enhancing Students' Interest and Learning in Science. *Elementary School Journal, 98*(3). https://doi.org/10.1086/461894

Ruus, V.-R., & Timoštšuk, I. (2014). Searching for Constant Innovation in Teacher Education Curricula: the Case of Estonia. *Problems of Education in the 21st Century*, *62*(November), 97–108.

Sala, A., Punie, Y., Garkov, V., & Cabrera, M. (2020). *LifeComp. The European Framework for Personal, Social and Learning to Learn Key Competence*. European Comission. https://doi.org/10.2760/302967

Schmidinger, H., Molin, L., & Brandt, S. A. (2014). Excursions in school-past and present from Swedish and Anglo-Saxon perspectives. *European Journal of Geography 5*(4), 87–101. https://www.edu.uu.se/

Schön, D. A. (1987). *Educating the reflective practitioner: Toward a new design for teaching and learning in the professions.* Jossey-Bass.

Seligmann, T. (2014). Learning museum: A meeting place for pre-service teachers and museums. *Journal of Museum Education*, *39*(1), 42–53. https://doi.org/10.1080/10598650.2014.11510794

Slabina, P., & Aava, K. (2019). Õpetajate koostöise õpikultuuri kogemused Eesti üldhariduskoolide näitel. *Eesti Haridusteaduste Ajakiri. Estonian Journal of Education*, *7*(1), 76–100. https://doi.org/10.12697/eha.2019.7.1.04

Stetson, R., & Stroud, N. D. (2014). Pre-service teacher training at the museum school. *Journal of Museum Education*, *39*(1), 67–77. https://doi.org/10.1080/10598650.2014.11510796

Šarić, M., & Šteh, B. (2017). Critical Reflection in the Professional Development of Teachers: Challenges and Possibilities. *Center for Educational Policy Studies Journal*, *7*(3), 67–85. https://doi.org/10.26529/cepsj.288

Tasdemir, A., Kartal, T., & Ozdemir, A. M. (2014). Using Science Centers and Museums for Teacher Training in Turkey. *Asia-Pacific Education Researcher*, *23*(1), 61–72. https://doi.org/10.1007/s40299-013-0085-x

Timoštšuk, I., & Ugaste, A. (2010). Student teachers' professional identity. *Teaching and Teacher Education*, *26*(8), 1563–1570. https://doi.org/10.1016/j.tate.2010.06.008

Timoštšuk, I., & Ugaste, A. (2012). The role of emotions in student teachers' professional identity. *European Journal of Teacher Education*, *35*(4), 421–433. https://doi.org/10.1080/02619768.2012.662637

Tire, G. (2021). Estonia: A Positive PISA Experience. In N. Crato (Ed.), *Improving a Country's Education. PISA 2018 results in 10 countries.* (pp. 101–120). Springer.

Tyack, D., & Tobin, W. (1994). The "Grammar" of Schooling: Why Has it Been so Hard to Change? *American Educational Research Journal Fall*, *31*(3), 453–479. https://about.jstor.org/terms

Uppin, H., & Timoštšuk, I. (2019). "We'll Be Back by Christmas" – Developing Historical Empathy

During a Museum Activity. *Journal of Museum Education*, *44*(3), 310–324. https://doi.org/10.1080/10598650.2019.1612660

Uppin, H., & Timoštšuk, I. (2022). Teaching in a natural history museum: What can we learn from Estonian elementary school teachers?. *Cultural Studies of Science Education, 17*, 1159–1192. https://doi.org/10.1007/s11422-022-10138-z

Vesterinen, O., Kangas, M., Krokfors, L., Kopisto, K., & Salo, L. (2017). Inter-professional pedagogical collaboration between teachers and their out-of-school partners. *Educational Studies*, *43*(2), 231–242. https://doi.org/10.1080/03055698.2016.1277131

Volmari, K. (Ed.). (2019). *BASIC EDUCATION IN THE NORDIC REGION – Similar values, different policies.* Finnish National Agency for Education. https://www.oph.fi/en/statistics-and-publications/publications/basic-education-nordic-region-similar-values-different

Wolff, L.-A., & Ehrström, P. (2020). Social sustainability and transformation in higher educational settings: A utopia or possibility? *Sustainability*, *12*(10), 4176. https://doi.org/10.3390/su12104176

Wolff, L.-A., Vivitsou, M., & Aarbakke, K. (2022). SveaSus: Sustainable World Heritage learning through a phenomenon-based approach. In P. Grenni & S. Gašperović (Eds.), *Phoenix Cost Action CA19123 - Protection, Resilience, Rehabilitation of Damaged Environment, Proceedings of the 2022 Rome Meeting – Rome, 19–22 January 2022* (pp. 90–92). Water Research institute, National Research Council of Italy.

Yin, R. K. (2009). *Case Study Research - Design and Methods. Applied Social Research Methods Series* (4th ed., volume 5). SAGE Publications, Inc.

Yıldırım, G., & Akamca, G. Ö. (2017). The effect of outdoor learning activities on the development of preschool children. *South African Journal of Education*, *37*(2), 1–10. https://doi.org/10.15700/saje.v37n2a1378

## Biographical note

**Helene Uppin** is the curator of education in the Estonian Maritime Museum and a doctoral student at the School of Educational Sciences at Tallinn University. She has a background in environmental sciences and science teaching. Her research, teaching and supervising of master's theses at the university focuses on learning environments, learning ecologies, meaningful learning in out of classroom learning environments such as museums in the context of formal education, and the collaboration of schoolteachers and museum educators.

**Kimberly Norrman** is a doctoral student in education with a focus on functional writing in early school years and multilingualism at Uppsala University. She is a certified and experienced primary/secondary teacher in Math, Science, Social Studies, English Language Arts, ESL and visual arts as well as a primary teacher educator. She has published a book on teaching reading for language teachers.

**Anne-Mai Näkk**, PhD, is a visiting lecturer of primary education at the School of Educational Sciences at Tallinn University. She is involved with Master Thesis seminars and supervision; she also teaches qualitative research methods. Her research focuses on the support of teacher work motivation, learning engagement, and work-integrative teaching and learning.

**Linn Areskoug**, PhD, is a teacher educator and Senior Lecturer at The Department of Education at Uppsala University. She has a long experience of teaching in higher education. She is involved with educational development at universities in Sweden and abroad. From the perspective of narratives in teaching, and the formation of teachers' professional identities, Areskoug's research focus is on the power dynamics of space, place, and identities in learning. A particular interest in teaching is professional development through writing. Via a partnership with The Bay Area Writing Project at UC Berkeley, University of California, Areskoug has worked with small scale, grassroot initiatives for teachers at all levels of the education system.

**Inge Timoštšuk**, PhD, is Professor of Primary Education at the School of Educational Sciences. She is the Leader of primary teacher education (grades 1-6) at Tallinn University. Her research is focusing on teacher education and science teaching. She teaches at the Master's and doctoral level, and supervises Master theses and Doctoral dissertations.

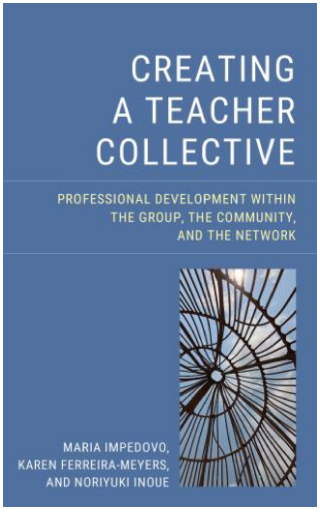
**Solveig Cornér**, PhD, is a university Lecturer at the Faculty of Educational Sciences. She teaches at both the bachelor's and master's level in the Swedish-language primary teacher education program (grades 1-6), University of Helsinki in Finland. Her area of expertise involves the development of social support practices from a systemic perspective in higher education. Her special interest in teacher education lies within connecting theory and practice, teacher's professional identity development, classroom leadership and well-being.

**Erika Löfström**, PhD, is Professor of Education at the Faculty of Educational Sciences, University of Helsinki. She is the director if the international Master's programme *Changing Education*. Löfström specializes in research on teacher education and development, and ethics. She teaches at the Master's and doctoral level, including research methods and research ethics, and supervises theses and dissertations.

DOI: https://doi.org/10.26529/cepsj.2076

# Maria Impedovo, Karen Ferreira-Meyers, and Noriyuki Inoue, *Creating a Teacher Collective: Professional Development Within the Group, the Community, and the Network*, Rowman & Littlefield, 2023; 184 pp.: ISBN: 978-1-4758-6936-1

Reviewed by Maria Impedovo[1]




This timely publication delves into the establishment and maintenance of teacher communities or collectives. Teacher collectives are pivotal in driving educational change, fostering school improvement, and ultimately enhancing student learning outcomes. The book explores how the intersections of group dynamics, community building, and networking contribute to teacher interaction for both learning and professional growth. It aims to answer the question of how to foster and sustain such a community, particularly for practitioners.

While existing literature offers a wealth of insights into theoretical frameworks, success factors, and obstacles to participation in teacher communities, this book fills a crucial gap by providing a practical, step-by-step guide. It offers valuable suggestions tailored to individuals seeking to initiate and support a community of educators, starting from its inception, and emphasising the role of educational technology in facilitating these interactions.

This text emerged from a serendipitous collaboration among three researchers situated in three distinct corners of the globe: France, Japan, and Eswatini. Additionally, contributions from colleagues hailing from Greece, Iran, India, and Hong Kong further enriched the collaborative endeavour.

All the authors of this book are united by a common topic, passion, and interest, fostered through chance encounters during conferences or primarily via social media channels. Their collaboration has formed an embryonic learning collective driven by a shared mission to challenge conventional

1 ADEF Laboratory, Aix-Marseille University, Marseille, France; maria.impedovo@univ-amu.fr.

understandings of teacher professional development and learning.

This book underscores the inherent strength and fragility of all teachers' collectives. Despite facing barriers and challenges—both internal, such as motivation and communication, and external, such as lack of support and funding—collectives can persevere and thrive. The perspectives of group, community, and network are dynamic constructs that require active participation and shaping by their members. Indeed, collectives are in a constant state of creation and transformation, facilitated by technology, which enables the expression of individuality and collective action in various forms.

Structured into two parts (Sections A and B), the book initially concentrates on guiding practitioners in creating and sustaining teacher collectives. The second part offers concrete examples illustrating the application of concepts, technologies, and potentialities.

Throughout its chapters in Section A, the handbook delves into various aspects of promoting teacher interaction for both learning and professional development, centring around three key concepts: the group, the community, and the network.

The book *Creating a Teacher Collective: Professional Development Within the Group, the Community, and the Network* encourages readers to establish and organise connections, correlations, and potential dialogues between various concepts and metaphors to delve into the complexity of teacher learning and professional development. Each chapter aims to contextualise the intricate landscape of teaching by referencing a conceptual framework, a technological aspect, and a metaphor.

The structure of each chapter consists of two parts: the first links the collective aspect to the concepts of group, community, and network, while the second explores practical applications through concepts, technology, and metaphors, facilitating reflection, application, and implementation of collaboration.

In the initial section of each chapter, the focus is on fostering active engagement within the collective. Three modalities are analysed for this purpose: resources, attitudes, and knowledge. These lenses help shape the organisation of activities and shed light on the potential role of each participant. Understanding these perspectives equips teachers with tools to observe, model, and influence learning dynamics.

The latter part of each chapter introduces practical concepts, technological tools, and metaphors to offer a tangible perspective on teacher professional development (TPD).

The following is a brief summary of each chapter in Section A.

Chapter 1: Creating a Teacher Collective

This chapter sets the foundation for understanding teacher collectives by exploring three key perspectives: Group, Community, and Network. It introduces fundamental concepts and provides insights into how these perspectives shape the dynamics of collective professional development.

Chapter 2: Entering into a Teacher Collective

Focused on the process of joining a teacher collective, this chapter examines the themes of Belonging, Participation, and Fluidity. It delves into the importance of identity-based learning and offers practical strategies for setting the script to facilitate smooth integration into the collective.

Chapter 3: Socializing and Learning in a Teacher Collective

Exploring the social aspects of teacher collectives, this chapter examines Behaviour, Practice, and Connection. It emphasises the role of personal meaning-making and offers insights into the role-taking process to facilitate effective socialisation within the collective.

Chapter 4: Developing in a Teacher Collective

This chapter focuses on professional growth within teacher collectives, exploring themes of Growth, Cycle, and Translation. It introduces the concept of susurration and offers scripts based on a trialogical learning approach to support the process of professional development.

Chapter 5: Connecting in a Teacher Collective

Examining the connections within and outside the collective, this chapter explores themes of Resources, Repertoires, and Lines. It introduces the concept of extended cognition and discusses virtual exchange as a means of connecting with external teacher communities.

Chapter 6: Expanding in a Teacher Collective

Focused on the expansion and evolution of teacher collectives, this chapter explores themes of Status, Engagement, and Multi-experience. It introduces the concept of externality and discusses the zone of possibility as a means of facilitating expansion within the collective.

Chapter 7: Moving out of a Teacher Collective

This final chapter examines the process of transitioning out of a teacher collective, exploring themes of Exit, Transformation, and Disconnection. It introduces the concept of diffractive learning and discusses the role of affectivity in facilitating a smooth transition out of the collective.

To summarise, central to the establishment and evolution of teacher collectives are four key factors:

- Passion: The enthusiasm, commitment, and dedication of individuals involved in the collective towards their shared goals and objectives.
- Action: The proactive engagement and implementation of strategies,

initiatives, and projects aimed at addressing challenges and advancing professional growth within the collective.

- Collaboration: The effective cooperation, communication, and teamwork among members of the collective to exchange ideas, share resources, and support each other's development.
- Reflection: The process of critically examining experiences, practices, and outcomes within the collective context to inform continuous learning, improvement, and innovation.

These factors serve as foundational elements influencing the formation, functioning, and sustainability of teacher collectives, shaping their capacity to drive positive change and promote professional development within educational settings.

In conclusion, Section A deals with how fusion and interplay of passion, action, collaboration, and reflection are essential ingredients for fostering the sustainable and strategic development of teacher collectives. As these elements interact and reinforce each other, they contribute to the collective's ability to manage innovation and navigate the challenges presented by a dynamic and complex educational landscape.

In Section B of the book, guest chapters provide concrete illustrations of how to apply concepts, technologies, and opportunities discussed earlier. This multi-level approach offers insight into the adaptability required to establish a teacher community for professional development across various scales, including the group, community, and network.

The following is a brief summary of each chapter in Section B.

Chapter 1: 'Teacher Education in the Global South and Open-Source Hardware'

Authored by Amit Dhakulhar and Karen Ferreira-Meyers, this chapter explores the intersection of teacher education and open-source hardware, particularly in the context of the Global South. It examines how innovative approaches to technology integration can enhance teacher training and professional development, with a focus on accessibility and sustainability.

Chapter 2: 'A Boat on the River: The Case of Teacher Autonomy, Professional Development, and Online Communities'

Written by Mandana Arfa and Karen Ferreira-Meyers, this chapter presents a case study on the relationship between teacher autonomy, professional development, and online communities. It delves into how online platforms can empower teachers to take ownership of their professional growth and create supportive communities of practice.

Chapter 3: 'Community Facilitation for Social Justice Education'

Authored by Aspasia Dania, this chapter examines the role of community facilitation in promoting social justice education. It explores strategies for creating inclusive learning environments and fostering critical dialogue among educators to address issues of inequality and injustice in education.

Each of these chapters offers unique insights and perspectives on teacher education and professional development, demonstrating the diverse ways in which technology and community engagement can support and enhance learning outcomes.

In the end, Impedovo, Ferreira-Meyers, and Inoue, as well as all the guest authors, advocate for a complex learning design that integrates elements such as objects, tasks, and individuals within the dynamics of a group, community, and network. However, it acknowledges the potential challenge highlighted by Goodyear, Carvalho, and Dohn (2014): the risk of overwhelming interdependencies when everything is interconnected.

The book is designed to be a thematic map; the authors acknowledge that it does not cover every aspect exhaustively. It is important to note the authors' stance on the dynamic and evolving nature of teacher professional development: they offer directional guidance and reflections that readers can use as a foundation for their own transformative endeavours.

To address this, the authors' approach advocates for a multi-level design strategy grounded in the creation of lived learning experiences. This entails sustaining an environment of actions and possibilities validated by tangible configurations and feasible conditions. Thus, the concept of 'Learning Environments' transcends mere online or hybrid solutions, encompassing the entire material, affective, and social context within which the group, community, and network operate and interact.

Ultimately, the authors encourage readers to cultivate their own signature pedagogies—a term coined by Shulman (2005)—which represent critical elements for thinking, performing, and acting with integrity in professional practice. Through engagement with teacher collectives, the authors aim for these pedagogies to evolve and enhance the three fundamental dimensions of professional work.

In conclusion, offering intriguing insights into collective professional development practices, the publication *Creating a Teacher Collective: Professional Development Within the Group, the Community, and the Network* critically examines learning environments, particularly within the framework of technology-enhanced collective learning. In a digital landscape often centred around individual presence, this perspective on the potential of teacher collectives

underscores the significance of human connection and social interaction.

## References

Goodyear, P., Carvalho, L., & Dohn, N. B. (2014). Design for networked learning: framing relations between participants' activities and the physical setting. *Proceedings of the International Conference on Networked Learning, 9*, 137–144. https://doi.org/10.54337/nlc.v9.8980

Shulman, L. S. (2005). Signature pedagogies in the professions. *Daedalus*, *134*(3), 52–59.

**Instructions for Authors for publishing in CEPS Journal** (https://www.cepsj.si/index.php/cepsj/about/submissions)

**Submissions**
Manuscript should be from 5,000 to 7,000 words long, including abstract and reference list. Manuscript should be not more than 20 pages in length, and should be original and unpublished work not currently under review by another journal or publisher.

**Review Process**
Manuscripts are reviewed initially by the Editors and only those meeting the aims and scope of the journal will be sent for blind review. Each manuscript is reviewed by at least two referees. All manuscripts are reviewed as rapidly as possible, but the review process usually takes at least 3 months. The ceps Journal has an online-based review system via the Open Journal System. All submissions should be made via the OJS – http://cepsj.si/.
For more information visit our web page http://cepsj.si/.

**Abstracting and indexation**
Scopus | EBSCO - Education Source Publications | Cooperative Online Bibliographic System and Services (COBISS) | Digital Library of Slovenia - dLib | DOAJ - Directory for Open Access Journals | Academic Journals Database | ERIH PLUS | ERIC | Elektronische Zeitschriftenbibliothek EZB (Electronic Journals Library) | Base-Search | DRJI - The Directory of Research Journal Indexing | GSU - Georgia State University Library | MLibrary - University of Michigan | NewJour | NYU Libraries | OhioLINK | Open Access Journals Search Engine (OAJSE) | peDOCS: open access to educational science literature | ResearchBib | Scirus | Ulrich's International Periodicals Directory; New Providence, USA

**Address**
CEPS Journal, Faculty of Education, University of Ljubljana, Kardeljeva ploščad 16, 1000 Ljubljana, Slovenia.

**Web page**
http://cepsj.si/

**Copyright**


**Navodila za avtorje prispevkov v reviji** (https://www.cepsj.si/index.php/cepsj/about/submissions)

**Prispevek**
Prispevek lahko obsega od 5.000 do 7.000 besed, vključno s povzetkom in viri. Ne sme biti daljši od 20 strani, mora biti izvirno, še ne objavljeno delo, ki ni v recenzijskem postopku pri drugi reviji ali založniku.

**Recenzijski postopek**
Prispevki, ki na podlagi presoje urednikov ustrezajo ciljem in namenu revije, gredo v postopek anonimnega recenziranja. Vsak prispevek recenzirata najmanj dva recenzenta. Recenzije so pridobljene, kolikor hitro je mogoče, a postopek lahko traja do 3 mesece. Revija vodi recenzijski postopek preko Open Journal System (OJS). Postopek oddaje prispevka poteka preko OJS na strani: http://cepsj.si/.

Več informacij lahko preberete na spletni strani http://cepsj.si/.

**Povzetki in indeksiranje**
Scopus | EBSCO - Education Source Publications | Cooperative Online Bibliographic System and Services (COBISS) | Digital Library of Slovenia - dLib | DOAJ - Directory for Open Access Journals | Academic Journals Database | ERIH PLUS | ERIC | Elektronische Zeitschriftenbibliothek EZB (Electronic Journals Library) | Base-Search | DRJI - The Directory of Research Journal Indexing | GSU - Georgia State University Library | MLibrary - University of Michigan | NewJour | NYU Libraries | OhioLINK | Open Access Journals Search Engine (OAJSE) | peDOCS: open access to educational science literature | ResearchBib | Scirus | Ulrich's International Periodicals Directory; New Providence, USA

**Naslov Uredništva**
Revija CEPS, Pedagoška fakulteta, Univerza v Ljubljani, Kardeljeva ploščad 16, 1000 Ljubljana, Slovenija.

**Spletni naslov**
http://cepsj.si/

**Avtorske pravice**

UNIVERZA V LJUBLJANI | PEF Pedagoška fakulteta

C O N T E N T S

C·E·P·S Journal

Center for Educational Policy Studies Journal

*Revija Centra za študij edukacijskih strategij*

Vol.15 | No1 | 2025

*http://cepsj.si*



ISSN 2232-2647