

Empowering Entrepreneurial Competencies and Mindset in Teacher Training

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Summary. The article aims to identify the teacher students' experiences regarding entrepreneurship education in pre-service training to empower the development of the entrepreneurial mindset of future teachers. Estonia belongs to one of the few countries in Europe where entrepreneurship education is a compulsory topic in pre-service teacher education. To frame entrepreneurial studies for future teachers, the competence model was created. Based on literature relating to entrepreneurial education and teacher's competence model, qualitative research was conducted. Data was collected from 24 in-depth interviews with the teacher students. Inductive content analysis is used as the method of data analysis. The paper argues that addressing transferable competencies (e.g., creative thinking, teamwork and communication skills, self-management) is crucial for promoting entrepreneurial mindset and engagement of teacher students. When planning the content of entrepreneurial studies, experiential learning, authentic assignments, collaborative and reflective methods are the most potential to have an impact on meaningful learning. Teacher students evaluate these activities as motivationally challenging and essential for developing an entrepreneurial mindset. The results of the study are valuable for designing entrepreneurial studies module and integration of entrepreneurial competence as a cross-curricular theme in pre-service teacher education.

Key words: pre-service teacher training, teacher competencies, entrepreneurship education, entrepreneurial mindset

Verslumo mąstysenos ir kompetencijų ugdymas rengiant mokytojus

Santrauka. Straipsnio tikslas – atskleisti pedagogikos studentų patirtis, susijusias su verslumo ugdymu profesinėje praktikoje, ir stiprinti būsimųjų mokytojų verslumo kompetencijas bei mąstyseną. Estija yra viena iš nedaugelio Europos šalių, kuriose verslumo ugdymas yra privaloma profesinės mokytojų rengimo praktikos tema. Siekiant apibrėžti būsimųjų mokytojų verslumo ugdymą studijose, buvo sukurtas kompetencijų modelis, vėliau su verslumo ugdymu ir mokytojų kompetencijų modeliu susijusios literatūros pagrindu atliktas kokybinis tyrimas, duomenys surinkti iš 24 giluminių interviu su būsimaisiais mokytojais. Duomenys analizuoti indukcinės turinio analizės metodu. Rezultatai atskleidė, kad siekiant skatinti pedagogikos studentų verslumą ir įsitraukimą, labai svarbu atkreipti dėmesį į perkeliamašias kompetencijas (pvz., kūrybinį mąstymą, komandinio darbo ir bendravimo įgūdžius, savarankiškumą). Planuojant verslumo studijų turinį, didžiausią potencialą daryti poveikį prasingam mokymuisi turi patirtinis mokymasis, autentiškos užduotys ir bendradarbiavimo bei refleksijos metodai. Studentai šias veiklas vertina kaip motyvuojančias ir labai svarbias verslumo mąstysenai ugdyti. Tyrimo rezultatai vertingi kuriant verslumo modulį studijoms ir integruojant verslumo kompetenciją kaip tarpdalykinę temą į mokytojų profesinį rengimą.

Pagrindiniai žodžiai: būsimųjų mokytojų pedagoginė praktika, mokytojų kompetencijos, verslumo ugdymas, verslumo mąstysena.

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Introduction

The research has identified a notable lack of entrepreneurial education related to teacher training in many European countries (Birdthistle et al., 2016; Morselli, 2018; Nabi et al., 2017). Entrepreneurial teaching is not focused on practices from which authentic and entrepreneurial learning can emerge (Sagar et al., 2012), it is difficult for teachers to identify best practices and embed entrepreneurial education into their programs (Seikkula-Leino et al., 2015). In Estonia, many teachers are struggling with how to consciously and systematically implement entrepreneurship education and different active learning methods so that entrepreneurship education has an impact on the development of students' entrepreneurial attitudes and skills (Kivisild, 2021).

Bringing entrepreneurial competencies into teacher training has not been an easy task in Estonia. Historically the words entrepreneur and entrepreneurship have had a somewhat negative connotation. During the Soviet occupation, individual noncontrolled economic activity was considered a crime. Rather often such activities took place as re-selling of deficit consumer goods with higher prices, that were fixed by the government. Such activity was called "speculation." Entrepreneurship was associated with unfair profiteering and dishonest behavior. In the late 1980s, the perception of entrepreneurship started to change following the liberalization of Estonian society.

Another reason is that entrepreneurial competencies and mindset has been associated with personal characteristics. A pilot study published in 2018 revealed that many teachers still believe that "entrepreneurial attitudes cannot be developed through learning" or creativity is a "god's gift" and not all students can be entrepreneurial (Kallas, et al., 2018).

Neck and Green (2011, p 55) argue that teachers are key persons "to develop the discovery, reasoning, and implementation of skills of students so they may excel in highly uncertain environments." This is a great challenge to teacher training, which seems to be the most effective way to develop and diversify entrepreneurship education (Ruskovaara and Pihkala, 2015).

In previous research little attention has been paid to teacher students experiences and perceptions about entrepreneurship education. According to the TALIS report, 82% of teachers feel that the initial teacher training had a positive impact on their teaching practice. Those teachers who report participating in 'impactful training' also tend to display higher levels of self-efficacy and job satisfaction (OECD, 2019). Therefore there is a need for exploration of how teacher students interpret entrepreneurial education and what tools support them to develop competencies and entrepreneurial mindset.

Teacher training institutions in Europe have significant autonomy in defining the curricula, including the status of entrepreneurship education in pre-service teacher training. There are only three countries in Europe where entrepreneurship education is a compulsory topic to all prospective teachers – Estonia (for teachers in all school levels), Latvia (in primary and general secondary level) and Denmark (in basic education) (Eurydice, 2016, p 94). In those countries, different authorities may support the implementation

of entrepreneurship education by providing guidelines, teaching materials, teacher networks, in-service training, etc.

In Estonia, a lot of attention is paid to the development of student's initiative and entrepreneurial competencies. Social and critical thinking skills, creativity, entrepreneurial attitude and perseverance are important skills for fulfilling diverse roles in everyday life. The entrepreneurial mindset is highlighted as one of the basic values of a long-term education development plan (Estonian Ministry of Education and Research, 2019).

The entrepreneurship competence model for Estonian teachers was developed in 2016/2017 by the Foundation *Innove* (nowadays *Harno*). During the designing of the competence model, also assessment tool for measuring the competencies was developed. Four competence areas, presented in the model are self-management, solving social situations, creative thinking and acting on opportunities (Venesaar et al., 2018). The competence model is used as a basis for formulating learning outcomes for all educational levels, as well as planning the programmes for entrepreneurship courses and developing methodological tools and instructions. In Estonian teacher education, all teacher students complete the entrepreneurship studies, but the content and volume of studies may vary.

The aim of this article is to identify the teacher students' experiences regarding entrepreneurship education in pre-service training to empower the development of entrepreneurial mindset. Based on a model of entrepreneurial competence (Innove, 2016), two research questions were formulated:

- 1) What are the main characteristics of entrepreneurship competence from teacher student's perspective?
- 2) What expectations do student teachers have regarding teaching and learning methods to promote an entrepreneurial mindset in university?

Context of the study – teacher education in Estonia

While the universities in Estonia are autonomous in terms of designing curricula, some regulations form a conceptual basis for the initial and continuing education of teachers. Implementation of entrepreneurial competence model in Estonian teacher education is based on policy documents, for example, national curricula for basic and secondary schools, framework guidelines for teacher education and teacher professional standards.

This section explains the context of the current study, highlighting the role of key policy documents in developing entrepreneurial competencies and justifying the place granted to entrepreneurship education in Estonia.

In Estonian national curricula, entrepreneurial competence is one of the cross-curricular themes which should be supported and guided by all teachers. Entrepreneurial competence is defined as the ability to generate and implement ideas, using acquired knowledge and skills in different areas of life; to see problems and to contribute to problem-solving; to set goals, make plans, present and implement them; to organize and participate in joint activities, to show initiative and take responsibility for results; to think critically, to respond creatively, innovatively and flexibly to change, to take intelligent

risks (Basic school curriculum, 2011; Upper secondary school curriculum, 2011). All cross-curricular themes, including entrepreneurial competence, should be integrated into teacher training to ensure that future teachers have the necessary knowledge and skills needed in their profession.

The general requirements are set by *Framework Guidelines for Teacher Education* (2019), regulation by the Ministry of Education and Research. It provides instructions for teacher education, consisting of general studies, subject studies, and pedagogical studies, including practical training in schools. The Master's degree requirements are being implemented in all teacher education, except kindergarten and vocational teachers. A typical teacher education programme comprises the Bachelor's degree (180 ECTS) and subsequent Master's level studies (120 ECTS), a total of 300 ECTS.

Another important framework for teacher education is *Teacher Professional Standard* – a set of skills, knowledge and competencies needed for successful conduction of teacher's professional activities. The professional standards have been developed in cooperation between the Teacher's Union, school leaders, universities, the Ministry of Education and Research and other partners. The standard was adopted to serve as a framework for teachers' professional development and to guarantee professional competence and quality. In *Teacher Professional Standard* (2020), recurring competencies of teachers are outlined which support an entrepreneurial mindset (self-directed learning and cooperation skills, career adaptability, enhancing principles of sustainable development). In addition to that, empathy, self-regulation, entrepreneurship and creativity are highlighted as important personal qualities required in the teaching profession. Universities, providing teacher education, should cover all the competencies described in standards and it has been successfully used to design pre-service education (Pedaste et al., 2019).

The context of this study is based on the vision and requirements of the University of Tartu, where each curriculum must include at least 3 ECTS of entrepreneurship studies. According to the Study Information System of the university, 10 teacher education curricula (out of 22) include a course *Entrepreneurship and Entrepreneurial Mindset in Teaching*, 3 ECTS. This is the course where students gain basic knowledge of entrepreneurship, its various forms, the business process and the environment. During the course, the students plan together with a team a business idea to support them in becoming both future entrepreneurs and teachers with an entrepreneurial mindset (Study Information System, 2020). Other teacher education curricula offer courses such as Developing Social Enterprise, Practical Skills for Entrepreneur, Enterprise Pedagogy, etc. In addition to that, the curriculum of Teacher of Arts and Technology contains a 24 ECTS speciality module "Entrepreneurship Teacher." Including entrepreneurship education into teacher training was supported by the wider spread of the concept of "social entrepreneurship" in Estonia. As socially responsible enterprises became more visible and influential, the teachers' attitude and confidence towards entrepreneurship courses became more positive. Social entrepreneurship courses increased their popularity among teacher training programs.

Teachers' entrepreneurial skills and mindset are also crucial in other teacher education universities. For example, in Tallinn University all future teachers together with students from other study fields must take part in LIFE (Learning in Interdisciplinary Focused Environment) course to carry out a collaborative project on a topic of their choice. The main objective of the course is to support the development of entrepreneurial and teamwork skills and interdisciplinary problem-solving competences (Tallinn University, 2023). The uniqueness of this concept lies in the fact that teacher training students participate in the project teams together with students from other fields, thus integrating disciplines and creating mutual added value.

The introduction of entrepreneurial competencies and mindset has been supported by the Estonian Ministry of Education and Research, launching an entrepreneurship education programme for in-service teacher training (Edu ja Tegu, 2016). The programme aims to provide activity-based entrepreneurship training for in-service teachers and to ensure that creating a sense of initiative and developing entrepreneurial competencies would become a natural part of education. The programme offers a wide range of courses, starting from basic level entrepreneurship training to entrepreneurship teacher master class. Activities of the programme include as well business idea development initiative STARTER, quality monitoring studies and research. Partners, involved are universities, the Estonian Chamber of Commerce and Industry, Junior Achievement, Estonian Service Industry Association, etc.

Concluding, entrepreneurial mindset and competence development is central in compiling school curricula and awarding teacher qualification in Estonia. For teacher education, special programs are implemented which include as a minimum 3 ECTS of entrepreneurship studies during initial training and entrepreneurship teacher master classes for in-service training.

Entrepreneurial competencies

Entrepreneurial competencies, referring to a sense of initiative involving creativity, risk-taking and the ability to turn ideas into action, is seen as a key competence of each individual (European Commission, 2006). Entrepreneurial competencies are understood as transversal and applied to all spheres of life. Those competencies can be defined as acting upon opportunities and ideas and transforming them into economic, cultural or social value (Bacigalupo et al., 2017). In addition to the development of key competencies, such as teamwork skills, sense of initiative, taking responsibility, etc., it is also important to support an "entrepreneurial mindset to foster greater enterprising and innovative behaviour in whatever career the students embark upon" (Birdthistle et al., 2016, p 3).

However, previous studies highlight many obstacles which prevent applying entrepreneurship education in compulsory schools. For example, teachers have inadequate competence and there is a lack of good quality teacher training in entrepreneurship education or there is weak institutional cooperation between the formal education system and the labor market (Johansen, 2018). At the same time, there is a shared understanding,

that teachers are key promoters of entrepreneurial mindsets and behavior at all levels of education (Peltonen, 2015) and teacher training activities “about, for and through entrepreneurship” are equally important (Johansen, 2018, p 37).

According to Gibb (2005; 2011), entrepreneurship education is about learning for entrepreneurship, learning about entrepreneurship and learning through entrepreneurship. To adapt those concepts for teacher training, learning for entrepreneurship covers, for example, the pedagogical models used by the teacher educators, such as problem-based and experiential learning (Seikkula-Leino et al., 2015; Nabi et al., 2017). Learning about entrepreneurship means that the learner acquires information about the enterprises and business life. Learning through entrepreneurship focus on the exploitation of entrepreneurial learning environments like startups, business idea development programs, including matchmaking events, hackathons, etc.

In a teacher training context, a broad description of entrepreneurship is commonly used, which includes the entrepreneurial mindset and a skill set for entrepreneurial thinking. The competency based approach allows seeing entrepreneurship education as a discipline and as a method and teaching approach, embedding entrepreneurship education into curricula (Venesaar et al., 2018; Blenker et al., 2011; Fayolle, 2013).

In Estonia, a model of entrepreneurship competency has been created that relies on relevant pedagogical, entrepreneurial and psychological knowledge of teachers. According to the model, entrepreneurship competence consists of four dimensions that divide, in turn, into sub-competencies. These are called **self-management** (regulating one’s motivation, ability beliefs, emotion regulation, and metacognition); **value-oriented thinking and problem solving** (higher-order cognitive processes like planning, problem-solving, but also a level of thinking development and value-based and ethical reasoning); **management of social processes** (social skills, cooperation, sense of initiative) and more domain-specific **knowledge about how** to realize entrepreneurial ideas (knowledge about business environment, business possibilities and financial literacy). Based on the learning outcomes, the self-assessment tools are developed to measure learners self-image about their entrepreneurship competence (Ader, 2018; Kivisild, 2021). This has been seen as a key factor in the success of entrepreneurship education in Estonia. Continuous self-assessment help learners to make sense of their development, thoughts, situations, and to adapt accordingly. Self-analysis skills can help to create a competitive advantage in the labor market in the future, as it develops critical thinking and analytical skills, the ability and agility in learning.

Teaching and learning methods for promoting an entrepreneurial mindset

An entrepreneurial mindset is a set of beliefs, thought processes, and ways of viewing the world. One of its dimensions is the proactive attitude which can be taught (Verzat et al., 2017) and which drives entrepreneurial behavior, including opportunity recognition, taking initiative and calculating risks (van Dam et al., 2010).

There are many teaching and learning methods to promote an entrepreneurial mindset and energize the programmes and curricula. Experiential and learning by doing approach enables active participation and involvement of students, collaboration with entrepreneurs and engagement in student competitions (van Dam et al., 2010). Also, Gibb (2002, 2011) values the active role of learners, describing team learning, project work, enterprise visits. Ruskovaara and Pihkala (2013) bring out the idea that entrepreneurship education can be integrated into everyday teaching by networking with actors outside the school.

Entrepreneurship education can be guided by socially-oriented goals (Ruskovaara and Pihkala 2013). As many teacher training institutions provide courses about social entrepreneurship, this perspective could be included in teaching.

Alongside methods of teaching and learning, the role of the teacher as the role model is becoming increasingly important (Gibb, 2002; Ruskovaara and Pihkala, 2015). This is also related to teaching entrepreneurship education where the teacher as a decision-maker and facilitator is a model and his/her personal abilities and characteristics are crucial.

Research method

A qualitative research design was used, to understand the personal attitudes and perspectives of teacher students regarding entrepreneurship education in pre-service training. Data were gathered using semistructured in-depth interviews. An in-depth interview is an effective qualitative method for getting participants to talk about their personal feelings, opinions, experiences and share how they interpret the topic (Milena et al., 2000). Individual interviews were conducted with 24 teacher students, acquiring a teacher qualification. A purposive sampling technique was used – all interviewees had the experience of participating in an entrepreneurship course. The participating teacher students had a different educational history (vocational upper secondary, general upper secondary and bachelor education), nine of them had previous entrepreneurial experience. The average age of participating students was 33. The interviews were of 55–120 min duration and were conducted in two phases: 1) October and November 2021 (vocational student teachers) and 2) February–April 2022 (primary, lower secondary and upper secondary student teachers).

The interview questions addressed participants' attitudes and expectations regarding entrepreneurial competencies during initial teacher training. Teacher students were informed about the goal and content of the interview and were asked to permit anonymous use of the data in the research. The interviews were recorded and transcribed by the author of this article. Inductive content analysis was used as the method of data analysis. First, transcripts were initially analyzed using "open coding" that inductively abstracts patterns and themes in the data related to both research questions. The reliability of this analysis was checked by discussing the coding scheme with another colleague, an expert of the topic. During the second stage of analysis, thematic text coding was done, using the QCAmap software (QCAmap, 2020). The codes were clustered into categories,

which were then reorganized into four core categories and then condensed further into the study's key themes (Saldana, 2016).

Results

In this section, results are presented and illustrated by quotes from the transcripts. Four main categories emerged from the data analysis of the first research question (RQ) – what are the main characteristics of entrepreneurship competence from teacher student's perspective?

Table 1. Main categories and subcategories determined as a result of analysis of the first RQ

Main categories (based on the model of entrepreneurial competence (Innove, 2016))	Subcategories
Self-management	<ul style="list-style-type: none"> • Self-belief and efficacy • Autonomy • Dealing with emotions • Dealing with risks • Accepting failures
Value-oriented thinking and problem solving	<ul style="list-style-type: none"> • Entrepreneurial mindset • Creativity and out of box thinking • Green and sustainable thinking • Orientation on problem-solving
Management of social processes	<ul style="list-style-type: none"> • Manifest initiative • Communication and collaborative learning • Taking responsibility
Knowledge and skills how to realize entrepreneurial ideas	<ul style="list-style-type: none"> • Marketing and financial literacy skills • Knowledge about the local and international business environment • Networking, traineeship

Analysis indicated that the most important and relevant competencies for student teachers are **self-management competencies**. Students described self-belief and self-efficacy as preconditions to becoming a professional teacher. It is related to personal autonomy, job performance and satisfaction in the future. Taking a risk and the ability to cope with crisis situations are considered to be very important competencies for all respondents. To fail safely and learn to accept failures should be part of the learning process in the university. Some students have been enrolled on university Futulab projects, which support students in acquiring the practical skills in cooperation with different companies and mirrors reality with ups and downs. One of the interviewed student's described:

I think, I learned from Futulab project-based internship not only how to manage small scale businesses but also, how to accept failure. It was a real change in my mindset...dealing with risk and emotions based on that (Secondary teacher)

Entrepreneurial mindset, creativity and orientation on problem-solving were highlighted as **value-oriented approaches** without which there will be no good teacher.

Work planning, effective use of time and constant reflection on your own work are cornerstones of this approach.

As some teacher education curricula include a course about sustainable education and the topic is also very strongly present as a value dilemma in society, attitudes and competencies that are important concerning green thinking, climate change, and other aspects of sustainable education were repeatedly highlighted. In relation to this, the ability to take new perspectives and pathways to solve the problems as well as a need for “out of box” thinking was emphasized:

Creativity, courage to think out of the box is necessary for the entrepreneurial attitude of each teacher to inspire students (Primary teacher).

Teacher students identified a set of transferable competencies: creative thinking, problem-solving, teamwork and communication skills, planning and sustainable and ethical acting as very relevant for their teaching career.

Students were also highlighting competencies connected to **the management of social processes**, like communication and collaborative learning, taking initiative and responsibility.

As one of the respondents summarizes:

For me, the most important aspect is cooperation and collaborative learning – the emotions, dynamics and challenges like time management and division of work within the team have a clear impact on my studies and my future career (VET teacher).

In this respect, teamwork and networking skills are most important to maintain relationships with others. Keeping in mind a new approach in teaching, future teachers have to work together in teams, inspiring pupils and being a good example and model.

The **knowledge** necessary for entrepreneurial action was more emphasized by teachers with previous experience as an entrepreneur. For them important competence areas are marketing and financial literacy skills:

As for a practicing entrepreneur, for me, particularly vital knowledge is how “to sell” a product and communicate my vision in marketing (VET teacher).

Student teachers with no previous experience as an entrepreneur emphasized knowledge of the labor market. They were particularly interested, what are employment trends in the job market during the next decade, what future skills and knowledge the labor market requires.

Thus, it can be said that teacher students value all the competencies presented in the competence model in one way or another. Young teachers emphasize in particular the competencies that relate to communication, collaborative learning, self-management, developing a sense of initiative and creative thinking.

The second research question indicates what expectations student teachers have regarding teaching and learning methods to promote an entrepreneurial mindset in univer-

sity. Three main categories emerged from the analysis of data: authentic learning environment, experiential learning activities and reflecting on learning journey, see Table 2.

Table 2. Main categories and subcategories determined as a result of analysis of the second RQ

Main categories	Subcategories
Authentic learning environment	<ul style="list-style-type: none"> • Practically oriented and meaningful assignments • Flexible and inclusive study environment
Experiential learning activities	<ul style="list-style-type: none"> • Networking, field trips, guest speakers • Games and simulations • Learning from failing • Volunteer and charity work
Reflecting on a learning journey	<ul style="list-style-type: none"> • Blogs, diary, audio and video journals • ePortfolio • Cross-curricular projects

By authentic learning teacher, students mean assignments and tasks which are practically oriented, coming from everyday life. The learning in an authentic way was described as “open and flexible,” allowing taking responsibility for planning and organization of studies. It can be practiced through involvement in the curriculum development process by giving feedback on the whole learning process and planning the necessary changes. Authentic learning will usually take place during a school internship where students follow individual plans based on their own goals.

Real-life learning tasks were highly valued by prospective teachers, for example, observing entrepreneurship activities in schools or drawing up a business plan for a social enterprise:

I was supposed to form the idea for my own social enterprise and discover first-hand how a company functions...then I felt like it was the “real” world (Secondary teacher).

Future teachers emphasized that doing their work in a meaningful way, they have mission and faith in their ability to impact the learning and teaching process.

Many experiential learning activities were brought out. Teacher students are expecting networking with working life. Real visits to different companies, guest speakers, job shadowing and experiential learning would allow them to enhance cooperation skills and develop their own network. Also, the learning games and simulations are important to observe, think and reflect about entrepreneurship:

Robotics, Lego-serious-play and other learning games have given the novice teacher an understanding of how many innovative tools there are to promote an entrepreneurial mindset (Primary school teacher)

The learning environment has to encourage risk-taking, risk management and learning from failure. Student teachers perceive the learning environment as too secure, with no room for making mistakes and learning from them. Opportunity to take more initiative and responsibility should be essential and prioritized in the teacher training curricula:

I am wondering, how to make learning by doing an integral part of a university degree... so that the teacher would later take the same way of thinking to school (Secondary teacher).

The respondents said that experiential learning is also linked to volunteer work in various organizations, such as food banks, animal shelters and elderly homes. These jobs can be a first step into the world of work and an opportunity to challenge themselves. Other methods that allow face-to-face contact with the real entrepreneurs were also emphasized: invited guest speakers who are “stars” in business, opinion leaders and role models. Such meetings are particularly lacking in teacher training. While in general education guest speakers and other contributions from external partners tend to be the norm, respondents could not recall any such activities during the teacher training. Here the potential of more experienced fellow learners can be used to build up partnerships and good practice exchange:

The learner-to-learner experience could be integrated into the curriculum. I would be happy to share my gains and failures as an entrepreneur (VET teacher).

As many student teachers are already working, they should be encouraged to bring those experiences to inform their teaching. Experiential learning is also motivationally challenging, requiring taking initiative and relying on constant assessment and feedback – essentially for developing an entrepreneurial mindset.

Reflecting on the learning journey plays an important role as self-analysis in the development of competencies is part of teacher education studies. Interviewees emphasized that self-assessment and analysis of the different subcompetencies allow students to build an individual learning path and to make competencies visible for wider audiences – future employers, networks and professional associations.

Student teachers are seeking opportunities to interact more deeply within the field of study, using many different tools like writing an online diary, reflective blogging, audio and video journaling. Teacher students use the digital portfolio to monitor and evaluate the learning process and present their performance. As one of the vocational student teachers said:

For me, the most important tool is professional development portfolio where I can reflect on my competencies and present my personal growth as a teacher (VET teacher).

Many entrepreneurial competencies and attitudes are related to the projects across the studies. Projects allow to integrate the knowledge of different subjects and support joint planning, peer assessment, argumentation and presentation skills. Self-assessment and giving feedback to fellow students are considered very important skills to support the learning journey. Paired learning where student teachers share roles in the performance of tasks and switching partners make the learning journey more responsive to their individual needs.

Discussion

Earlier research indicates that teachers' entrepreneurial competencies and willingness to act in an entrepreneurial way has a high impact on pupils attitudes towards entrepreneurial learning (Peltonen, 2015; Ruskovaara and Pihkala, 2015). Malleus et al. (2018) highlight the importance of paying attention to different aspects of entrepreneurial competence and supporting students' awareness of their motives behind making choices as prerequisites for entrepreneurial behavior. Therefore the focus of the current study was on entrepreneurial competencies and teaching and learning methods in pre-service training to empower the development of entrepreneurial mindset.

The results of the study indicated that the teacher students identify competencies, which are central in the management of social processes: a sense of initiative and entrepreneurship, communication, cooperative and collaborative skills. Value-oriented competencies (e.g., creative thinking, problem-solving, planning, effective use of time) are also highlighted as very relevant in a teaching career. Teacher students are practicing entrepreneurial initiatives through involvement in the curriculum development process, taking responsibility, planning and responding to changes. For Muller and Anderson (2014) responsibility is one of the key attitudes to support students' active engagement in studies and later promotes an entrepreneurial attitude and way of living.

According to the results of this study, teacher students expect that the learning environment is authentic, containing the same opportunities and threats that exist in real life. Learning and teaching methods should be based on collaboration, using small group discussions, paired work, field trips and networking. Very often teacher students perceive the learning environment as too secure, with no room for making mistakes and learning from them. They expect that the learning environment will encourage handling uncertainty, risk-taking and learning from failure. This is in line with Penaluna and Penaluna (2015) who are suggesting that students should be "reasonable adventurers" who can act confidently in risk situations and are ready to learn from failing. In addition to that Rönkko and Lepistö (2015) point out that teacher training should incorporate more entrepreneurial teaching that supports critical thinking in all study modules.

The study revealed the importance of reflection and self-assessment in process of acquiring entrepreneurial competencies of a teacher. Learning journals and creating of ePortfolios was described as the most effective method to reflect on the learning process, to promote personal growth and acquire the entrepreneurial competencies of a teacher. This implication is supported by previous research, where ePortfolio based learning supports student teachers' professional development, indicating the need for further development (Korhonen et al., 2019) and increasing student confidence in transition from teacher education to the workplace (Hughes, 2008).

According to the results of this study, there are still gaps between skills targeted in framework documents for teacher education and the perceived entrepreneurial competencies of teacher students. There is a lack of activities, bringing the "outside world" into the teacher education, like study visits to companies or inspiring guest speakers, etc.

This is the challenge for teacher training to build bridges, become more open to local and wider communities and demonstrate the link between entrepreneurship education and employability. It is also important that learners are not passive recipients, but that learning takes place through active engagement and sharing. A good example of what other teacher education curricula can learn from is the LIFE course implemented at Tallinn University, which creates a link between students from different disciplines, as the creation of new knowledge and the responsibility for the success of the project lies with the students (Tallinn University, 2023).

Another gap is connected with the international exchange of teacher students. Although all the framework documents emphasize student mobility as a priority, the participation of teacher students in Erasmus+ is extremely low. Also, participants in this study did not recognize the added value of mobility programs for entrepreneurship education. To meet this challenge, teacher training curriculum design should be more flexible to synchronize the study abroad experience with expected teacher's competencies.

Analyzing teacher students' expectations in the framework of the entrepreneurship competence model is important to understand how future teachers should be supported to meet their career perspectives. The results can be used for re-designing entrepreneurial studies' courses and modules but also applied in the integration of entrepreneurial competence as a cross-curricular theme in pre-service teacher education. As the curricula differ from institution to institution, the results of this study can be applied primarily at the University of Tartu. However, there are a number of general principles that can be taken into account in the development of teacher education curricula to support the entrepreneurial attitudes of future teachers. To serve the learning needs of teacher students, it seems to be beneficial to base their learning on authentic real-world problems, adapting student-directed learning methods. Teacher students should be supported by resources and tools for planning and reflecting on the learning journey, making individual and team-based projects and sharing personal success stories and failures with co-learners. Further research should focus on the role of teacher trainers in providing relevant collaborative approaches for developing entrepreneurial mindsets. The identification of the teacher educator as a role model has a significant and positive effect on students' attitudes, entrepreneurial competencies and intention (San Martin et al., 2021). It would be the responsibility of universities to focus also on the development of entrepreneurial mindset of teaching staff.

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