



Review article

Beyond the walls: Investigating outdoor learning experiences of social studies teacher candidates in Türkiye

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ABSTRACT

This research aims to clarify the transformative effects of outdoor education on prospective teachers' learning and teaching processes by focusing on the pedagogical foundations of the outdoor learning experience. Phenomenology, a qualitative research design, was used to examine the participants' experiences. According to the research results, outdoor education improves participants' life-based experiential learning and reflective social and emotional skills. These experiences increased teacher candidates' motivation and desire to use outdoor activities professionally. These findings underscore the need to integrate outdoor education into teacher education programs, providing rich learning and teaching experiences.

1. Introduction

Today, the increasing interest in experiential learning causes learning to expand from in-school environments to out-of-school environments (Prince, 2016). It reveals that the most critical learning outcomes of out-of-class education in primary and secondary schools, recognized by teachers, are linked to personal (self-confidence and self-efficacy) and social development (Hovey et al., 2020; Robertson et al., 2009; Szczytko et al., 2018; Zink & Boyes, 2006) and solidarity (Quay et al., 2002), including cooperation and communication skills. On the other hand, teachers who apply outdoor education, which is one of the essential areas that enable experiential learning, have reported many positive effects on job satisfaction, teaching practices, health, well-being, and psychological resilience (Barfod et al., 2016; Booth, 2015; Davies, 1996; Deschamps et al., 2022; Gray & Pigott, 2018; Kals et al., 1999; Neill & Dias, 2001; Rickinson et al., 2004; Waite et al., 2016).

Outdoor education often plays a vital role in environmental and social contexts (Waite et al., 2016) but also provides opportunities for sustainability (Higgins et al., 2021; Lugg, 2007) and environmental education (Dale et al., 2020; Mann et al., 2021; Rickinson et al., 2004). This appeal of outdoor education has recently increased attention (Sjöblom & Svens, 2019), making it even more critical (Wolf et al., 2022). Outdoor activities are also gaining attention in teacher education as a holistic approach that enables the integration of knowledge and skills from different disciplines to enhance the development and well-being of children and adolescents through direct experiences

(Davies, 1996; Deschamps et al., 2022; Harun & Salamuddin, 2014; Henderson, 2016; Louv, 2010; Ratinen et al., 2023; Remmen & Iversen, 2022). Researchers state that outdoor curriculum-based teaching must be introduced to pre-service teachers during their first formal teacher education. For example, in some Swedish universities, pre-service teachers learn about outdoor activities as part of their teacher education program (Niklasson & Sandberg, 2012). Studies and educational practices indicate an increasing trend of integrating outdoor education in teacher education during the pre-service period.

While there is a rich sociocultural background for outdoor education and activities in Northern European countries such as Denmark, Finland, Iceland, Norway, and Sweden (Remmen & Iversen, 2022), as well as in Australia, New Zealand, North America and the United Kingdom (Svarstad, 2010), it has received somewhat less attention in Western European countries. Studies on outdoor education, especially with pre-service teachers, are limited (Blatt & Patrick, 2014; Lindemann-Matthies et al., 2011; Ratinen et al., 2023).

Although there are some studies on outdoor education in preschool education in Türkiye (Aşkar, 2021; Özsırkıntı et al., 2014), there are limited studies on what kind of opportunities outdoor education will create in teacher training institutions and how it will improve the learning/teaching understanding of teacher candidates. Therefore, this research aims to explore and expand this area through the following focal research question: 'How does outdoor education differentiate the learning/teaching experiences of social studies teacher candidates?'

Accordingly, this study was conducted with second ($n = 11$) and third year ($n = 14$) pre-service teachers enrolled in the Social Studies

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Education Department of a state university in the northern region of Türkiye. Outdoor education was carried out monthly in out-of-school areas for seven months.

1.1. Outdoor education and experiential learning

Outdoor education is difficult to define and theoretically frame (Nicol, 2003), as its understanding and implementation are diverse and influenced by the sociocultural contexts of the regions in which it is implemented (Rea & Waite, 2009). Therefore, outdoor education is recognized as a "semantic umbrella" that encompasses a wide range of approaches and practices (Lacoste et al., 2021).

Outdoor education can be defined in various ways as part of a broad field that intersects with environmental education, adventure education, nature tourism, outdoor play, experiential education, and outdoor recreation (Gilbertson et al., 2022; Rickinson et al., 2004). However, the basic principle of outdoor education is that this education takes place outside the traditional classroom, in a natural or cultural environment. In this fundamental principle, outdoor education will be considered in this study as an experience-based education (Rickinson et al., 2004) that takes place outside the classroom and school, where both environmental and social contexts play an essential role (Waite et al., 2016).

Experiential learning, which makes outdoor education important, is a learning approach in which individuals acquire their knowledge and skills through direct experience and active participation, and theoretical knowledge is reinforced through practical applications (Kolb, 2014). This learning model allows individuals to internalise and make sense of knowledge and apply it in different contexts due to its advantages, such as concrete experiences, reflective observation, abstract conceptualisation and active experience.

Current literature reveals that outdoor education significantly contributes to experiential learning. Numerous studies emphasise that outdoor activities improve students' critical thinking, problem-solving, and collaboration skills (Boyle, 2003; Hovey et al., 2020; Robertson et al., 2009; Szczytko et al., 2018; Zink & Boyes, 2006). Outdoor education allows students to interact directly with nature, enabling them to learn information in a concrete and meaningful context. This approach supports the importance of concrete experiences, which is one of the basic principles of experiential learning. In addition, findings show that outdoor education makes significant contributions to students' cognitive, emotional, and social development (Bølling et al., 2019; Gray, 2019; Mygind, 2009; Rickinson et al., 2004; Robertson et al., 2009; Waite et al., 2016). Outdoor activities help students connect with nature, increase their environmental awareness, and develop sustainable life skills (Gabrielsen & Korsager, 2018; Higgins et al., 2021; Lugg, 2007). In this context, outdoor education enriches the experiential learning process and allows students to reinforce their theoretical knowledge with practical applications. Therefore, outdoor education is not only a means of transferring knowledge but also a rich approach that allows students to realise in-depth and meaningful learning experiences.

1.2. Outdoor education and practices: A review of the current literature

Formal school education is often framed as indoor classroom learning in the literature, and research shows that the best way to solve the problems that students encounter in real life is often possible through learning outside the classroom's four walls (Gray & Martin, 2012; Gray & Pigott, 2018). These studies highlight the importance and benefits of outdoor experience-based learning and teaching strategies.

It is noted that outdoor education increases physical and mental resilience by developing appropriate coping methods for stressful situations (Booth, 2015; Bølling et al., 2019; Lugg, 2007; Richmond et al., 2018). When students participate in risky and sensory activities in nature, they experience problem-solving (Gray & Pigott, 2018) and can learn based on their experiences (Lugg, 2007; Morag and Tal, 2012).

Outdoor education, which emphasizes resilience, is essential for

educators because it offers experiences that promote health, well-being, self-regulation, self-control, self-efficacy, individual autonomy, and resilience (Dillon et al., 2006; Gray & Pigott, 2018; Hattie et al., 1997; Neill & Dias, 2001; Neilson & Hansen, 2007; Rickinson et al., 2004; Sheard & Golby, 2006). The findings from these studies indicate that transformative, therapeutic, and holistic learning is facilitated more effectively in outdoor environments compared to traditional classroom settings.

On the other hand, it is stated that outdoor education allows students to set goals, use their inner strengths, make their own decisions, set personal goals, and work both individually and in teams to achieve the desired results (Boyle, 2003; Hattie et al., 1997). For example, Ballantyne and Packer (2009) emphasise that students' interactions with natural areas encourage them to make more accessible choices in their tasks and activities. Supporting this, Robertson et al. (2009) found that engaging in outdoor physical activity builds confidence in children and supports personal and social development. Boyle (2003) states that teamwork in outdoor adventure activities supports students' self-discipline and cooperation. There is also essential research confirming that outdoor education creates positive results for students with cognitive, emotional, and behavioural disabilities (Szczytko et al., 2018).

It is noted that the possibility of people having direct contact with nature in their daily lives is decreasing. Scar et al. (2016) point out that in Finland and Norway, the time spent outdoors has reduced due to lifestyle changes and therefore children and young people have less contact with nature. It is noted that this loss of interaction with nature reduces a wide range of benefits related to health and well-being and negatively affects people's positive emotions, attitudes, behaviors, and tendencies toward the environment (Sobel, 1996; Soga & Gaston, 2016).

Sobel (1996) claims that learning about environmental problems and their destructive consequences before connecting with nature and the environment, developing empathy, and being curious about and loving nature leads to anti-environmental attitudes and behaviors. This situation makes it difficult for people to establish a connection and relationship with nature and deepens the concerns about the alienation of children from nature and the 'nature deprivation' syndrome (Louv, 2010; Sobel, 1996). Supporting Sobel (1996), Wilson (2008) states that the physical and emotional development of children who are alienated from nature is negatively affected, which may lead to biophobia and insensitivity to environmental problems in children. Wilson emphasizes that children who are not allowed to interact with nature may develop unfounded fear, discomfort, and phobia toward everything belonging to nature (Wilson, 2008).

Many studies suggest that individuals need direct contact with nature for their learning motivation, leadership abilities, coping competencies, decision-making skills, academic success, mental health, increased physical activity, and positive social behavior (Bølling et al., 2019; Gray, 2019; Neill, 2008; Nettles & Pleck, 1996; Rickinson et al., 2004; Waite et al., 2016).

As can be seen, considerable evidence suggests that, on the one hand, a connection to nature supports self-efficacy (Richmond et al., 2018), mental resilience, health, and well-being (Deschamps et al., 2022; Dillon et al., 2006; Gray & Pigott, 2018; Neill & Dias, 2001; Neilson & Hansen, 2007) social relationships (Bølling et al., 2019; Mygind, 2009), motivation to learn (Dettweiler et al., 2015), creativity and discovery (Gray & Thomson, 2016); on the other hand, it shows that learning disconnected from nature, without relationship and love can turn into meaningless knowledge and even ecophobia (Sobel, 1996) and biophobia (Wilson, 2008).

Overall, research has shown that outdoor education has many positive aspects, including areas not mentioned in the literature review above. However, there is a consensus that more research is needed in this area.

1.3. Social studies and outdoor education

Social studies education is an interdisciplinary field that aims to raise individuals as active and conscious citizens. It includes social sciences such as history, geography, economics, political science, sociology, and anthropology (NCSS, 1992). This field of education aims to provide students with the ability to understand and evaluate social events, structures, and processes. In this context, social studies education should not be limited to the transfer of theoretical knowledge but should also create educational environments that allow students to develop their knowledge and skills through active learning (Levstik & Barton, 2022; Martell & Stevens, 2021). Outdoor education is essential in helping social studies education achieve this goal.

Outdoor education is an effective tool for acquiring knowledge and skills targeted by social studies education. Outdoor activities allow students to learn through direct experience and observation, making the learning process more effective and permanent (Beard & Wilson, 2006). For example, trips to historical sites allow students to observe historical events and personalities on the spot, while nature walks in geographical regions facilitate the understanding of ecosystems and environmental processes (Levstik & Barton, 2022).

Research shows that increased time spent in natural, unstructured environments positively affects various attitudes and behaviours (Dillon et al., 2006) and is vital for developing various student skills (Gray & Pigott, 2018). Outdoor education facilitates deeper interaction with social phenomena by allowing students to apply theoretical knowledge in real-world contexts (Rickinson et al., 2004). Additionally, outdoor education provides a comprehensive and holistic learning experience that supports lasting and meaningful learning outcomes (Barrable & Lakin, 2020). Despite these apparent benefits of outdoor education, Foran (2008) argues that social studies education focuses mainly on the cognitive field and should include more experiential learning methods.

The Ministry of National Education's guide to out-of-school learning encompasses a variety of settings that can be utilized for educational purposes, including social studies courses, museums, science and art centers, historical and cultural areas, libraries, natural and archaeological sites, technoparks, industrial sites open to visitors, universities, national and thematic parks, and gardens (MoNE, 2019). But evidence shows that, outdoor education constitutes a small percentage of the Social Studies Education (SSE) curriculum (MoNE [Ministry of Education], 2018) and is underutilized in social studies education (Bozkurt, 2021; Topçu, 2017). In a study on the outdoor experiences of teacher candidates, candidates stated that they did not want to use outdoor education due to lack of legal permission, facilities, equipment, security and time, inexperience, and planning difficulties (Bozkurt, 2021). In another study conducted with history teachers and teacher candidates, participants revealed that they were unwilling to use outdoor activities sufficiently due to a lack of experience and self-confidence (Avcı-Akçalı, 2015). Research in different countries confirms this and provides evidence that opportunities for outdoor learning outside the classroom are limited, irregular, and diminishing (O'Donnell et al., 2006; Sjöblom et al., 2023; Morag & Tal, 2012). In addition to the lack of regular faculty-based outdoor learning activities, outdoor education at the university level is often limited to field studies, camping, and trips to environmental education centers (Avcı-Akçalı, 2015; Rickinson et al., 2004).

1.4. Outdoor and teacher education

Studies in the literature emphasise that teacher candidates should benefit from and encourage versatile learning environments during their education (Ratinen et al., 2023). Barford et al. (2016) argue that teacher education institutions should offer mandatory courses in using outdoor education and prepare teachers to deal with the challenges of outdoor teaching. Similarly, McKenzie (2007) argues that physical education teacher candidates should increase the diversity of their field

experiences by including physical activity environments and place-based education outside their field courses. A comparative study involving primary school teacher candidates from four European countries showed that outdoor education experience, both in school and in teacher education programs, increased pre-service teachers' confidence in implementing outdoor activities in their teaching (Lindemann-Matthies et al., 2011).

Making the most of outdoor education opportunities requires teachers to have a community of practice based on a standard, effective pedagogy for outdoor education (Huggins & Wickett, 2011). However, Maynard and Waters (2007) found that teachers must be fully aware of outdoor education's potential uses and benefits and that adults' use and management of outdoor spaces is as important as children's access. Blatt and Patrick (2014) recommend introducing outdoor learning environments to prospective teachers through projects, field trips, and field studies during their education. Shume and Blatt (2019) discussed the importance of teacher candidates interacting with teachers who work with outdoor learning in their classrooms and experiencing how these teachers overcome the obstacles to extracurricular teaching.

In studies conducted with teachers and candidates in different branches, basic problems such as finance, time, weather, outdoor conditions, appropriate clothing, transport, security, crowded classes, lack of auxiliary personnel, interruption of lessons, lack of parental support, different needs of students, bureaucratic obstacles are among the crucial reasons why educators do not prefer to use outdoor education (Çelik, 2012; Çengelci, 2013; Egüz & Kesten, 2012; Ernst, 2014; Higgins et al., 2021; Rickinson et al., 2004; Shume & Blatt, 2019; Sjöblom et al., 2023; Wilson, 2008).

It is not easy to use outdoor education even if it is defined in the official curriculum (Egüz & Kesten, 2012; Metin-Göksu & Somen, 2018; MoNE, 2018; Topçu, 2017). Evidence shows that pre-service teachers do not feel competent in outdoor learning and teaching (Avcı-Akçalı, 2015; Metin-Göksu & Somen, 2018). These striking results underline the need for pre-service teachers to be encouraged and gain experience in outdoor education. This research focuses on pre-service teachers' experience in outdoor activities as a practical and concrete method to overcome this limitation. It aims to diversify the learning environments that pre-service teachers can use in out-of-class education and the pedagogical elements necessary to use these environments. In this context, the research is expected to fill an academic gap and enable pre-service teachers to experience and develop practical and concrete pedagogical steps that they can use outdoors while preparing for teaching.

2. Methodology

2.1. Research design

This research aims to investigate the impact of outdoor education on pre-service teachers' learning and teaching experiences and how they may inspire future teaching methods. For this reason, the research focuses on the connections (physical, psychological, cultural) that teacher candidates establish with nature and their experiences. This focus of the study was determinant in the choice of method (Creswell, 2007). Phenomenology, one of the primary qualitative research approaches, was used to understand the experiences of teacher candidates through outdoor activities. The phenomenological approach is the systematic and inductive analysis of socially meaningful actions through people's direct experiences in natural environments, aiming to understand and interpret how people create and sustain their social worlds (Creswell, 2007; Neuman, 2003).

Data were collected from field notes, focus group interviews with pre-service teachers, video and audio recordings taken during the fieldwork. The analysis of the focus group interviews focused on the pre-service teachers' experiences and learning. The field notes, images, and video recordings from the field focus on the social and emotional learning of the participants. The focus group interviews mainly revealed

the trainees' perceptions and experiences of interacting with their peers, nature, forests, air, water, and other material and immaterial elements. For transparency, participants' statements were given as direct quotations. All data obtained during the research process were protected through a limited access and password-protected system and kept on the researcher's computer in the office.

2.2. Participants and process

The research participants are social studies teacher candidates registered at the faculty of education of a state university in a province in the northernmost part of Türkiye. Candidates are at the 2nd and 3rd grade level. The research includes outdoor activities (workshops, drama, games, walks) in different nature-cultural environments with the candidates. The activities aimed to provide pre-service teachers with experience in planning and implementing outdoor activities with their students in the future.

It is noted that outdoor education should be implemented regularly as an essential prerequisite for achieving potential benefits (Kervinen et al., 2018). Considering this suggestion, events were held for seven weekends, one full day at the end of each month for seven months. Outdoor activities continued from 9 a.m. to 5 p.m. and sometimes to 6 p.m.

The participant recruitment process was rigorous to identify the most suitable candidates for the study's aims and methodological requirements. In the first stage, volunteers' motivation to participate in the study and demographic information were collected, followed by their assessment according to specific criteria (e.g., previous experience, interest in the outdoors, willingness to volunteer, and ability to devote one full day a month).

Initially, 2nd and 3rd graders candidates ($n = 78$) were invited to participate in the study. Candidates accepted this initial call. However, 13 of these candidates stated that they could only devote a part day to outdoor education but would participate if there was a half day. These candidates were excluded from the participant group. Thus, 25 pre-service teachers (17 females and 8 males) with no previous outdoor education experience and who could participate in activities for 7 months (one full day per month) were selected as the final participants.

Although the 25 teacher candidates participating in the activities were generally the same, 2–3 people differed in some weeks. The chosen locations varied from 2 km to 65 km from where the faculty was. Two were naturally protected areas (national parks), including a village with a cave, wetlands, and water mills; two were the coastline where the forest and the sea meet; and one was a plateau. Outdoor education started in November 2021 and ended in May 2022. In determining these out-of-school locations, they needed to be easily accessible, provide a rich environment for the planned activities, and contain cultural and social elements and natural components (For example, Pleki Cave and its settlement area were rich places with social, cultural, economic, and natural beauty. In this area, four different workshops were held during the day).

The researcher made visits to selected locations before each event. In addition to the mass e-mail system, he created a WhatsApp group that included prospective teachers, and communication was mainly carried out through this group. Thus, a communication platform open to the opinions and suggestions of teacher candidates was created. On this occasion, an effort was made to develop ordinary times for all candidates to ensure maximum participation and to create a democratic sharing platform. The researcher also invited an expert in the field of history and a geography professor to an event.

The researcher also established connections with local people, the headman, and the units responsible for natural habitats. Permissions were obtained from national and regional institutions for national parks. An adventure writer who was a guide and photographer in the region and had books about the area was contacted, and this writer was included in an outdoor education. In addition, the consultancy was

received from two athletes of a mountaineering club who do nature walks in the region every week and know the area well to determine the route and minimize possible risks. Guidance support was received for the promotion of the cave from the local people and the woman who is also the cave manager to provide information about Pileki Cave (Man-made cave) and the Greek-made mills around it.

It is reported that the limitations for outdoor education are generally issues such as labor, equipment, weather conditions, transportation, security, disruption of classes and cost (Egüz & Kesten, 2012; Ernst, 2014; Higgins et al., 2006; Sjöblom et al., 2023; Çelik, 2012; Çengelci, 2013). Due to these limitations of outdoor education, the researcher focused on the most appropriate methods in terms of time and cost. For example, he got a businessperson in the region to sponsor a vehicle. Each participant brought something to eat, and typical tables were set up. As the researcher is an active member of a mountaineering club, he provided most of the equipment himself. The activities were organized on weekends to avoid disruption of the lessons and to ensure continuity of participation. Since conducting outdoor education on weekdays would result in fewer participants participating in the research, the planning was made for a weekend day. For this reason, the participants were chosen among volunteers who would not neglect their families and private affairs.

2.3. Data collection

This study used qualitative research methods to collect data on social studies teachers' outdoor experiences. Focus group interviews were preferred as the main data collection method. Focus group interviews were used to obtain rich, in-depth data by observing participants' interactions and group dynamics (Krueger, 2014). This method allowed teachers to share their thoughts and experiences about outdoor activities and the effects of such activities on educational processes (Creswell, 2007). The interviews were conducted through semi-structured questions and guided discussions, allowing teachers to present their perspectives in detail.

In addition, complementary qualitative methods such as observations, field notes, and video recordings were also used in the data collection process (Creswell, 2007; Derry et al., 2010). Observations and field notes were used to examine teachers' and students' natural behaviors and interactions during outdoor activities (Patton, 2015). Video recordings taken during the activities allowed the observations and experiences to be analysed in detail later. Video recordings allowed to study participants' non-verbal behaviours and interactions (Derry et al., 2010). These various data collection methods ensured that the study had a comprehensive and multidimensional data set and increased the validity of the findings.

2.4. Focus group discussions

Pre-service teachers were invited to focus group discussions on sharing their outdoor experiences. The expectation was that focus group interviews would reveal the participants' perceptions and experiences regarding their interactions with their peers, nature, and material and spiritual cultural elements. The participants were divided into three groups to have a productive in-group discussion. Group sizes varied between 6 and 8 people, including men and women. With each group, three distinct focus group meetings were held. The first meeting with each group was held after the first week of the activity, the second was held at the end of the fourth week, and the third was two weeks after the seventh week of the activities. The research process endeavoured to ensure that all participants experienced the process. Open-ended questions were used in the focus interviews so that teacher candidates could freely express their experiences, beliefs, and opinions about outdoor education. The questions included "How do you think outdoor education affected your learning and teaching competencies? Can you give specific examples in this regard?" etc. By asking in-depth questions, prospective

teachers were encouraged to provide detailed answers (Creswell, 2007; Kvale, 2007). A suitable environment was created to ensure trust and sincerity for focus group discussions (Krueger, 2014). For the participants to feel comfortable, a circular seating arrangement was created so that where everyone could see each other's faces. Beverages (water, tea, coffee) were offered. The room where the interviews were held was designed so the focus group participants would feel physically and psychologically comfortable. The groups were composed of both male and female participants who knew each other and experienced the same process. During the interviews, the researcher facilitated and allowed the prospective teachers to expand their answers and opinions by asking additional questions when necessary.

2.5. Data analysis

Yin's (2016) five stages of data analysis were applied in this study: compilation, disassembly, reassembly, interpretation, and conclusion. These analysis phases enabled inductive, emergent, and interpretive research.

Data from focus group discussions were analysed through inductive content analysis (Creswell, 2007). When analysing and interpreting data, the context in which these data were collected was always considered (Creswell, 2007; Delamont, 2002). The data analysis started by compiling field notes and viewing the images. A total of 14 h and 43 min of video and audio recordings were watched. Then, each piece was evaluated in its context and associations, and combinations were made between them. For example, pre-service teachers used collaborative environments when lighting a fire, preparing food, and playing games were observed. The candidates' cooperation, harmony, and coordination were examined, and their potential to become a community and do activities together was determined. For this purpose, the researcher constantly kept notes and combined these notes with field notes.

The data obtained at the end of the first focus group discussions were transcribed, and 20 pages of text were created. The exact process was done for the second (16 pages) and third focus group interviews (24 pages). After each focus group meeting, the researcher compiled and read all the data several times. So, the researcher read the data several times to get an in-depth look at it, get to know it better, and piece it together.

Then, the compiled data were divided into meaningful groupings through coding. The researcher systematically identified exciting features of the data across the entire data set. Codes served as labels used to retrieve and categorize similar data. The data were then recombined by placing the codes in context with each other to create themes. Recombination was done through methodological triangulation of evidence to answer research questions, discover patterns, categorize data, and recombine them (Yin, 2016).

3. Results

The findings obtained from the research provide information on the following five themes.

3.1. Life-based experiential learning

Teacher candidates emphasized that concrete, practical experiences that connect them with the outside world were the most valuable part of outdoor activities. They stated that outdoor education encouraged them to gain aesthetic, physical, affective, and cognitive experiences. For this reason, they noted that outdoor education was much more meaningful to them than conceptual understanding and theoretical content. One participant expressed it in the following way:

'Our education system is disconnected from life. We know many things by heart, but we do not know their equivalent in life. At one of the events, you asked us many questions, such as in which season

citrus fruits grow, in which months we eat these fruits, etc. However, when you asked which of these trees was a tangerine tree, only two people could answer. This shows that our learning is disconnected from life.' (Ali)

In the same focus group meeting, another participant supported this view and stated that outdoor activities were complementary for him:

'We talk about many skills, such as problem-solving, creativity, and observation in lessons, but we always memorize them in books. I realized this at these events. You learn problem-solving, observation, creativity, and cooperation in natural environments by doing things spontaneously, experiencing them, and enjoying them.' (Zeynep)

In another focus interview, participants stated that rather than theoretically learning the elements in nature, they touch, smell, and feel them and thus learn by making connections with objects. One participant noted that outdoor experiences were concrete, practical, and integrative for him as follows:

'Walking and being in nature, looking and seeing are different. There are hundreds of things happening around us, and we either cannot see them or do not notice them because we are not careful. For example, in the outdoor activities we do with you. We did not just see the tree, branch, soil, or water; we experienced touching, smelling, feeling, and establishing connections and authentic relationships with them.' (Can)

Another participant in the same focus group supported this idea, stating that learning outdoors is more concrete and experiential than learning in the classroom. She said outdoor learning activates many senses, so these experiences are more meaningful and impactful than theoretical knowledge in school and books. This participant expressed her experiential learning as follows:

'Much theoretical information is taught in class and books, but it does not leave much of a mark in our lives. However, touching the soil, smelling it, getting carried away by the sound of water, feeling the coolness of the cave, feeling the texture of a stone or tree with your hands, trying to become a tree, empathizing with it, recognizing what I touch with my eyes closed, collecting tree branches, getting to know local people, examining cultural elements have left their mark on my life. There were real experiences.' Filiz)

Data from field notes and observations supported discussions in the focus interviews. Teacher candidates based the essence of outdoor learning on experiences and interaction in nature. It was stated that direct interactions and connections with the natural environment concretize learning and transform it into an inner journey. In the third focus interview, a teacher candidate expressed this situation with the following words:

'For the first time, I felt like I had a real relationship with the place I was in. For example, I learned to empathize with a tree through an activity. It was a significant experience for me. I became a tree. I had never thought about the struggle it takes to get water to its roots in summer, to bear its fruits, and to resist the cold in winter. I realized that just like a tree, a person's roots must be firmly planted on the ground" (Melih)

In another focus group, a teacher candidate again focused on real-life experiences. She argued that education supports daily life and a better life. For this reason, she pointed to outdoor education. She touched upon the importance of outdoor education for individuals to overcome life's difficulties and use survival skills.

'This education is much richer than the knowledge and skills we learn in the classroom. Learning is important as it helps us acquire the fundamental skills necessary to tackle life's challenges. For example, digging a fire pit, lighting a fire, retrieving a ball from a

stream, feeding food, etc. These are basic skills for life, and school is far from providing them.' (Fatma)

Another participant supported this view and gave a concrete example of supporting basic life skills:

'We tried to recognize the plants in the forest and recognized the edible foods. Thus, it gives us other ideas about not only making fire but also how we can continue our lives. For example, we all started collecting natural foods near us during an activity in the forest. However, then, I learned in a forest where we got lost that, while we had the energy, we had to collect the food far away first and leave the food closest to us until our energy was least and the weather conditions were the worst.' (Ahmet)

In another focus group, a prospective teacher discussed that internet-based digital learning was weaker and more abstract than life experiences that take place outdoors. Other candidates had deep discussions on this issue. In addition to the possibilities of using technological devices in the group, it was stated that they had limitations that disconnected learning from emotional ties. A participant expressed this situation as follows:

'We put technology at the centre of our lives. When you ask the search engine (Google) about a tree, it gives all the information. However, you are just getting information. However, in the real environment, you touch it, hug it, try to recognize it with your senses, smell it.' (Ayşe)

Another participant touched on the importance of connecting with place:

'I could research Pileki cave on the internet. This would give me information. However, talking to people from the first source, learning about this place from people who witnessed the local history, touching the Pileki stone, and seeing how the mills work creates a sense of belonging in people. We had the opportunity to understand how Pileki stone became an economic resource for the local people for hundreds of years. Again, we realized what potential Greek mills created in the region.' (Mehmet)

Another candidate talked about the holistic and interdisciplinary nature of outdoor learning:

'After participating in these activities, I realized what a nature trip should be like, as everything was interconnected. It was nice to learn from nature, to see the mushrooms, the bat in the cave, the plants, the order in nature, the economic activities, and learn on the spot. We had the chance to combine what we have learned in many classes with those in this class.' (Cemre)

3.2. Reflective social and emotional learning

The standard view in the focus group interviews was that outdoor activities improved teacher candidates' social and emotional learning beyond games, entertainment, and having a good time. It was emphasized that these activities allow the development of creativity, self-confidence, self-awareness, freedom, and autonomy in setting and achieving goals. For this reason, focus groups argued that outdoor education has the potential to affect all areas of life. In the focus group interview, one participant expressed how her experiences transformed her understanding of teaching as follows:

'The events were truly inspiring, impressive, and very educational. My perspective on teaching has changed. I have realized that I need to define my philosophy and perspective.' (Ayşe)

Another participant touched on how the group dynamic motivated their learning:

'It seemed scary to me to slackline at first, but when I saw my friends doing it, I got motivated. I was encouraged by the group.' (Ali)

Teacher candidates stated that when they participated in outdoor sensory activities, they could establish a deep bond with their peers and the place they were in. Participants noted that experiences in nature and peer learning enriched their learning. Open spaces created an environment for awareness and exploration. A participant who supported this idea stated that she gained awareness of other creatures living in nature and that this was achieved through social learning as follows:

'We saw a small caterpillar, and during our discussion, your 4-year-old daughter had it. Should we take the caterpillar down, you asked? We all answered yes. Your 4-year-old daughter left me a memory I will never forget. 'If we take it away, wouldn't we be taking it away from its family? Maybe its parents are here? Let us not separate them', she said. This was a turning point for me. Thanks to a 4-years old girl, I learned that a caterpillar can have a family when I was 22. This situation changed my understanding of 'teaching children' to 'you can learn from children.' (Gamze)

Another participant positioned the open air as the opposite of the classroom environment, which he saw as a closed room. Moreover, he touched on the inspiring feature of the open air:

'The open air is like leaving a closed room, getting sunlight, and branching out. All the activities opened my mind and inspired me to do what I wanted to do.' (Hasan)

Another participant touched upon the impact of outdoor activities on his creativity:

'In a workshop we held with my friends, the materials we made using natural materials we collected from the environment showed how creative we can be when we work collaboratively. We could also produce innovative solutions with our friends to solve many problems we encountered.' (Ali)

Focus group discussions and field observations at the fourth week's end supported these results. One candidate touched on the social climate and drew attention to the development of cooperation and solidarity with his peers. He felt this fosters community awareness and contributes to a learning community. He also stated that outdoor experiences meet social and emotional needs and encourage emotional engagement:

'... There was no unity in our class. "I realized we were community and unity.' (Can)

A participant stated that spending time together outdoors positively affects class unity and contributes to the formation of a sense of belonging:

'I experienced having a nice time with my friends, being a community, acting together, seeing and understanding different perspectives.' (Eren)

Another participant stated that her ability to work in cooperation and solidarity improved during outdoor education, even with people with whom he had conflict in the classroom environment:

'... It was nice to try to be part of the community. For example, even with people I had conflicts within the classroom, I became a team and could work together during the outdoor education.' (Gül)

Participants discussed connection with non-human entities in the final focus group interview. One candidate explained this situation from an ontological perspective:

'We generally use the environment and natural environments for picnics, sightseeing, and walking around. After these experiences, I realized that I am a part of nature, that I need to know and examine it more, that I need to establish more relationships and connections

with it, and that I am not its owner but only a tiny part of it, and that I need to live in harmony with other living creatures.’ (Fatma)

Another participant supported this view:

‘Yes, I think like my friend. For example, it was a nice experience to realize that even a branch or a leaf has the right to live.’ (Melih)

A participant in another group, unlike others, highlighted happiness:

‘I used to be someone who complained about everything. It is because I have been advised that I should learn to be successful by this age. Maybe for the first time, I did something just to be happy, without expecting success or competition.’ (Zeynep)

In another focus group, teacher candidates, in parallel with this view, touched upon the positive effects of spending time in nature on gaining environmental awareness and understanding of sustainable living. One candidate mentioned that spending time in nature creates a sense of belonging and happiness in him and establishes concrete relationships with natural elements.

‘The education we have received so far has taught us not to throw garbage into nature, to protect the environment, not to pollute, etc., within the scope of environmental education. It was recommending it. In other words, we learned that the environment is a needy place that needs to be taught and protected rather than something we are in constant contact with. However, nature is a generous area that is a source of inspiration, life, and happiness for people.’ (Mesut)

Another teacher candidate supported this view and expressed the importance of the mutual relationship between nature and humans as follows:

‘Nature and the environment are not distant places where we have a good time, do not throw garbage, and protect. Nature is an area where we interact at all times, get cultured, develop mutual dialogue, and learn local culture and history.’ (Yeliz)

In another focus group interview, a teacher candidate made the same emphasis and talked about how nature had ceased to be a distant place for him:

‘To me, nature was generally somewhere far away. After the second or third event, I changed my mind. I realized that I should be involved in life as a part of nature and the environment, not despite it. For this reason, I now desire to go outdoors more.’ (Cem)

3.3. Well-being and psychological resilience

Candidates expressed that educational interventions such as outdoor learning strengthen their well-being and psychological resilience. They stated that the peace offered by the natural environment helped them escape stress. They reported that interacting with the natural environment promoted their emotional well-being. This theme was particularly mentioned in the recent focus group discussion.

‘In each outdoor education session, I felt like I went to a therapist who was very good for me. It took away all the negative burdens from me. Touching, smelling, breathing in fresh air, and understanding other creatures and their habitats could not be done in the classroom.’ (Cem)

Another candidate supported him as follows:

‘Although I do not like walking a lot, I did not complain even though we walked for kilometres on some days. On the contrary, I enjoyed it. Furthermore, with each passing time, walks and challenging trails increased my mental and physical endurance.’ (Melih)

In another focus group, a participant supported this benefit of outdoor education. She touched upon the positive effect of outdoor

education on reducing stress and mental health:

‘Even when my eyes were closed and I focused on the sound of water and the forest, or when I jumped over the stream or got wet in the rain, I always felt a sense of relief. The stress balls rolled past me without touching me.’ (Pınar)

Another candidate in the same focus group pointed out the impact of physical activities on mental and physical health. He stated that outdoor experiences strengthened him physically and spiritually:

‘Walking and many other games and activities in the workshops helped improve my physical and mental skills. I guess things that are good for my body are also suitable for my soul.’ (Kaan)

In another group, a participant stated that their experience was a great source of relief for him. He touched upon the positive effects of this relaxation on social relations:

‘I had an adorable and enjoyable time. I felt great relief. This situation is also reflected in my social relationships. I have not been able to establish much of a relationship with my classmates for two years. We were going in and out of class, but we were not even talking to each other. I made good friends during this process.’ (Hasan)

Another teacher candidate in the same group supported this phenomenon and mentioned that outdoor education strengthened peer solidarity. She talked about the contribution of this situation to her spiritual relief:

‘I am generally not used to doing activities with others. However, we had to do something together without any expectations during outdoor education. This situation broke my prejudice of being unable to do activities with others and made me feel better and spiritually relaxed.’ (Gül)

Another teacher candidate said he realized his feelings and needs, encouraging himself to make healthier decisions:

‘I did not know we had many emotions in the game; we played with emotion and need cards by the sea. I understand my feelings and needs better now. This can lead people to make healthier decisions to achieve their goals. At least I can say I have that.’ (Cem)

3.4. Exploring pedagogical dynamics: opportunities for pre-service teachers

Teacher candidates discussed their motivation for outdoor activities to improve their competence. They stated that these activities would increase their competence and motivation and make their students’ learning easier. Participants reported willingness to use outdoor activities in their future classes due to their ease of use and adaptability. A participant stated that outdoor activities were simple enough to use in his lessons:

‘Dozens of activities, workshops, walks, games, etc. for seven weeks. We held events. These are very suitable for Social Studies courses and other disciplines. These activities are simple enough to be used in classes, are creative, low-cost, and adaptable to other classes. That is why I think I will use these activities as a teacher.’ (Ahmet)

Another participant pointed out the feasibility of these activities:

‘All the activities I have seen so far are enjoyable, instructive, and applicable. I will definitely take my students outdoors and do similar activities. This way, they will both have a happy time and learn.’ (Mehmet)

Several participants argued that outdoor activities were more relevant to real-life issues and practices than in-class activities. Other participants in the group stated that this enriched their learning experiences. They mentioned that students need real-life experiences

rather than bookish information. For this reason, they emphasized the importance of taking their students out into nature. A participant expressed the importance of this as follows:

'Until this activity, I do not remember the last time I learned by touching, smelling, feeling, sensing. Being in an open area is essential to see cultural elements, such as a mill, cave, village, and stream, and learn there. Since all senses come into play here, we can learn more easily. I will not deprive my students of this.' (Canan)

Another participant said he would encourage his students to spend more time in nature-culture areas. He mentioned that outdoor spaces encourage more holistic learning:

'I think social studies lessons should be held in areas where nature and culture coexist. For example, in the Ayder plateau, economic life, tourism, natural beauty, people's lifestyles, ways of coping with difficulties, and climatic conditions were all together, like an outdoor classroom. We also explain these in the classroom environment, but I do not think it will have as much impact as the natural environment. I think the outdoors open up space for more holistic learning.' (Mehmet)

In focus group discussions, it was stated that outdoor activities encourage an interdisciplinary understanding that supports establishing relationships and connections with many subjects. A participant expressed this situation as follows:

'We carried out many activities. We could interpret disciplines such as science, literature, history, geography, sociology, and physical education together in many of them. For example, sometimes the topic was a bat, sometimes a caterpillar, a bird, sometimes soil, water, and sometimes the economy and people. These activities supported our holistic learning of the subjects.' (Ayla)

Another focus group mentioned that being outdoors provides opportunities for different learning styles. It was also stated that including different activity combinations diversifies learning. Outdoor learning offers opportunities for all students with visual, auditory, social, emotional, or kinaesthetic learning preferences. Even this feature was defended as a sufficient reason for teachers to use it. A teacher candidate expressed his reason for wanting to use outdoor education activities with his students as follows:

'We have learned a lot that is good for our eyes, ears, body, soul, brain, and social relationships. Although these activities have different effects on some of us, I understand from the statements of my friends here and the dialogues between us that this is good for everyone. I plan to use the outdoors frequently in my professional life because I think it will benefit my students.' (Can)

3.5. Possible challenges and limitations for pre-service teacher

Despite its many positive aspects and advantages, some challenges of outdoor activities were discussed in the last two focus group discussions. Some procedures, security, and risk situations were mentioned. Although many teacher candidates had negative perceptions about outdoor education, a teacher candidate agreed with all that was said but mentioned the possible difficulties of outdoor activities due to some economic conditions, time, and significant bureaucratic difficulties:

'Yes, everything you said is very nice. We are at a university now. We can easily organize these activities in such areas. Can we quickly obtain permits for these events, especially in our country? Come on, and when you get permission; how will you find financial support?' (Cemre)

A similar discussion occurred in another group. One participant stated that considering the local environment of schools, this is much more difficult, especially in large cities such as Istanbul. Going from one

place to another would take much work. Another participant stated that parental support would be needed. Although the participant indicated that he very much wanted to do these activities, he expressed his concerns:

'I would like to take my students outdoors. Nevertheless, I would like to know if I can take that risk! It is because dealing with the manager and families for permissions will be very tiring.' (Melih).

Another participant touched upon security-related problems. He considered taking children to the forest or an industrial establishment as a potential risk and safety issue. He stated that he was still deciding whether to take this risk.

'Although taking students to the forest or an industrial establishment would be beneficial, I am unsure whether I would take this risk. Support from management and families is important. Otherwise, it may not be possible to take students outdoors constantly as we do here.' (Ali)

4. Discussion

The findings on how outdoor activities support the experiential learning processes of pre-service social studies teachers are consistent with the existing literature and emphasise the importance of this education. Pre-service teachers' reinforcement of their theoretical knowledge with practical experiences in the real world increases the permanence and meaningfulness of their knowledge. In this context, the contribution of outdoor activities to learning aligns with Kolb's (2014) experiential learning theory. Kolb states that learning is best achieved through experience, which requires active participation. Pre-service teachers based outdoor education on real-life experiences that establish the connection between school and real life rather than the relationship between theory and practice. This understanding shows that pre-service teachers emphasise experiences rather than establishing rational relationships with events. These results support previous studies on outdoor education (Kervinen et al., 2018; Lindemann-Matthies et al., 2011). Wurdinger (2005) argues that outdoor education is vital for creating an interdisciplinary learning experience that mimics real-world learning. On the other hand, Lugg (2007) argues that outdoor education promotes holistic and experiential learning and integrates knowledge and skills from various disciplines.

The pre-service teachers conceptualised outdoor education similarly to what Wurdinger (2005) and Lugg (2007) stated. According to them, outdoor education is a natural, dynamic, and interdisciplinary environment that offers the opportunity to explore abstract situations and concepts through real-life experiences. Therefore, outdoor experiences have a substantial potential to bridge the gap between real-life skills and functionality.

Many studies provide significant evidence that appropriately planned and effectively conducted outdoor education improves students' knowledge and skills and adds value to their daily classroom experiences (Barrable & Lakin, 2020; Quay et al., 2002; Rickinson et al., 2004; Zink & Boyes, 2006). In this context, the findings of the study support the research results in the literature.

Feedback from pre-service teachers shows that the teacher education system in Türkiye focuses too much on theoretical knowledge and needs a stronger connection with real life. During the activities in nature, pre-service teachers observed nature and had an in-depth experience using their sensory organs. Such experiences are in line with some research results indicating that outdoor activities contribute to students' cognitive, emotional, and social development (Bølling et al., 2019; Gray, 2019; Lugg, 2007; Morag and Tal, 2012; Mygind, 2009; Rickinson et al., 2004; Robertson et al., 2009; Waite et al., 2016).

Beard and Wilson (2006) mentioned outdoor education's permanent and meaningful effect on learning. Supporting this, pre-service teachers evaluated outdoor education as highly effective, fun, and permanent for

active learning. Research findings show that outdoor education positively affects student engagement and social behaviour (Barrable & Lakin, 2020). They formed strong bonds with their peers and the environment when they participated in sensory activities outdoors. These results support Brookes' (2002) view that knowledge is related to the experiential and narrative structures in which it is comprehended rather than the knowledge itself.

Quay et al. (2002) concluded that in out-of-class education, students were more helpful to each other than in school. These actions occurred more among students who were not close friends and did not actively care about each other in other subjects at school. Zink and Boyes (2006) concluded that the most critical learning outcomes of out-of-classroom teaching in elementary and secondary schools recognized by teachers were linked to personal and social development, including collaboration and communication skills. In order to provide evidence for the conclusions drawn in this study, outdoor education contributed to the cooperation and solidarity of prospective teachers, even with those with whom they had conflicts in the classroom environment.

The findings show that peer learning experiences in non-competitive environments increased the pre-service teachers' cooperation, confidence, and motivation. This set of social and emotional relationships allowed the candidates to control their learning journey and encouraged them to participate actively in outdoor education. These findings align with other findings that support pre-service teachers' social, group cohesion, and communication skills.

Similar to the research results arguing that out-of-school education is experimental areas that activate students' other senses, especially freedom (Davies, 1996; Kervinen et al., 2018), in this research, freedom emerged as an important topic in the focus group discussions. The findings show that outdoor activities increase pre-service teachers' sources of mobility and motivation. Mygind (2009) examined a three-year period in which 20% of all lessons at the primary school level were taught in nature and found that learning in an outdoor environment had a more positive effect on social behaviors, attitudes towards teaching and learning, and physical activity level than classroom learning. Supporting these results, the findings of this study also reveal that outdoor activities allow pre-service teachers to move more freely compared to indoor environments. These findings coincide with Sjöblom et al.'s (2023) research with pre-service teachers in Norway and Finland.

On the other hand, some research results show that students learn to respect nature by establishing a close connection with nature, which helps them understand issues related to sustainability (Gabrielsen & Korsager, 2018; Higgins et al., 2021; Kals et al., 1999). The pre-service teachers emphasized that spending time outdoors helps to establish concrete relationships with natural elements. In addition, it was emphasized that outdoor activities are essential in creating a sense of emotional belonging and happiness.

Pre-service teachers stated that outdoor activities positively affected their well-being and psychological resilience. The pre-service teachers stated that their stress and general well-being decreased when they were in touch with nature. This coincides with the finding of Ulrich et al. (1991) that contact with nature decreases stress levels and increases psychological well-being. The candidates' time in nature allowed them to connect with nature and feel more emotionally balanced. Research has reported that outdoor education increases physical and mental resilience due to the development of appropriate coping methods for stressful situations (Booth, 2015; Bølling et al., 2019; Lugg, 2007; Richmond et al., 2018).

Educators emphasise the impact of the human-nature connection on children's psychological health and well-being (Booth, 2015; Davies, 1996; Deschamps et al., 2022; Gray & Pigott, 2018; Kals et al., 1999; Neill & Dias, 2001; Remmen & Iversen, 2022). Resilience as an essential life skill is associated with many personal characteristics and outcomes (Bølling et al., 2019; Lugg, 2007). Nettles and Pleck (1996) suggest that resilience is a dynamic capacity that is integral to how an individual copes with stress, and more specifically, resilience is a fundamental

feature of psychological health. Based on this premise, outdoor learning experiences strengthened the physical and psychological resilience of the candidates.

Consistent with previous research (Booth, 2015; Gray & Pigott, 2018; Neill, 2008), this study highlights well-being and resilience as key benefits of outdoor education. The findings are consistent with existing literature highlighting the positive impact of outdoor activities on resilience, mental toughness, self-esteem, self-efficacy, and optimism (Gray & Pigott, 2018; Neilson & Hansen, 2007). Additionally, psychology-focused research (Bonanno, 2004) has found that preservice teachers often associate well-being and psychological resilience with various personal characteristics and positive outcomes.

Outdoor activities allow pre-service teachers to explore pedagogical dynamics and experience different teaching strategies. These activities contribute to pre-service teachers adopting student-centered and experiential learning methods. Beames et al. (2012) state that outdoor activities diversify pre-service teachers' pedagogical practices and allow them to explore innovative teaching methods. In this context, it is understood that outdoor activities contribute to the professional development of pre-service teachers and enrich their teaching practice.

Pre-service teachers argue that outdoor education diversifies learning by including different combinations of activities. Outdoor education: Outdoor education provided rich experiences and opportunities for all pre-service teachers with visual, auditory, social, emotional, or kinesthetic learning preferences. The pre-service teachers reported that they would benefit from outdoor activities in their professional lives because of the contribution of outdoor education to their social and emotional experiences.

Outdoor activities allow pre-service teachers to explore pedagogical dynamics and experience different teaching strategies. These activities contribute to pre-service teachers adopting student-centered and experiential learning methods. Beames et al. (2012) state that outdoor activities diversify pre-service teachers' pedagogical practices and allow them to explore innovative teaching methods. In this context, it is understood that outdoor activities contribute to the professional development of pre-service teachers and enrich their teaching practice.

On the other hand, some challenges and limitations encountered during outdoor activities are noteworthy. For example, logistical problems encountered during the planning and managing activities, safety concerns, and weather conditions can negatively affect outdoor learning processes (Rickinson et al., 2004). Teachers also mention the pressure of national exams and the pressure of preparing for these exams. Teachers state that the priority of tests and exams, which emphasise students' academic achievement, inhibits their tendency and desire to use natural environments outside of school (Dillon et al., 2006). Research shows long-standing and fundamental problems in different countries (Blatt & Patrick, 2014; Dillon et al., 2006).

Some research results conducted in Türkiye report that although pre-service teachers believe in the contributions and potentials of outdoor education, they do not use it sufficiently, feel inadequate in this regard, and face some difficulties in practice (Avcı-Akçalı, 2015; Bozkurt, 2021; Eğüz & Kesten, 2012; Metin-Göksu & Somen, 2018; Topçu, 2017). Pre-service teachers have reported many barriers to outdoor education, such as lack of legal permission, lack of facilities, equipment, safety and time, inexperience, and difficulties in planning (Bozkurt, 2021). In this study, pre-service teachers expressed similar problems and reported central exams as an essential limitation affecting outdoor education.

Difficulties such as transport, security, budget, planning, etc. may limit the benefits that pre-service teachers can obtain from these activities. Therefore, providing the necessary support and guidance to pre-service teachers during the planning and implementation of outdoor activities is essential.

In conclusion, the experiential learning opportunities offered by outdoor activities for pre-service social studies teachers allow them to apply their theoretical knowledge in practice, develop their critical thinking and problem-solving skills, and increase their pedagogical

competencies. These findings emphasise the effectiveness of outdoor education and its critical role in the teacher education process.

5. Concluding thoughts and recommendations

The findings of this study reveal that outdoor education is effective in developing knowledge, social and emotional development, student engagement, environmental awareness, and interpersonal skills. In the Turkish context, outdoor education provides rich life experiences for pre-service teachers. The research shows that out-of-school learning is experiential. It allows pre-service teachers to test their skills, values, attitudes, and dispositions in natural settings and work in collaboration, solidarity, and responsibility with their peers. Out-of-school learning supported pre-service teachers' personal development and their development in areas such as environment, geography, local history, culture, economy, sociology, etc. These results can be associated with experiential learning theories that emphasise the role of concrete experiences in deepening students' understanding (Kolb, 2014; Lugg, 2007; Morag & Tal, 2012). The pre-service teachers expressed experiential learning as a rich resource and an area to explore and learn from. These striking results reinforce the importance of outdoor education in teacher education and make it an integral part of teacher education. Therefore, it is essential to consider outdoor activities that provide direct learning experiences when designing teacher education programs (especially in a multidisciplinary field such as social studies).

On the other hand, the findings of this study reveal some limitations encountered in the outdoor education process. For example, while Türkiye's rich cultural and geographical structure offers experiential learning opportunities for students, difficulties such as bureaucratic obstacles, accessibility, logistical support and risk management appear to limit the adoption of outdoor education. However, this limitation also presents an opportunity for educational institutions that train teachers to empower their candidates. By enriching the candidates' perceptions and experiences regarding out-of-class education in the pre-service period, these institutions can play a crucial role in overcoming these obstacles. In this context, both education faculties and educational leaders must empower educators in risk management strategies and integrate local and regional outdoor opportunities into the curriculum, thereby making outdoor education more accessible and effective.

Educators can increase students' curiosity and learning motivation and enrich their learning experiences by using natural places (parks, groves, etc.) in school gardens or in the immediate area within walking distance and historical and cultural environments that enrich the historical and cultural heritage of the region (castles, caves, mills, etc.). In this context, educators should make natural, historical, and cultural areas, including school gardens, a part of outdoor education and overcome difficulties such as time, cost, risk management, and logistics support (set equipment, seasonal clothing, provisions, transportation, personnel, etc.). They can handle it. With this approach, educators can make outdoor education more accessible, practical, dynamic, and sustainable in Turkish schools by combining local and regional outdoor spaces. Thus, by closing the gap between theoretical knowledge and practical application, more comprehensive educational experiences can be enabled.

Another important limitation that emerged in the context of this research is the stress situation created by the exam pressure of outdoor education on teacher candidates. Traditional assessment methods often prioritize memorization and theoretical understanding, which can limit students' ability to apply knowledge in practical, real-world situations. In contrast, experiential learning, particularly in outdoor education environments, offers an alternative. It allows students to demonstrate their skills and understanding in dynamic environments, providing a more comprehensive and enlightening assessment of their abilities (Wurdinger, 2005; Waite et al., 2016).

Overreliance on traditional exams, prioritizing memorization, and theoretical knowledge, reduces experiential learning opportunities that

can provide more authentic and meaningful assessments. In addition, traditional assessments generally prioritize memorization and theoretical knowledge, making it difficult to fully measure students' real-world skills (Brookes, 2002). In this case, the traditional assessment form may not effectively measure students' ability to apply knowledge in natural and more complex life situations. In contrast, experiential learning in outdoor education environments can be seen as an alternative that allows students to bridge this gap between theory and practice by providing an alternative to demonstrate their skills and understanding in dynamic environments (Gray & Pigott, 2018; Waite et al., 2016). This may provide the opportunity for a much more comprehensive evaluation than traditional tests. Therefore, outdoor education can be used by teachers as a meaningful and alternative assessment framework in which students' ability to adapt to real-world contexts is evaluated based on problem-solving and collaboration.

Researchers can take action for studies that evaluate students' social, emotional, and cognitive skills in outdoor environments in a more meaningful, comprehensive, and context-based manner to close the gap between theoretical knowledge and practical application.

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Data availability

Data will be made available on request.

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