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Blending pedagogy: equipping student teachers to foster transversal competencies in future-oriented education

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Blended teaching and learning, combining online and face-to-face instruction, and shared reflection are gaining in popularity worldwide and present evolving challenges in the field of teacher training and education. There is also a growing need to focus on transversal competencies such as critical thinking and collaboration. This study is positioned at the intersection of blended education and transversal competencies in the context of a blended ECEC teacher-training program (1000+) at the University of Helsinki. Blended education is a novel approach to training teachers, and there is a desire to explore how such an approach supports the acquisition of transversal competencies and whether the associated methods offer something essential for the development of teacher training. The aim is to explore what transversal competencies this teacher-training program supports for future teachers, and how students reflect on their learning experiences. The data consist of documents from teacher-education curricula and essays from the students on the 1000+ program. They were content-analyzed from a scoping perspective. Students' experiences of studying enhanced the achievement of generic goals in teacher education, such as to develop critical and reflective thinking, interaction competence, collaboration skills, and independent and collective expertise. We highlight the importance of teacher development in preparing for education in the future during the teacher training. Emphasizing professional development, we challenge the conventional teaching paradigm by introducing a holistic approach.

KEYWORDS

blended teacher training, transversal competencies, future of education, teacher education, early childhood education

Introduction

It has been traditional practice in educational settings to separate teaching, namely instructing students, from self-directedness and the regulation of studies that remain the responsibility of individual students (Walker, 2006). The Nordic countries have adopted a holistic approach, however, which covers the learning environment, interaction, instructions, knowledge, scaffolding, reflection, and professional development among both students and teachers (Garvis and Ødegaard, 2017; Kangas and Harju-Luukkainen, 2021).

Consequently, critical consideration of teaching methods and tools in teacher education in Finland also involves broader perspectives such as sustainability in social and cultural factors that shape teacher training in institutions of higher education (Hyytinen et al., 2019).

The teacher's profession in early childhood education and care (ECEC) is based on research-based knowledge and strong pedagogical competence in terms of understanding curricula and implementing practices, while simultaneously developing the organizational culture, teaching and learning practices, and learning environments through collaboration with colleagues and other experts (Husu and Toom, 2016). ECEC teaching in Finland is based on a comprehensive understanding of pedagogical competence, as highlighted by Ranta et al. (2023), whereby teaching competencies are identified through meta-competencies, as well as professional and practical skills. Curriculum knowledge is also emphasized in meta-competencies, corroborating earlier studies and enabling critical and development-oriented approaches (see Ukkonen-Mikkola and Fonsén, 2018; Harju-Luukkainen and Kangas, 2021).

In addition to focusing on blended education and transversal competencies in the context of a blended ECEC teacher-training program, we also explore the role and meaning of transversal competencies in the education of teachers. Through a case study, we will showcase how student teachers design, participate, become involved in, and reflect on learning experiences that promote transversal competencies, using a blended learning approach.

Constructing future teacher education

Both blended teaching and learning, which combine computer-mediated learning with face-to-face instruction, and shared reflection are gaining in popularity worldwide. Many institutes of higher education (HEI) have also been considering the benefits of blended learning (Okaz, 2015). Teacher education, which is included in higher education (HE) in many Western countries but is also part of the vocational training tradition, has been struggling to accept the blended approach (Lund and Aagaard, 2020). According to various authors, blended methods have failed in training programs for future teachers focusing on developing pedagogical interaction skills as well as reflection and self-assessment capacities (Zagouras et al., 2022; see also Miller and Stayton, 1998; Lund and Aagaard, 2020). Miller and Stayton (1998), for example, found that the learning outcomes were behind those in traditional training programs due to the lack of ICT skills in the student population. The blended approach is challenging for teacher-training staff and student teachers, requiring critical consideration of pedagogy as well as careful planning and implementation to ensure effective teaching. ICT skills and online solutions have been widely explored (see Hays and Reinders, 2020), but they should not be the only measure of quality when blended programs are evaluated.

There is an increasing global need to focus on developing transversal competencies in education (Langa, 2015). In the Nordic context, too, researchers have revealed a need to develop educational policies and teacher education to provide high-quality services in ECEC (Garvis and Ødegaard, 2017; Ranta et al., 2023). However, Paananen et al. (2015) raised concerns about the quality of the discourse, and emphasized the need for a formal definition of high-quality ECEC as a concept. Transversal competencies are based on the OECD's (2018) understanding of skills for future citizenship, which are highly relevant given the changing demands placed on future workforces, including social, economic, and technological challenges (Langa, 2015). In university level much is

discussed about critical thinking based on research-based informed decision making (Halpern, 2014). Developing transversal competencies in education also requires the enhancement of these skills in teacher training, so that teachers are prepared for future challenges and changing needs, and are able to support students in developing transversal competencies (see Harju-Luukkainen and Kangas, 2021).

The question of transversal competencies is relevant context of teacher education given that teachers should be able to guide and support their students in acquiring these future-oriented skills currently and throughout their careers (Langa, 2015; Kumpulainen, 2018). The focus of this study, positioned at the intersection of blended education and transversal competencies, is on the 1000+ blended ECEC teacher-training program at the University of Helsinki. The program offers ECEC teacher training to individuals with work experience as assisting staff in ECEC institutions, allowing them to study while working (see Lund and Aagaard, 2020). We highlight the importance of professional development and continuous learning for teachers to prepare them to meet future educational needs during their teacher training.

With reference to future skills, we use the term transversal competencies (UNESCO, 2015). Various concepts have been employed to describe similar skills: generic skills (Singh and Gera, 2015), twenty-first-century skills (Binkley et al., 2012), and key competencies (Looney and Michel, 2014; European Commission, 2019). All of them encompass the fundamental elements of knowledge, skills, values, and attitudes that are essential for continuous learning and active engagement in society. Even transversal competencies drawn from economic development of both societies and individuals (see Tolochko et al., 2020), they contain a wide sphere of skills, attitudes, and values for future citizens. To scaffold transversal competencies in children effectively, teachers should cultivate awareness of these competencies and actively engage in their own professional development (Harju-Luukkainen and Kangas, 2021). Conceptually, transversal skills comprise competencies, values, and attitudes within and across the domains (UNESCO, 2015, p. 18). UNESCO (2015) definition of transversal competencies has six domains as follows (1) critical and innovative thinking, (2) interpersonal skills, (3) intrapersonal skills, (4) global citizenship, (5) media and information literacy, and (6) other skills:

1. Critical and innovative thinking: creativity, entrepreneurship, resourcefulness, application skills, reflective thinking, reasoned decision-making.
2. Interpersonal skills: communication skills, organizational skills, teamwork, collaboration, sociability, collegiality, empathy, compassion.
3. Intrapersonal skills: self-discipline, the ability to learn independently, flexibility and adaptability, self-awareness, perseverance, self-motivation, compassion, integrity, self-respect.
4. Global citizenship: awareness, tolerance, openness, responsibility, respect for diversity, ethical understanding, intercultural understanding, democratic participation, conflict resolution, respect for the environment, national identity, sense of belonging.
5. Media and information literacy: the ability to obtain and analyze information through information and communication

technology (ICT) channels, to critically evaluate information and media content, and to use ICT ethically.

6. Other: skills and competencies as defined by different countries/economies.

The focus on fostering transversal competencies connects the Finnish education system, which extends from early childhood to upper-secondary schooling. Transversal skills play a significant role and are integrated into all subjects and learning activities. The objective to acquire transversal skills is mandatory on the curriculum level. The acquisition of generic skills is also well recognized as a crucial objective in higher education (Hyytinen et al., 2019; Shavelson et al., 2019). Their significance is further emphasized during the transition from education to the workforce and beginning a professional career (Tuononen et al., 2019; Ranta et al., 2023). On the university level, for example, a variety of pedagogical approaches, including active learning and engaging students in group activities, help to foster the development of generic skills (e.g., Smith and Bath, 2006; Ballantine and McCourt Larres, 2007; Kember, 2009). More research is needed to shed light on how these generic skills are taught and what kind of teacher education is provided in this regard.

Research questions

Our research questions reflect the aims of the study to explore the transversal competencies within the blended teacher-training program that support future teachers, and to shed light on how students reflect on their learning experiences.

RQ1: What transversal competencies are targeted in the ECEC teacher-training program?

RQ2: What transversal competencies do student teachers describe and reflect on having acquired during their studies?

Methodological solutions

The context of the study

ECEC teacher training became a university-level Bachelor's degree program in Finland in 1996. Since then, its status within the Finnish education system has strengthened (Hytönen, 2017). Responsibility for ECEC was transferred to the Finnish Ministry of Education and Culture in 2013. The national framework was established in 2016, and became a mandatory document to guide ECEC pedagogy (Kumpulainen, 2018). At the same time, it became clear that there were not enough qualified personnel in the field, and the number of study places for ECEC teacher training doubled between 2016 and 2021. However, a new staffing standard will come into effect in 2030, further increasing the demand for qualified personnel. A national blended learning program for ECEC teachers (1000+) is being developed to satisfy this demand, which allows for part-time study for those working in ECEC, as well as those residing outside university cities. The first blended teacher-training program was launched in 2020 in collaboration with seven higher-education institutes in Finland, with funding allocated by the Finnish Ministry of Education and Culture. Most of the applicants for the program worked in ECEC environments, mainly as nurses, childminders, or assistants.

The data

The data consist of curriculum documents related to early childhood teacher education at the University of Helsinki, and reflective essays written by students on the teacher-training program. Students on the course complete a Bachelor of Education degree by means of blended learning, which includes face-to-face teaching, online learning, and work-based tasks. There are also supervised periods of teaching practice. The program is based on dialogue between theory and practice. Students carry out tasks related to their studies within their childcare groups and thus are able to apply theory- and research-based knowledge directly in practice. They are required to do independent work and online study, and there is also heavy reliance on pair and group work. It is considered important to give students the opportunity to reflect on their learning with their peers.

The research in this study focused on the curriculum the students followed in their studies and the reflective essays they wrote during the second half of the course. The participants ($N=39$) wrote reflective essays about their studies and how they were developing as teachers midway through and at the end of the program. All of them submitted essays during the middle phase, and 17 of them also included reflective essays focusing on their development as teachers upon completion of their academic journey. The focus in both essays was on the competencies assimilated throughout their course of study, specifically viewed through the lens of pedagogical competencies and self-efficacy. Students were instructed to write a reflective essay analyzing their work experience as an ECEC teacher in light of the objectives and content covered in their teacher education studies up to that point. The guiding question of the essays focused on how their learning has affected their understanding of teaching and pedagogy, and how it has influenced the development of their teaching practice.

The students were asked to highlight meaningful areas of learning and personal development in their essays, which could be considered a limitation of the research. These essential experiences influenced their texts, which meant, for example, that the questions on ICT skills were not as relevant as they would have been when they started their studies. Each student gave their consent to be involved in the research after having been informed about its nature. As an ethical principle, the datasets were left unanalyzed until graduation to prevent the research from affecting the participants' studies. The study data is also being used to develop the blended teacher-training program, for which most of the students gave their consent.

Analytical approach

The data were content-analyzed using the scoping approach. In the first phase of analysis, the curriculum for teacher education was examined. Twenty courses of the studies of ECEC teachers were chosen for analysis. Each had a credit value of five study points, totaling 100 study points encompassing pedagogy, educational science, and early-childhood-education-oriented studies, leaving out general studies. The study points indicate the extent of the studies. The total extent of the Bachelor's degree is 180 study points. The curriculum is inherently well-structured: the objectives (3–5 items) of each course are delineated alongside its contents and instructional methodologies (3–5 items), all of which were chosen as focal points for the analysis.

The data were subjected to abductive content analysis, which according to Leedy and Omrod (2001, p. 155) is a comprehensive and methodical scrutiny of the substance within a specific body of data with the aim of discerning prevalent patterns, themes, or biases. Utilizing Atlas TI software in our analysis of the thematic content, we identified five distinct categories as the foundational framework, leveraging text searches and automated coding procedures about each of the five transversal competencies. This involved integrating the keywords and definitions in the search terms and reading through the curricular documents to identify objectives and context related to these competencies. With regard to interpersonal competencies, for example, our keywords were: communication skills, teamwork, collaboration, collegiality, empathy, and compassion. A coded item could be one word, a sentence, or a meaning. The text search and the automatic coding identified 178 codes, some of which occurred only a couple of times and others more than 10 times. Furthermore, we read through the entire curriculum on a course-by-course basis, with additional coding based on the contents, further aligning with the transversal competencies and increasing the number of coded items to 228. Table 1 shows examples of the coding process with data excerpts.

After this, we divided all the codes among five categories based on the areas of transversal competency and following the theory-oriented analytical process (Table 2). Each category had between six and eleven codes. We decided to include pedagogical competencies in the category Other, given that they are specific to teacher education and teacher competence. One limitation of the study is that the Faculty of Education reviewed and lightly reformed the curriculum for ECEC teacher training in 2022. In this study we use the latest curriculum document.

We examined the student teachers' essays in the second phase of the analysis, using thematic deductive content analysis, and we did the coding manually given their narrative nature (see Leedy and Omrod, 2001). The analysis was an iterative process, which involved multiple readings of the data to identify recurring content based on five transversal competencies involving their keywords and definitions. We also formed subcategories within these five main categories.

Mostly, the paragraphs or sentences in the text focused on a specific main category, but in some cases, even a single sentence might encompass ideas from two different categories. For example: *"I've gained a lot of diverse research-based information and methods² implementing everyday pedagogy¹, as well as supporting the decisions I make²."*

This quote emphasizes (1) pedagogical skills, further into category Pedagogical competencies, but also highlights (2) reasoned decision-making ability, further into category: Critical thinking and innovating.

And in this next quote, the student is describing experiences and beliefs about (1) collectiveness and (2) confidence that are relevant in intrapersonal skills and interpersonal skills categories:

"The thing that surprised me was the feeling of collectiveness and the support that we all got from each other¹. That also helped me to be more confident in my own work and my teacher identity² and I also realize that this might have never happened at least to this extent without this educational opportunity."

Results

Curriculum documents

The analyzed curriculum encompasses several key elements in *the category of critical thinking*. These include the capacity to evaluate information and media content critically, to cultivate research-based competencies, to instill a sense of self-reliance, to foster the skill to think critically, and to promote reflective practices. This category collectively underscores the multifaceted dimensions associated with developing critical thinking skills within the context of teacher education. Skills associated with reflective practice include the ability to analyze and learn from personal experiences, consider different perspectives, and make informed decisions based on self-reflection. Such practices facilitate the continuous improvement of teaching strategies and the acquisition of skills such as self-examination and thoughtful contemplation that foster professional development. The cornerstones of ECEC in which inventive and diverse methods are not only welcomed but also scaffolded are creative thinking and creativity.

The importance of developing *interpersonal skills* in the curriculum was also emphasized. These include a range of fundamental skills that are required to do the job of a teacher. The emphasis in the analysis is on communication, specifically on interaction with parents and co-workers. As a key element, the skill to interact with children addresses the unique character of communication with young learners. Teamwork skills were promoted

TABLE 1 Examples of the coding process.

Data excerpts	Codes	Categories
The student has the skills to plan, implement, and evaluate ¹ versatile, guided, and free self-directed physical activity that takes all children into account ² , supports equity and equality ³ and develops competence experiences ⁴ , and pedagogical activities for children and groups of children that connect to other areas of learning ^{1,5}	(1) Pedagogical skills (2) Recognition of personal needs (3) Equity (4) Learning-to-learn skills (5) Developing capacity	Pedagogical competencies (1) Intrapersonal skills (2, 4, 5) Global citizenship (3)
The student knows the guiding role of the curriculum in early childhood education, knows how to plan ¹ , implement, and evaluate early childhood education pedagogy ² , knows how to apply educational research in early childhood education ³ , and can structure and reflect on their own activities as an early childhood education teacher and examine the ethical and social aspects of the profession ^{4,5}	(1) Critical thinking (2) Pedagogical skills (3) Research-based understanding (4) Awareness (5) Reflection skills	Critical and innovative thinking (1, 3, 5) Pedagogical competencies (2) Intrapersonal skills (4)

TABLE 2 Categories and their frequencies in the curriculum analysis.

Category	<i>n</i>
Critical and innovative thinking	56
Interpersonal skills	26
Intrapersonal skills	56
Global citizenship	21
Media and information literacy	15
Other, pedagogical competencies	48

in the curriculum to support the staff's joint efforts to develop practices. The importance of active interaction and contribution within educational contexts is recognized, and participation is encouraged. With a view to fostering meaningful and positive interactions, as well as an environment that is inclusive and supportive, social skills were integrated into most of the individual courses in the curriculum.

A holistic approach to personal development is emphasized throughout the curriculum, within the category of *intrapersonal abilities*. With a focus on self-awareness, students are scaffolded in discovering and comprehending their professional identity, values, and areas of strength, as well as flexibility and adaptability. A cornerstone is the capacity for self-improvement, which encourages ongoing professional and personal development. The curriculum emphasizes the giving of feedback, helping students to take constructive criticism well and to apply it in their further development.

Several key dimensions were identified in *the category of global citizenship*. These included equity, meaning the fostering of fairness and impartiality; human and children's rights aimed at promoting the fundamental rights and dignity of all individuals in line with international standards and principles; and sustainability including awareness of environmental and social responsibilities and of the importance of sustainable practices. Intercultural understanding featured heavily in the curriculum, including the ability to appreciate, respect, and navigate diverse cultures, as well as cross-cultural communication skills.

The curriculum adopts a dynamic approach to *the category of media and information literacy*, aimed at preparing educators to cope with the complexities of present-day educational environments. Digital literacy was considered essential, enabling teachers to use and navigate digital tools with ease. The dynamic approach to education is recognized, too, and is emphasized in distance learning as a future component of lifelong learning. Playful learning is also embedded in the curriculum, acknowledging the significance of a joyful and interactive approach to pedagogical practice.

Finally, the emphasis in the 'other competencies' category is on *pedagogical competencies*, whereby the curriculum prioritized the development of the essential skills required for effective teaching in terms of practices, methods, and awareness. Pedagogical skills equip teachers with a range of strategies and processes for meeting learning demands. The development of pedagogical awareness, in turn, enhances understanding of developmental psychology, instructional design principles, and educational philosophy. Interaction skills were considered important in creating a healthy learning environment. The curriculum also places strong emphasis on pedagogical development, whereby educators continuously reflect on their work and grow as professionals to enhance the quality of ECEC.

The essays

Midway through their studies the students had already accumulated knowledge and referred to a clear development in experiential learning. They expressed a sense of belonging both to each other and to their academic studies, and their motivation was high. They were enthusiastic about their future profession and grateful for the strengthening of their pedagogical skills and the clarification of their own professional identity.

Their essays at the end of the program primarily reflected the development of critical and innovative thinking, as well as interpersonal skills, but scarcely mentioned media and information literacy. In addition to the five categories of transversal competencies, they emphasized pedagogical competencies, which is classified as a distinct subcategory. The students reflected on their studies, their work experiences and the development of their teacher identity given the challenges and expectations in the field of ECEC.

Critical and innovative thinking

The findings within the category of critical and innovative thinking, reflecting both transversal competencies and multiliteracy, were grouped into five subcategories: reasoned decision-making/interplay between theory and practice; reflective thinking; renewal and innovative thinking; critical thinking; and application skills.

The emphasis on reasoned decision-making and the interplay between theory and practice is notable in the essays. Studies played a crucial role in substantiating personal viewpoints and decisions within the profession. The students agreed that their studies had deepened their understanding and built a theoretical foundation for the acquisition of practical expertise. They also appreciated now being able to justify their pedagogical solutions to their team and the children's parents. The goal of the blended-learning program is to create a strong connection between theory and practice. Students undertake study-related tasks within their own group of children.

"Now I am able to justify and articulate solutions, actions, and practices based on research, thus contributing to shaping the reality of early childhood education."

"The theory and knowledge I have gained in my education have strengthened my practical skills."

Teacher training reinforced the importance of reflective practices. Their studies guided the students in contemplating the foundational aspects of their teaching, values, and perceptions of children. A recurring theme in their essays is the notion that reflecting on learning and skills during their studies also translates into their roles as teachers, linking reflection to lifelong learning.

"The future is built on the ability to examine one's own actions. A teacher must be reflective in their profession, constantly evaluating their own actions and seeking ways to improve and develop their practices."

The essays reflected some insights into renewal and innovative thinking, critical thinking, and application skills. Findings related to renewal and innovative thinking focused on the students' ideas about

reforming the team's operational culture, modifying practices, and evaluating and improving activities. Their enhanced skills in critical thinking involved their capacity to question and critically analyze their own and others' actions, as well as their approach to what they read.

"I question, am critical, and request justifications, and if needed, I adjust my thinking after hearing others' perspectives."

Interpersonal skills

According to what the students wrote in their essays, their studies enhanced interpersonal skills. Findings within this category were placed in the following five subcategories: team leadership; interaction with team members; teamwork; shared expertise; and interprofessional collaboration/collaboration with parents. There was an even distribution across all the subcategories.

The students mentioned skills related to interacting with team members. Their studies had reinforced their perceptions of equality among team members and the utilization of each member's strengths. The studies had also strengthened their role as team members. They emphasized the significance of teamwork. Many study-related tasks were carried out in pairs or groups, significantly reinforcing the students' perception of themselves as members of a team. They reported having acquired the ability to lead a team. Their responses also indicated an understanding of shared leadership.

"In teamwork, it is essential to remember to appreciate each individual and to provide space and opportunities for leveraging their strengths, while also fostering professional development."

"[Acting as a pedagogical leader]... does not imply a higher status but rather taking responsibility, serving as a role model, guiding the implementation of pedagogy, and contributing one's expertise to the team."

There was a heavy emphasis in the essays on the concept of shared expertise and its significance as understood through the studies. According to some participants, collaboration with fellow students had enhanced the pedagogical discourse. They believed that mutual dialogue and reflection were crucial. The importance of empathy and compassion was also emphasized in some essays. The students' sense of belonging emerged more clearly midway through their studies. Similarly, they developed an understanding of children's developmental challenges, which in turn made them realize the importance of having an empathetic attitude in their work. The responses particularly highlight the importance of sharing one's expertise for the benefit of others.

"I've gained not only critical thinking skills in my studies but also a kind of enhanced empathetic thinking, understanding diversity within my team. I now see each of my team members' strengths more clearly."

The essays also reflect the significance of interprofessional collaboration and the development of such an understanding throughout the studies. There is also an emphasis on collaboration with parents in these discussions.

"Building a sustainable future requires close collaboration among experts from various fields, and the early-childhood-education teacher training has prepared us for this role. We practiced collaboration with parents, other teachers, and a multidisciplinary team to create a diverse learning environment for children."

Intrapersonal skills

The students discussed the development of intrapersonal skills from three perspectives in their essays, namely self-awareness, the desire to learn, and self-confidence. All three are strongly linked to student flexibility and personal activity.

The studies reinforced the students' self-awareness as learners and teachers, strengthening their self-confidence as learners and in a professional capacity. Some responses demonstrated the development of expertise and professional identity, whereas others highlighted self-regulation skills and adaptability, particularly concerning setting boundaries at work.

"I also learned to see myself as more competent and professional than before; my professional self-esteem increased."

There was also considerable discussion about the significance of lifelong learning and the importance of one's own activity in maintaining and developing expertise. The students were clearly enthusiastic about their future work and the opportunities to develop and make a real impact.

"A critically thinking and research-oriented teacher should also take care of their own professional development and maintain their expertise in relation to current research in the field."

Global citizenship

From the perspective of global citizenship, the essays emphasized an increased understanding of inclusion and interculturalism regarding cultures and religions. They notably highlighted specific courses in which these topics were addressed. Some essays also focused on sustainable development.

According to the students, their studies provided them with the skills to understand the significance of inclusive education in ECEC. They learned to consider each child as an individual, and found the course on ethical education beneficial in terms of their worldviews and the diverse approaches. Many essays pointed out how the course prompted reflection on personal attitudes and encouraged the raising of topics related to religious education within the professional team. Their reflections on a sustainable future emphasized the importance of education in this respect, and this was seen as a significant developmental target throughout their studies.

"I believe that, in the role of a teacher, it is particularly important nowadays to lead discussions that support respect for diversity."

"Building a sustainable future requires continuous learning and adaptation to changing conditions. The education of early childhood teachers prepared us to face these challenges and to be open to new learning opportunities."

Media and information literacy

The students gave minimal attention to the media and information literacy in their essays. In fact, only one essay highlighted online teaching, which is extensively utilized in blended programs. The response reflects the utilization of information technology in studying rather than emphasizing its importance as a teacher's tool. However, essays written during the middle phase expressed gratitude for the diversity of teaching and the accumulation of one's own skills using different teaching methods.

Pedagogical competencies

Each of the students addressed, to some extent, the significance of pedagogy and the related skills developed through their studies. The essays explored the planning, implementation, and evaluation of pedagogical activities from various perspectives, taking into account children's needs and interests. As teachers, they valued pedagogical thinking.

"From my studies, I remember the exact moment when we contemplated things through pedagogical lenses, and I still often bring out these 'glasses' in my everyday life."

Throughout the essays the students strongly emphasized the use of pedagogical interaction and awareness of children's development, personal needs, and interests as a tool in the teacher's work. The role of pedagogical development was stressed particularly strongly in the graduating students' essays.

"Through the studies, I have started to contemplate more about what a child already knows, what their strengths are, and how I could further promote and enhance those strengths."

Discussion

According to the findings, transversal competencies are strongly embedded in both the curriculum of the blended teacher training in the ECEC program and the students' learning experiences. The essays they wrote halfway through their studies highlighted their awareness of the work they do with children. Although most of them already had several years of experience as a teacher, they still felt that they were on the way to a deeper understanding, which would help them both in everyday life and professionally in terms of developing their teacher identity. The curriculum also reflected this deeper and research-based understanding. The students fully appreciated this opportunity to learn more. They were proud of themselves and of their achievements, and were ready to process new information.

The essays the students wrote at the end of their studies reflected their enhanced transversal competencies, particularly reflective thinking and the ability to make reasoned decisions. Although most of them had significant work experience in the field of ECEC, their studies specifically reinforced the development of their skills as teachers. There was an emphasis on interpersonal skills, especially in terms of valuing inter-professional collaboration and the development of their own identity as teachers: identity building connected their interpersonal and intrapersonal skills. Through their studies they became more confident in their professional competence, emphasizing

the importance of lifelong learning in future teaching. They found the courses related to diversity and ethical questions highly meaningful. This aspect was also reflected in the curriculum, given the diverse knowledge and skills future teachers will require. The development of pedagogical expertise was emphasized, too.

The main findings concerned the motivation that involvement in the course aroused in these mature students during their studies. Their dreams of becoming teachers finally seemed achievable, and the socially sustainable nature of the educational program made it accessible to women from lower socio-economic backgrounds. Moreover, their experiences of studying enhanced achievement of the generic goals of teacher education, namely, to develop critical, analytical, and creative thinking as well as problem-solving ability, interaction competence, collaboration skills, and independent and collective expertise. It should be borne in mind when the results are interpreted that these students participated in blended teacher training. Blended teacher education belongs in the dialogue between theory and practice, and students carry out their study tasks within their children's groups. Furthermore, the studies involved pair and group work, which is most likely reflected in the students' perception that their interpersonal skills had improved. Despite the extensive use of digital learning environments in their education, however, they did not consider the development of their ICT skills to be significant enough to address in their reflections.

In terms of the connections and differences between the curriculum and the analyzed essays, there is a strong emphasis on critical thinking and intrapersonal skills. It appears that the curriculum emphasizes perspectives related to academic thinking and research-based approaches, which are also reflected in the students' perceptions. However, interpersonal skills (emphasized less in the curriculum) are strongly highlighted in the graduating students' reflective considerations, whereas media and information literacy seem to be missing from both. Therefore, it would be worthwhile in future research to examine the emphasis on interpersonal skills in HEI teaching, and the potential need for updates in the curriculum. Moreover, in the context of blended teacher training, the role and focus on media and information literacy need to be evaluated and more firmly integrated into a research-based approach.

One could discuss the potential impact of blended teaching and learning on the development of transversal competencies. Blended-learning approaches could give students the opportunity to develop these competencies in a more personalized and meaningful way, and teachers could create learning experiences that leverage technology to foster them. Overall, this paper highlights the importance of blended teaching and learning, teachers, and transversal competencies in the future of education. In embracing these concepts, teachers could help students to develop the skills they need to thrive in a rapidly changing world.

The focus in this study was on recent transversal competencies. Crucial questions that arise concern the substance of future competencies, and whether teacher education in its current form could address them. However, it seems from the students' reflections that future teachers will be able to engage in reflective practices and thereby develop ECEC. The following quotation is illustrative.

"My own skills in influencing the development of the operational culture have strengthened, and I feel continuous improvement is important in early childhood education. It ensures that we can

continue to provide high-quality early childhood education in the best interests of the child, through effective collaboration and professional interaction.”

Conclusion

Based on the findings, it's evident that the blended teacher-training program has impacted the development of transversal competencies among future teachers in ECEC. Thus, it is relevant to conclude the points brought up following our research questions. The findings underscore the emergence of critical thinking and reasoned decision-making, reflective skills, based on the holistic integration of theory and practice within the curriculum in the middle of studies of blended teacher training students. As proposed by Halpern (2014) critical thinking skills in higher education are not only based on knowledge and knowing, but future teachers need time and scaffolding to master these skills in teaching practices and sustainable development (see Paananen et al., 2015; Kumpulainen, 2018). The skills of critical thinking were well represented in students' reflective essays, demonstrating competence to evaluate and deconstruct learning experiences critically and showing understanding of their own cognitive processes and strategies for learning. This integration is known not only to enhance the students' understanding and knowledge in their studies but also crucially needed to equip them with the necessary skills to navigate the complexities of the teaching profession (Garvis and Ødegaard, 2017; Harju-Luukkainen and Kangas, 2021).

Moreover, the findings shed light on the interpersonal and intrapersonal competencies cultivated through the teacher-training program even though the program in hand is based on blended approach. The majority of the analysis-based classes (56) were under the distinctions of intrapersonal skills. When comparing these findings to previous studies where there has been a worry of the development of human self-awareness and interaction with others (Miller and Stayton, 1998; Lund and Aagaard, 2020). The findings highlight the importance of both intra- and interpersonal skills within the blended teacher-training model and show the program's strong emphasis on developing interaction skills, team leadership, teamwork, and shared expertise-building, highlighting the collaborative nature of teaching and the significance of effective communication and collaboration within professional settings. These elements in future teachers' competencies have been shown essential (see Husu and Toom, 2016; Ranta et al., 2023) Additionally, the development of intrapersonal skills, such as self-awareness, desire to learn, and self-confidence, is noted as enhancing students' adaptability and resilience and enabling them also to continue learning after graduation (see also Lund and Aagaard, 2020). Together, these competencies contribute to well-rounded and effective teacher preparation, fostering both individual growth and collaborative success in educational environments.

Some considerations should be raised based on the limited attention given to media and information literacy within the students' reflective competence building. While Miller and Stayton (1998) show that the lack of preliminary skills in ICT can cause blended training to fail, the issue in this case seems to be more about

teacher education programs. These programs should not only provide opportunities for students to utilize their existing skills but also emphasize the ongoing relevance of these skills in the educational landscape. This ensures that future teachers are equipped not only to use technology proficiently but also to effectively develop their competencies and integrate technology into their teaching practices. When comparing the findings between students' competencies and the curriculum, the next developmental steps need to be within the curriculum and how it is emphasizing the future teachers' developing competencies in media and information literacy and somewhat also in global citizenship skills.

Data availability statement

The datasets presented in this article are not readily available because the participants of this study did not give written consent for their data to be shared publicly, so due to the sensitive nature of the research supporting data is not available. Requests to access the datasets should be directed to JK, jonna.kangas@helsinki.fi.

Ethics statement

Ethical approval was not required for the studies involving humans because in accordance with the principles of the university, an ethical assessment is not carried out if the research is led by a responsible researcher and no minors participate in the research. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

LN: Conceptualization, Formal analysis, Investigation, Methodology, Validation, Writing – original draft, Writing – review & editing. JK: Conceptualization, Formal analysis, Investigation, Methodology, Validation, Writing – original draft, Writing – review & editing. MK: Conceptualization, Formal analysis, Investigation, Methodology, Validation, Writing – original draft, Writing – review & editing.

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