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EXPLORING TEACHERS' PERCEPTIONS OF FOSTERING CREATIVITY IN FINNISH NATURE SCHOOLS

ABSTRACT

There is a growing interest in promoting creativity in schools. This study aimed to look into teachers' perceptions on how nature schools support children's creativity. Although there have been studies about nature schools in the Finnish context, no study explores how creative skills are fostered in nature schools from teachers' perspectives. The researcher conducted qualitative semi-structured interviews with three nature school teachers and three regular school teachers who had experience attending a nature school session. Transcriptions were coded and examined. A thematic analysis was performed to discover common themes in the data.

The study suggests that teachers perceive creativity as creating something new as self-expression, and as thinking outside the box. The study explores teachers' viewpoints regarding cultivating creative skills within nature schools, revealing the emergence of different thematic elements. First, teachers' perceptions of creativity imply that the following themes support creative thinking: *sensory engagement, imaginative play, free play, and thought-provoking and reflective teaching methods.* Second, teachers' perceptions of creativity illustrate that the following themes support creative behavior: *outdoors promote positive emotions, and open, flexible, risk-taker teachers.* Lastly, teachers' perceptions of creativity suggest that the following themes support creative action: *the presence of nature's loose parts and the observant teacher who plans open-ended play.* The results of the study can inspire teachers to support children's creativity in nature school. It can also encourage policymakers and environmental planners to further support and collaborate with Finnish nature schools.

Keywords: Finnish nature schools, teacher perspective, outdoor education, loose parts of nature, imaginative play, creativity, children's creativity

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Jackelyn Bugarin-Uy

CONTENTS

TABLES

1 INTRODUCTION

Learning produces something fresh, exciting, and important (Säljö, 2004). Learning is more than just cognition; it is the interconnected processing of a person as a whole in which the body and mind construct an experience that can then be transformed cognitively, emotionally, and practically (Jarvis, 2005). Joubert (2001) described learning as a discovery process because a child values and remembers what he has created, invented, and discovered.

In today's literature about learning, many researchers support the idea that children learn more when they are using their imagination and doing creative activities, and that usually occurs when they are playing (Kapadia, 2014; Eccles & Templeton, 2002; Korn-Bursztyn, 2012). Creativity could be considered a learning component because it can be viewed as a means of expanding what one knows, understands, and can do (Craft, 2005). If learning is closely related to creativity, then schools must promote practices that encourage creativity.

According to Piirto (2011), creativity should be taught in schools because it has become necessary for everyone in the twenty-first-century globalized world. Because of the rapid advancement of digital technologies, learning has become less about memorizing and more about interpretation and "meaning-making" (Säljö, 2004). What is considered educational achievement is changing as a result of economic and political change; to survive and thrive, young people must not only gain knowledge but also know how to apply their knowledge to various complex problems, learn about new fields, and contribute new ideas that can tackle old problems by being more creative (Corbisiero-Drakos et al., 2021; Craft, 2005, Cropley, 2001).

Despite the need to be more creative, there appeared to be an overall consensus that creative ability is not being observed systematically or cultivated in schools as it should be (Andliou & Murphy, 2010; Beghetto, 2010; Diakidoy & Phtiaka, 2002; Sawyer, 2010; Sternberg, 1996). Moreover, research shows that

children's creativity has declined globally over the last 20 years (Kim, 2011). Kim (2011) states that the reasons for this decline are the increased time pupils spend using electronic entertainment devices, a hurried lifestyle, and an overemphasis on academics and enrichment activities.

To address these demands, Finland's national core curriculum prioritizes experiential and holistic learning (Finnish National Agency for Education [FNAE], 2016). A recent study by Sjöblom and Svens (2019) highlights these proposed changes as a more holistic approach to Finnish education with greater cooperation with the outside world. The emphasis is shifting from transmitting knowledge to developing a positive school culture that prioritizes the approaches and settings used in teaching. The schoolyards and the nearby artificial and natural surroundings must be used. Furthermore, the national curriculum emphasized that humans are a part of nature and are entirely reliant on habitat health. Understanding this is critical to one's development as a human being (FNAE, 2016). Nature and environmental schools, among others, are proposed as collaborators in this endeavor; thus, experiential education and the use of multiple immersive and outdoor learning experiences are an integral part of daily instruction (Sjöblom & Svens, 2019) that support also pupils' creativity.

Nature and environmental schools offer a variety of opportunities to foster creativity. First, nature and environmental schools provide flexible and adequate space in which natural habitats are diverse and changing, allowing for more opportunities for free exploratory play in which children can use their imagination and creativity. It also allows children to return and discover new ways to interact with the materials (Eccles & Templeton, 2002; Storli & Hagen, 2010; Tovey, 2007). Second, nature and environmental schools aim to provide children with prolonged outdoor play times daily (Wojciehowski & Ernst, 2018). The nature and environmental school timetables have longer blocks of time, giving children more time to engage in, pursue, reflect on, discover their interests, and think creatively (Kiewra & Veselack, 2016). Third, appropriate adult support can help children develop their creativity and imagination. When children manage independently, nature school teachers observe from a distance and are ready to intervene if necessary. This allows students to solve their own problems while maintaining the flow of inspiration (Kiewra & Veselack, 2016).

Although there are several compelling studies (Atchley et al., 2012; Kiewra & Veselack, 2016; Wojciehowski & Ernst, 2018; Zafeiroudi & Kouthouris, 2021) on how nature and environmental schools can support pupils' creativity, there is a lack of research on how nature school teachers and school teachers perceive creativity taking place in nature school settings and how creative thinking, creative behavior, and creative actions of pupils can be supported in nature schools. Examining teachers' perceptions of creativity and supporting it is particularly crucial because their beliefs influence and guide their classroom practices (Gilakjani & Sabouri, 2017; Kim, 2021; Pajares, 1993; Tsangaridou, 2008). Teachers who understand the nature of creativity can avoid negative preconceptions and misconceptions about creativity and, as a result, make an effort to incorporate creativity into their curriculum (Beghetto & Kaufman, 2010; Beghetto & Plucker, 2006). Therefore, teachers' perception of creativity is vital if we want to investigate how creativity is promoted in nature schools.

This study aims to explore teachers' perceptions of creativity and ways in which nature can support pupils' creative processes when they engage in learning in nature schools. The results of the study provide insights into how to support children's creativity in nature schools and beyond. The results of the study can inspire teachers, policymakers, and environmental planners to further support and collaborate with nature and environmental schools to promote children's creativity.

2 THEORETICAL FRAMEWORKS

In this section, I begin by conceptualizing creativity and creativity relevant to the modern educational world. Then, I move on to the three theoretical frameworks that informed the current study. The first is John Dewey's theory of experience, which emphasizes the importance of a reflective teacher who plans experiential learning based on the needs of the students. Second, Lev Vygotsky's theory of collective creativity states that creativity begins with imagination and is directly related to a person's prior experience and environment. Lastly, Simon Nicholson's theory of loose parts highlights the benefits of various natural materials that encourage children to use their imagination and creativity.

2.1 Conceptualizing creativity

Creativity has been associated with people with various cognitive abilities and skills, such as artists or geniuses (Amabile, 1996; Piirto, 2011). However, during the 1990s, researchers began examining the creativity of ordinary individuals within the educational system in greater detail (Craft et al., 2001). Researchers have discovered that creativity could be developed (Craft, 2005; Plucker et al., 2004) and that creativity can be increased or decreased in the learning environment (Amabile et al., 1996; Jindal-Snape et al., 2013). Specifically, creativity can be nurtured in an atmosphere that values experimentation, risk-taking, and originality (de Souza Fleith, 2000); this means everyone has the potential to be creative because creativity and talent are not synonymous (Amabile, 1999). Creativity can be observed in people of all ages and cultures (Seel, 2020). It is no longer regarded as a luxury reserved for a few gifted individuals, as previously (Amabile, 1999).

Creativity is no longer considered to be confined to the traditional "creative" industries of art, theater, music, or literature but rather as a "traveling concept" (Nordin & Sundberg, 2016), whose recognition has expanded in mathematics,

natural sciences, even professions like architecture or engineering, and other areas like sports (Cropley, 2001). Suppose everyone can be creative, and creativity can be nurtured in the right environment. In that case, it is no surprise that strategies and approaches promoting the creativity of individuals, groups, and organizations' creativity are universalized, as Craft et al. (2001) stated. Because of the universalization of creativity, many institutions and organizations encourage everyone to be creative in terms of improving the institution's performance and developing new ways for the organization to expand and actively invest in creative education (Jeffrey & Craft, 2001; Plucker et al., 2004). Despite society's apparent need for creativity, only a few schools nurture creativity, which might contribute to a lack of creative thinking in higher education (Jackson, 2006).

Suppose we were to promote creativity in the education system. In that case, it is critical to have an acceptable definition in the education field even though, according to Cropley (2001), the definition has become diffuse and ambiguous, making it challenging to define straightforwardly. Defining and clarifying various terms in education is crucial because it will help us understand how creativity, learning, and pedagogy are interconnected. Creative learning, creative learners, and creative thinkers are some of the terms we need to explore.

NACCCE (1999) defined creativity as an imaginative activity that produces unique and valuable outcomes. Pink (2005) defines creativity as a process that involves the collection of new concepts and ideas, as well as how these new associations activate the creative mind and connect concepts and ideas. According to Craft (2005), there are two types of creativity: "high" creativity and "low" creativity. High creativity is regarded as something novel and noteworthy that has significantly altered something. On the other hand, low creativity is viewed as an ordinary but comprehensive attitude toward life that focuses on adaptable, intelligent, and novel actions in everyday situations.

The complex nature of creativity is perhaps easiest to comprehend through Rhodes' (1961/1987) four aspects of creativity: person, process, product, and environment press. Cropley and Cropley (2012) state that Rhode's four dimensions of creativity provide a lens through which creativity may be evaluated and characterized. The first aspect is the person, which relates to creative personalities, to find different variables contributing to which types of people are

more or less creative than others (Simonton, 1988). The second aspect is the process which concerns "motivation, perception, learning, thinking, and communicating" (Rhodes, 1961/1987, p. 219); these pertain to the habits of thought that creative people engage in (Simonton, 1988), such as problem-solving (Batey & Furnham, 2006). The third aspect is the product. According to Rhodes (1961/1987), products are concrete things created from a creative thought or idea. Product judgments are made concerning the end consequences of creative activities (Simonton, 1988). The last aspect is the press, which focuses on external elements that consider the person's relationship to their environment (Rhodes, 1961/1987).

When discussing educational and psychological discourse, Cropley (2001) summarized definitions of creativity in three key aspects. First, creativity is defined as novelty or action that differs from the norm. Second, creativity is defined as effectiveness in achieving a specific goal. This could be of the aesthetic, artistic, or spiritual variety. Finally, there is ethics as creativity. Selfish or destructive behavior, crimes, or similar activities should not be considered creative. On the other hand, Craft (2005) points out that there are many ways to define creativity; some definitions emphasize the individual, while others highlight the products and impacts. Nonetheless, all conceptions of creativity entail the generation of original ideas. Yet, creativity is more than just coming up with and implementing ideas; it is applying a set of processes and skills in a supportive environment (Beghetto & Kaufman, 2014).

Starko (2018) explains how brain neuroscience might help us comprehend creativity. We must analyze at least three distinct brain networks to understand how creativity works. The first component is the executive network, which concerns tasks and goals. The second is the default network, which considers our inner experiences responsibly and actively, and it is often activated when we are awake but at rest. The default network begins to work when we stop paying attention to our to-do lists and allow our minds to wander freely. The salience network is the third, linked to emotions, and performs a critical sorting function, determining which incoming stimuli are worthy of attention or action. Goswami (2006) debunks the myth that creativity occurs only on the right side of the brain. Creativity is a complex process that necessitates using the entire brain (Goswami, 2006). In supporting creativity in education, it is essential to focus on

training the executive network part of the brain, but enhancing the default and salience network is equally important. Indeed, without the brain's default network's meanderings, we cannot adequately evaluate ideas or situations' moral and ethical implications (Immordino-Yang, 2016). According to Kounios and Beeman (2015), modern living is "an environment on steroids" (p. 217) with little opportunity for silent observation of one's own mental and emotional processes. "The inner world of the default-state network hardly has a chance," Kounios and Beeman (2015) add. We surrender creativity for a restricted form of efficiency as a society" (p. 217).

2.2 Creativity in education

According to Jean Piaget, the primary purpose of education is to develop creative individuals (Fisher, 1990; Newton, 2012). In recent years, a growing fascination with creativity has extended into the field of education, both for research and for practice (Mullet et al., 2016). To better understand creativity in education, it is necessary to describe what learning, creative learning, and creative thinking look like in schools. Creativity and learning are inextricably linked and indistinguishable if we take a constructivist approach to learning. We form new connections between ideas and make sense of them when we learn something new (Craft, 2005).

According to Gomez (2007), curiosity, making and seeing connections, imagining what could be, exploring ideas, keeping options open, and reflecting on ideas, actions, and outcomes are all common characteristics of a school that promotes creative learning. Creative thinkers, according to Healy (2004), are active learners who can identify and solve problems, recognize patterns, combine information in novel ways, challenge assumptions, make decisions, and pursue innovative ideas, which are similar to the characteristics of creative learning in schools proposed by Gomez (2007). Sternberg (2010) asserts that creativity is a habit, so teachers must encourage this habit through three actions: (1) offer opportunities to engage in it, (2) encourage the students who take the opportunities, and (3) reward any student who thinks and behaves creatively. He added that creativity habits will be developed if teachers continuously encourage students to create, invent, discover, imagine, suppose, and predict. One of the

key studies (Jeffrey, 2004) on creative learning for children aged 3–11 discovered that one of the hallmarks of the creative learning experience is the significance placed on teachers creating tasks and problems.

Because creativity appears to be a crucial component of education, researchers are eager to examine individuals' inventiveness. The Torrance Tests of Creative Thinking (TTCT) are one of the most widely used instruments in studies of creativity (Scholastic Testing Service, 2014). Because of the complexities of creativity, any creativity evaluation is difficult to justify. According to Cropley (2000), predictive validity is frequently low because tests do not include activities that "resemble real-life creative activity" (p. 72). According to Agbowuro et al. (2017), there is a growing recognition that creativity involves not only coming up with big ideas but also coming up with practical answers to everyday issues and applying them to real-life circumstances.

Beghetto and Kaufman (2009) describe how most studies of creativity tend to go in one of two directions: everyday creativity (also known as "little-c"), which can be found in almost everyone, and eminent creativity (also known as "Big-C"), which is reserved for the exceptional. Unfortunately, in the world of little-c, students' creative ideas when they learn a new subject matter or create a new metaphor are often neglected. That is why they recommended a new category called the "mini-c." Mini-c was created to accommodate the innate creativity in the learning process. The category of mini-c creativity, according to Beghetto and Kaufman (2009), serves to widen existing concepts of creativity by acknowledging that intrapersonal discoveries and interpretations, which sometimes reside solely within the individual who made them, are nevertheless considered creative actions. They added that 'mini-c' creativity is a precursor of small c or big C creativity that can be seen in young children.

According to Beghetto and Kaufman (2009), the "mini-c" definition is congruent with the Vygotskian theory of cognitive and creative development, which maintains that all people have creative potential, which begins with internalizing cultural tools and social interaction. They further explained that to see mini-c creativity, one must study the creative insights exhibited by young children in their regular activities of learning and play. Since this study focuses on children's creativity in an educational setting, we will focus on the"mini-c" definition of creativity that supports Vygotsky's cognitive and creative

development theory. According to Beghetto and Kaufman (2009), researchers will be better able to comprehend the beginnings and development of creativity if they recognize mini-c creativity manifested in children's learning and play.

According to Starko (2018), one of the trademarks of the creative process is playfulness in dealing with ideas. According to Moyles (1989), play in educational settings offers a true learning medium and enables intuitive and informed adults to understand children and their needs. Locomotor, social, and object dimensions are commonly used to define different types of play (Pellegrini et al., 2007). There are other methods to categorize play, but the most common is to divide it into functional play, constructive play, symbolic/fantasy play, and games with rules (Sawyers, 1994).

According to Dyment and O'Connell (2013), various forms of play exist. Functional play includes running, riding bikes, tumbling, climbing rocks, sliding slopes, and climbing trees. Constructive play occurs when children construct anything, such as sand castles, huts, and shelters, or play with loose parts, such as sticks, cones, and pebbles. Symbolic play refers to imaginative or creative play, such as role-play, theatrical play, and social play, such as house and pirates. Self-focused play involves no interaction with others, such as daydreaming, empty gazing, and watching activities. Finally, talking occurs when a child is not engaged in active play but is conversing with another child.

According to Gray (2015), children are born with an innate capacity to play and explore autonomously of adults, and the previous notion of playfulness was the attribute that reflected a personal inclination to freedom in play (Webster & Martocchio, 1992). According to Tatsumi (1990), play improves children's learning, and playful children become creative and artistic only when they can play as much as they like in a group-oriented atmosphere during their early years.

Silvia et al. (2014) claim that to comprehend an individual's creative potential properly, the individual needs to be watched in a natural context as creativity happens. Jeffrey and Craft (2001) and Craft (2003c) argued that to research creativity in the classroom effectively, the relationship between the teacher and the pupil must be the subject of the study. Schools can support children's creative opportunities (Kim & VanTassel-Baska, 2010); however, teachers can unintentionally hinder the creative growth of pupils (Hirsh, 2010). This is not surprising as Cropley (2001) reported in his book *Creativity in*

Education & Learning that teachers, according to research, overwhelmingly support creativity; however, Cropley (2001) contends that at the beginning of relevant research, it was shown that teachers prefer courteousness, punctuality, obedience, and receptiveness to other people's ideas over traits of creativity such as boldness and desire for novelty or originality.

Cropley (1997), on the other hand, stated that some teachers are particularly good at promoting students' creativity by providing a model of creative behavior, reinforcing such behavior when students exhibit it, protecting creative students from conformity pressure, and establishing a classroom climate that allows for alternative solutions. Clark (1996) discovered that teachers of gifted children emphasized 'creative creation,' demonstrated 'flexibility,' accepted 'alternative suggestions,' fostered 'expression of ideas,' and permitted humor in one successful study linking gifted children and creativity. They were more creative and had better relationships with their students.

According to Plucker et al. (2004), creativity is "the interaction among aptitude, process, and environment by which an individual or group produces a perceptible product that is both novel and useful as defined within a social context" (p. 25). According to Starko (2018), creativity patterns are formed when teachers frequently encourage pupils to create, innovate, discover, imagine, think, and anticipate. Similarly, Craft (2005) contends that young people's creative abilities will likely develop in an environment where teachers' creative skills are appropriately engaged. Additionally, research on children's creative learning (Jeffrey, 2004) discovered that teachers who are prepared to take risks in their pedagogy encourage creative learning.

Investigating how Nolan's (2002) creative thinking, creative behavior, and creative action may correlate may be helpful. Nolan (2002) identified several dimensions of creativity that can be used to test some of our beliefs about creativity. He referred to the ability to devise and implement new courses of action and to assist others in doing so as creative skills. The skills include creative thinking, creative behavior, and creative action.

Creative thinking entails developing new ideas, concepts, desires, goals, and problem perspectives (Nolan, 2002). Creative thinking is defined by Sternberg and Lubart (1996) as thinking that is novel and generates valuable ideas. According to Starko (2018), many techniques for increasing creative

15

thinking aim to promote students' divergent thinking or ability to think of many potential responses to a given scenario. The most frequent definition of diverse thinking involves fluency (thinking of many ideas), flexibility (thinking of varied ideas), originality (thinking of unusual ideas), and elaboration (adding detail to improve an idea). Fumoto et al. (2012) concluded that children's creative thinking requires four basic foundations. First is the social foundation of early children's friendships, peer interactions, and adult relationships. Second, the cognitive foundation: creative play offers a setting for developing the aptitudes, proficiencies, and capacities necessary for creative thought. Thirdly, emotional foundations are required since imaginative thinking cannot arise until children's well-being is established. Fourth and last is intrinsic motivation. Children who create for their own sake do so without regard to any external advantage or reward, improving their sense of well-being and self-worth. According to Cropley (2001), the best-known approaches for testing creativity focus on thinking itself. Divergent thinking tests typically consist of open-ended, relatively unstructured tasks (e.g., "Suggest as many uses for a tin can as you can think of," or "Complete the incomplete drawing below in any way you want") whose function is to promote the production of many and varied exists and can be found in the test manual, rather than recalling or discovering the single, best response that already exists.

The second aspect is *creative behavior*, which refers to activities that help the creative process. Creative behavior refers to the behavioral skills required to foster a supportive environment that encourages creative thinking and creative action. According to Nolan (2002), creative behavior is the cornerstone of creativity since it underlies the others; you cannot develop novel ideas until you create an atmosphere that allows for speculation and emotional risk-taking. Nolan (1987) emphasized that there is no better place to begin the creative process than in one's own behavior. Craft (2001) defined risk as the uncertainty of one's ideas' outcome and the potential for the anticipated outcome not to materialize. Sarsani (2008) stressed the importance of a supportive environment in which risk-taking in one's thinking is encouraged and praised, and teachers prioritize increasing children's self-confidence. Claxton (1999) argued that if this is not prioritized, stress and pressure to succeed may contribute to a narrowing of focus, and students will be more concerned with 'doing it right' than risk-taking and producing ideas and outcomes of uniqueness and worth. Starko (2018)

16

states that adults must build this openness to experience before sharing it with children. We cannot convey the wonder until we can experience it. Starko (2018) believes that children who can handle ambiguity are willing to keep trying and experimenting even if they are unsure if they are correct. He added that schools do little to tolerate, let alone encourage, ambiguity.

Finally, Nolan (2002) defined *creative action* as "experimentation and innovation," which includes experimenting with new things and doing things for the first time. He defined creative action as the attitudes and energy required to implement new ideas. According to Nolan (1987), the source of creativity is daring, speculative, and audacious thinking. This creative thinking must be translated into creative action in the form of several types of affordable experiments. All three of these components apply in the school environment, as pupils must not only think but also behave and act creatively.

2.3 Dewey's view on experience and education

John Dewey's theory of experience serves as the theoretical foundation for experiential educational projects, such as outdoor education. Outdoor education may be viewed as a form of experiential learning that takes place outside of the classroom. Dewey (1938/1997) argued that there should be a balance between individuals' freedom and the environment's educative structure, and this is only possible if the theory of experience is considered. He suggested that students' experiences stemmed from their cumulative prior experiences and that the interplay between those experiences combined to shape each individual's current and future experiences uniquely. He highlighted that learning occurs when a learner engages in the experience, reflects on it, and analyzes it (Neill, 2008).

In the theory of experience, Dewey (1938/1997) articulated a framework for comprehending the value and importance of experience using the principles of continuity and interaction. The first criterion is the continuity principle. According to Dewey (1938/1997), an experience cannot be isolated from other experiences. Dewey mentions that growth as a result of experience is a part of the educational process in the principle of continuity. He believes that educators must understand the growth trajectory of the experience because not all growth is considered good. Dewey (1938/1997) asserts that "every experience affects for better or worse the

attitudes which help decide the quality of further experiences, by setting up certain preference and aversion and making it easier or harder to act for this or that end" (p.37). He added that "every experience is a moving force. Its value can be judged only on the ground of what it moves toward and into" (p. 38). As a result, Dewey (1938/1997) implies that it is the responsibility of educators to determine the direction of an experience.

The interaction principle is the second experience criterion. Dewey (1938/1997) defines interaction as a relationship between external and internal conditions. The people, objects, and community in which the pupil may be located are examples of external conditions. Dewey (1938/1997) proposed that educators must understand better how to "utilize the surroundings, physical and social, that exist to extract from them all they have to contribute to building up experiences that are worthwhile" (p. 40). On the other hand, internal conditions can be defined as the pupil's feelings, dispositions, attitudes, desires, or needs. He also encourages educators to learn how to distinguish between attitudes that are beneficial to continued growth and those that are detrimental. Educators must understand what is going on in the minds of their pupils. According to Dewey (1938/1997), educators must have a sympathetic understanding of the individual as a pupil:

> He must, in addition, have that sympathetic understanding of individuals as learners, which gives him an idea of what is actually going on in the minds of those who are learning. It is, among other things, the need for these abilities on the part of the parent and teacher which makes a system of education based upon living experience a more difficult affair to conduct successfully than it is to follow the patterns of traditional education. (p. 39)

Understanding Dewey's theory of experience, the Finnish education system's decision to include nature schools as collaborators in supporting their curriculum goals is an excellent step toward providing pupils with the experience they need in their education. Crosby (1995) discussed how John Dewey battled with the meaning of 'experience' and 'experiential learning,' and he voiced worry that emphasizing people's intellectual or cognitive sides distanced them from their immediate surroundings and their emotional, affective selves. Considering Dewey's theory of experience, Clandinin and Connelly (1992) think that we can better attend to how we educate through experiences in different aspects or areas of people's lives rather than constraining learning to a classroom.

One of the areas of children's lives that is so important in developing their essential skills is play. Wood and Bennett (1997) state that play is an integrating process. Suppose children are given more freedom to play; they will have more opportunities to draw on and link prior experiences, articulate their thoughts through diverse means, imagine possibilities, investigate, and create new understandings (Dockett & Perry, 2007). Play allows teachers to gauge where students "are" in their learning and overall development. It provides teachers with a springboard for encouraging new cognitive and affective learning (Moyles, 1989).

However, we must remember that being in a natural and playful environment does not guarantee a better learning outcome. In their book *Trouble in Play*, Grieshaber and McArdle (2010) challenge the idea that play is a universal, almost magical fix in the educational system. They highlighted how educators assume automatic progress with children without considering the type and appropriateness of the skills gained from their play. This is consistent with Dewey's theory, which insinuates that we need to consider that play and the natural environment do not automatically lead to positive growth if educators do not intentionally lead the direction of their experience in that environment. Following Dewey's proposal, Singer and Singer (2005) argue that it is critical for educators to encourage outdoor learning and plan open-ended, play-based experiences. Inadequate play opportunities for children lead to a lack of experience with conflict resolution, gross and fine motor abilities, and creativity. Dewey advocated for pedagogy and curriculum that focused on students' needs and interests and engaged them as active participants in their learning (Semel, 2002).

2.4 Vygotsky's view on creativity

Lev Vygotsky was fascinated by the concept of creativity and imagination in education. Vygotsky felt that creativity resides in all people, including very young infants. In his article "Imagination and Creativity in Childhood," he introduced the idea of collective creativity. According to Vygotsky (2004), combining elements to produce a structure and connect the old in new ways is the foundation of creativity. Our brain and nerves, which are extremely plastic, readily change their

finest structure in response to one or more types of stimulation. They retain memory traces of these changes if the stimulation is intense enough or repeated enough. Thus, our brain demonstrates that it is an organ that retains our past experience and encourages its reproduction. In psychology, this creative activity based on our brain's ability to combine elements is called imagination or fantasy. Imagination was also considered an essential component of creativity because of its potential to assist the creation of novel combinations of pre-constructed items.

According to Vygotsky (2004), we may detect creative processes in children at very early stages, mainly through play. A children's play is a creative reworking of the impressions they have gained, not merely a replication of what they have encountered. Children blend and employ their experiences to create a new world corresponding to their wants and ambitions (Vygotsky, 2004). The inclination of children to sketch and make up stories is another example of this form of creativity and play. Morgan (1997b) defined imagination as an enhancer of our capacities to view and comprehend a situation in new ways. One of these ways is using metaphors, as Morgan (1997a) explored. Following Vygotsky's idea, Banning & Sullivan (2011) assert that nature play can provide children with plenty of space, time, variety, and loose parts to create infinite play scenarios that help to develop creative thinking skills that will last a lifetime. Vygotsky held that the creative process is inextricably linked to both actual and imagined experience.

Vygotsky (2004) proposed four fundamental ways in which the operation of imagination is linked to reality. The first type of association is called previous experience. Vygotsky (2004) affirms that imagination is always constructed with materials provided by reality. The richer the experience, the more probable it is that the event may inspire creative activities. As Vygotsky (1930/1971) claims, "[T]he more a child sees, hears, and experiences, the more he knows and assimilates, the more elements of reality he will have in his experience, and the more productive will be the operation of his imagination" (p. 15). Vygotsky suggests that access to rich and diverse sensory experiences can promote divergent learning. Divergent thinking, identified as the cognitive foundation for creativity, entails processes such as shifting viewpoint, transformation, or obtaining various solutions from given knowledge, which favors the generation of originality (Cropley, 2001).

Vygotsky further discussed three other concepts on how imagination and reality are linked. In addition to the first one, previous experiences, the second link is social experiences. Social experiences help to expand a person's limited experiences. Vygotsky adds that imagination does not function freely but is led by someone else's experience, as if according to someone else's instructions, because an imaginary product conforms to reality. In this way, imagination plays a critical role in human behavior and development. Social experiences become a way of broadening a human's experience since we cannot conceive something we have not seen, but we can understand something from another person's narration and description even though we have never encountered it. According to Fumoto et al. (2012), drawing on Vygotsky's theory, young children's creative thinking cannot be understood without understanding how social relationships impact it and vice versa.

The third link is the emotional aspect. Affective aspects are present in all types of creative imagination. This indicates that every imaginative construct influences our sentiments, and even if the construct itself does not correlate to reality, the sentiments it generates are true sentiments that a person feels. In an attempt to advance Vygotsky's work, Rey and Martínez (2016) explained that Vygotsky employed *perezhivanie*, translated as "experience" in English, in conjunction with other notions connected with an individual's emotional domain, such as imagination, fantasy, and emotion. These concepts were overlooked in Soviet psychology; however, within cultural-historical psychology, there has been a growing interest in the issues of motivation and, in particular, emotions for the last ten years.

Recent literature supports the idea that motivation, also known as "the inner spark," is essential in nurturing or growing creativity (Amabile, 1996, p. 14). According to Amabile (1996), creativity emerges when a person is organically driven. It is impeded when extrinsic motivation is offered. Amabile (1996) further explained that people motivated by enjoyment and passion are more creative than those motivated by money, recognition, or grades. Moneta (2012) found in their study that the trait of intrinsic motivation is positively linked to the experience of creativity. The more children experience creativity, the more motivation they have to create. The environment evolves as a result of a person's psychological repertoire for living in that context, implying that the environment is constantly

relevant to the individual psychological resources that emerge via *perezhivanie* at each stage of life. Vygotsky seems to be seeking to describe the affective domain as a complex system of the human psyche, with *perezhivanie* at its heart. *Perezhivanie* implies that the context is an internal shifting phenomenon continually reorganized via the lens of each person's emotional experience rather than an external structure, place, or event (Rey, 2011).

Moreover, *perezhivanie* was precisely defined by Vygotsky as the unity of psychological development responsible for the transition of a child's growth from one era to the next (Rey & Martínez, 2016). According to Bozhovich (2009, p. 65), we have misunderstood the environment as the 'developmental context,' which will shape and define development based on the characteristics it contains; yet, environmental aspects will continue to alter according to the specific 'psychological traits that refract them.' Within sociocultural frameworks, a new concept of the subjective is emerging, as 'emotion experienced' allows us to consider the person's interaction with the environment when investigating contextual impacts on behavior.

Davis (2009) discovered that, in general, positive attitudes were associated with greater creativity. Conner and Silvia (2015) followed a large group of young people over 13 days as they assessed their creative and emotional states. The researchers discovered that positive emotions, such as being energetic, eager, and enthusiastic, are the most beneficial to everyday creativity. Neurobiology also supports the role of mood in creative thinking. In early neurobiological research, positive emotion related to elevated dopamine levels was linked to cognitive flexibility and improved creative problem-solving (Ashby et al., 1999). The positive affect associated with play is especially beneficial during the idea-generation phase of creativity, according to Bateson and Martin (2013). Starko (2018) explained that exploring with curiosity means looking at the world with awe.

The last linkage is embodied imagination, in which the imagination is brought to life (Vygotsky, 1930/1971). Any technical equipment or instrument is an example of embodied imagination. Vygotsky (2004) affirms that these products were created by human combinatory imagination and did not correspond to anything existing in the real world, but they have the most convincing, active, and useful association with reality, and once materialized,

they become just as real as other things that can make a difference in the real environment.

Vygotsky's theory of collective creativity explains the significance of teachers and peers to pupils. Not only the environment or structure of the program but also the people involved and the type of emotional experience pupils have determine their development. Vygotsky (2004) concluded that education needs to broaden the experiences it provides to children to create a solid foundation for their creativity.

Vygotsky and Dewey believe that social interactions are the foundation of human existence. Humans are social beings that gradually develop their own personalities through their interactions (experiences) with others. To be creative, a child requires meaningful interactions and collaborations (Piaget, 1981), so supporting children's drive to invent, create, and imagine in novel and expressive ways is equally important. According to Moran (2010), this social dynamic perspective on creativity provides an excellent basis for leaders, parents, teachers, and others interested in education to influence children's creativity. It highlights what and how youngsters experience the world rather than just innate abilities.

2.5 Nicholson's theory of loose parts

According to Nicholson (1972), the theory of loose parts is an opportunity for children to demonstrate creativity by using materials that can be manipulated, transformed, and created through self-guided play. Nicholson (1972) emphasizes the relevance of interactive materials with many affordances. According to the affordance theory by Gibson (2014), the world is considered an object of possibilities for affordances. Material affordances refer to how a material or item may be utilized or interacted with. Nicholson (1972) explains the theory of loose parts as follows: "[I]n any environment, both the degree of inventiveness and creativity and the possibility of discovery, are directly proportional to the number and kind of variables in it" (p. 6). There is a growing recognition that the most useful loose parts are those we encounter daily in the wilderness, the countryside, and where we live (Nicholson, 1972). According to Nicholson (1971), there is evidence that all children like to engage with physical environmental aspects such

as objects and shapes, gravity, scent, and other things that may be discovered, explored, and experimented with. The quantity and type of aspects in the surroundings directly correspond to the stimulation of originality and creativity and the potential of discovery Nicholson (1971).

Gull et al. (2019) conducted a scoping review to narrow down the definition of loose parts because the term is frequently ambiguous when used in different contexts. The researchers reviewed 15 articles that concerned loose parts in early childhood and outdoor contexts, and they defined loose parts as follows:

> Loose parts are open-ended, interactive, natural, and manufactured materials that can be manipulated with limitless possibilities. Interaction with loose parts includes experimentation, exploration, and playful interactions with variables through creativity and imagination. Children have the freedom to explore variables, combine materials, and react to complex themes and ideas that emerge in the outdoor classroom setting. Adults encourage children, make loose parts available, stimulate discovery, provide opportunities, allow for open-ended play, and prompt meaningful connections and experiences. Children develop imagination, creativity, and collaborative skills through loose parts exploration. The process is more important than the end product, fostering overall growth and development. (Gull et al., 2019, p. 48)

In nature, loose parts are everywhere: sticks, pebbles, mud, and grasses, to name a few. Inspired by children's imagination, these natural materials, according to Banning and Sullivan (2011), encourage creative play. These flexible and open-ended loose parts inspire children to figure out what they can do with them. When children explore, experiment, and try different ways of doing things with materials, they develop their creativity. Howe et al. (2022) evaluated the influence of open-ended vs closed-ended toys on children's imaginative play. They discovered that open-ended toys, which stimulate divergent and convergent thinking, imagination, and problem-solving abilities, are especially significant in boosting children's play and learning. Kiewra and Veselack (2016) found that open-ended natural materials provided many problem-solving opportunities for children because materials from nature were not uniform and had no definite function. Natural materials may facilitate trial-and-error explorations, beneficially impacting children's cognitive growth by igniting imagination, creativity, and inspiration for further exploration and learning (Bairaktarova et al., 2011; Kiewra & Veselack, 2016).

According to Änggård (2011), loose parts allow children to build their play experiences based on their ideas and aims rather than having the play dictated by the materials or environment. One of the trademarks of the creative process is playfulness in dealing with ideas. It enables innovators to imagine a different future without being bound by how things have always been (Starko, 2018).

The following studies support Nicholson's theory of loose parts. Bird (2007) found that natural landscapes have vast open green areas for activity and can foster more creative and adventurous play than urban settings devoid of natural features. Another study by Maxwell et al. (2008) examined how playground characteristics influence children's play behaviors and found that children used loose parts for constructive and dramatic play games. They added loose pieces to the playground that could be used to construct structures, and they studied how children play before, during, and after the intervention. In the playground areas where the loose parts were scattered, constructive play activity improved. The children used the settings they created for dramatic play. Complex construction boosts children's understanding of space and size while encouraging creativity.

According to one study (Miller et al., 2013), organic shapes of natural materials stimulate children's creativity and critical thinking, while non-standard forms help children establish visual comparisons. The same study concluded that open-ended resources in nature classrooms activate children's creativity and intellectual curiosity, stimulate their senses, and kindle their enthusiasm for learning since learning is personally relevant. The loose part theory suggests that nature school is the ideal environment if we want the children to be more creative.

3 CREATIVITY IN OUTDOOR EDUCATION

Following the discussion on the theoretical frameworks that informed this study, in this section, I delve into how nature fosters creativity. Subsequently, I discuss the study's setting, where I elaborate briefly on the history and practices of nature schools in Finland.

3.1 Nature as a resource for creativity

Understanding some significant theoretical perspectives used to comprehend how outdoor education programs may achieve their purposes is crucial. The "nature is good" theory assumes that being in nature benefits one's soul, and it is ingrained in many outdoor education ideas. According to experts, nature can bring enjoyment, learning, personal and societal growth, and therapeutic results (Kaplan & Talbot, 1983; Miles, 1987). The value of being outside has been shown by research, especially in young children and even in young adults. Daily outdoor engagements' reported advantages include fresh air, vitamin D from sunshine, physical relaxation, recovery, general activity, and motor growth (Bilton, 2010). Green spaces are therapeutic, and they aid in attentional regeneration and the reduction of mental exhaustion (Kaplan, 2001). Furthermore, natural landscapes and mutual interactions with nature, in terms of social well-being, offer opportunities for social contact and strengthen connections between families and societies (Dinnie et al., 2013).

In his influential book, the *Last Child in the Woods*, Richard Louv (2008) coined the term nature-deficit disorder—the condition in which children today lack time to connect with nature, holistically harming their physical and emotional development. Drawing from the Biophilia theory (Wilson, 1984) that emphasizes human's intrinsic connection with nature, Louv (2008) argues that bringing children outside can help them in their creativity, independence, self-confidence,

and even growing to be adults who care about the environment. He also pointed out that nature inspires creativity in children because nature requires the full use of the senses. However, children today have greater access to highly stimulating technology, which causes them to prefer screen time over outdoor play (Kim, 2011). As a result of global technical advancements, we now have more reasons to be indoors rather than to go outdoors and get connected to nature (Biddle et al., 2004). According to the psycho-evolutionary theory, cultural evolution outpaced genetic development, resulting in humans not being best equipped for urban living patterns (Gullone, 2000; Maller et al., 2009). Therefore, from a psycho-evolutionary or sociocultural perspective, as a social alternative, outdoor education has arisen to help alleviate the symptoms of nature-deficit disorder (Neill, 2008).

In Cobb's study, Chawla (2015) noted that after reading 300 childhood autobiographies of creative people, she concluded that this childhood sense of interaction with the outside world acts as a wellspring of adult creativity. The natural world is a rich source of inspiration for the imagination. It encourages creativity and innovative initiatives that combine cognitive and creative aspects of children's thinking. According to Beard and Wilson (2006), experiential learning is as much about observing and reflecting as it is about acting, and the outdoors are excellent locations to hone observational and sensory abilities. Outdoors, in contrast to the predictable paths, regular lighting, and regulated temperatures of the inside, a broader spectrum of sensory stimulation happens (Olds, 1987). According to Louv (2008), children are drawn to the rough edges of parks, ravines, rocky inclines, and natural vegetation. He said that when a park is graded to make a playing field, they gain soccer capacity but lose locations for self-directed play. Drown (2014) emphasized the constantly shifting seasons and other changes in nature, arguing that changing seasons on a traditional playground can limit children's participation in specific types of events; however, a place of play with soil that turns to mud or deciduous shrubs that turn red in the autumn facilitates for more creativity. Oppezzo and Schwartz (2014) discovered that walking, particularly walking outside, improved creativity among college students. Nature is considered an enriching setting in which children can learn from various activities that combine abstract reasoning with physical activity and support emotional well-being (Bowler et al., 2010; Fiskum & Jacobsen, 2012).

According to Chawla (2015), access to natural spaces is vital for healthy child development because it provides more opportunities for children to experience competence in various developmental activities. Places containing soil, sand, water, and flora provided more flexible aspects that allowed children to "interact" with the environment in engaging sensory ways than any other site. If nature is essential in our children's development, there is a great need to learn how to engage them in exploring and enjoying nature. Research at the University of Texas discovered that because of natural materials and spaciousness, outdoor spaces can have a higher influence on symbolic play than inside ones (Shin & Frost, 1995). The notion that being in nature nurtures imaginative play is also supported by much research. According to a survey of natural kindergartens (Alme & Reime, 2021), the ambiguity of nature, changing seasons, weather conditions, and a lack of manufactured toys encourage children's imagination. Early pretend play in school-aged females predicted divergent thinking and arithmetic success four years later (Wallace & Russ, 2015). Another study (Honig, 2016) affirms that outdoor environments provide various pretend activities.

Family indeed influences children to go outside, but schools can also have an impact. Children spend 20,000 hours in mainstream education over the course of their lives (Sjöblom & Svens, 2019). Given this lengthy period, school plays a vital role in ensuring that children are raised in an environment that promotes intellectual, physical, emotional, and social development. Being in nature in outdoor education is critical to achieving these goals (Sjöblom & Svens, 2019). Because of the growing interest in the connections between nature, schools, and learning, researchers have conducted studies on the benefits of engaging children in "the outdoor classroom" within an educational setting. Benefits include increased concentration, motivation, and physical activity levels (Rickinson et al., 2004; Muñoz, 2009).

In their qualitative research study concerning how natural outdoor classrooms support preschoolers' creativity, Kiewra and Veselack (2016) found four significant ways that natural outdoor classrooms support children's creativity and imagination. First is predictable space, wherein children are allowed to spend regular daily time in a predictable outdoor environment; they become comfortable and familiar with it, allowing them to explore their own ideas confidently. Second, extended blocks of interrupted time. Children needed enough time to immerse

themselves fully in their experience. More extended periods of time allow children to reflect on their actions, consider and test solutions to problems, and build more elaborately. The study discovered that the longer children had to engage, the more engaged they were with the materials and each other, and plenty of time to play encouraged them to think creatively by creating play scenarios. Third, there is an abundance of natural open-ended materials to use. Nature materials were not uniform and had no fixed function; open-ended natural materials allowed for a lot of problem-solving. Children needed time to play with materials, investigate their properties, and create and experiment with new functions—lastly, observant and caring adults. A caring and observant adult encourages children to think for themselves, solve their problems, come up with solutions, and invent new ways to use materials.

According to research, nature-based playgrounds and unsupervised outdoor activities encourage more complex forms of play and increase creativity, imagination, and learning (Dowdell et al., 2011; Tremblay et al., 2015; Zamani, 2016). In another study conducted in a Norwegian kindergarten, nature's open, ambiguous, and fluid character creates a dynamic space for children to be inspired, involved, and included through play and everyday life, resulting in the stimulation of creativity, responsibility, and generational interdependence (Alme & Reime, 2021).

Silverman and Corneau (2017) analyzed interviews with outdoor education teachers and found that the active outdoor aspect contributes to students' learning of other subjects. Literacy, for example, is readily linked to environmental education. Outdoor activities can help students improve their reading, writing, and vocabulary. Most of the teachers polled agreed that including time outside the classroom improves students' awareness of ecosystems and cultivates life-long dispositions such as scientific curiosity, convergent and divergent thought, and creativity. Visual and performance arts are also readily integrated into outdoor education. "Critical place-based pedagogy provides possibilities for art teaching and learning that are open to the ecology of local communities," according to Graham (2007, p. 379). In regular schools, subjects and learning are frequently compartmentalized. A 'boxed' curriculum may be the consequence of standardized testing demands, a tradition of teaching primarily via disciplines, and a fear of the unexpected (Silverman & Corneau, 2017). As a result, educators

must comprehend the effect of a lack of outside time on a child's growth (Silverman & Corneau, 2017).

Dyer (2007) believes that children living anywhere across the globe should enjoy a childhood marked by companionship, adventure, joy, and beauty. To thrive and develop holistically, children must spend regular and prolonged periods outdoors in a natural environment (Knight, 2016). However, the ability of younger generations to engage with natural areas in daily life has declined, and the general Western trend has been a move away from casual nature-based play and toward scheduled, coordinated, and adult-controlled events, which often take place in purpose-built facilities (Skår & Krogh, 2009). Children are deprived of practice in conflict resolution, gross and fine motor skills, and creativity if they do not have enough opportunities to play (Singer & Singer, 2005). To address this challenge, educators can support creativity in young children by encouraging flexible thinking and wide-ranging play experiences (Kiewra & Veselack, 2016).

3.2 Outdoor education in Finland

Over the last four decades, environmental and sustainable development education have gained traction in traditional, informal, and non-formal educational settings (Rickinson et al., 2009). Environmental Education (EE) is defined by Palmer and Neil (1994) as education that fosters environmental knowledge, comprehension, and the skills required to achieve the understanding of the environment; where learning takes place in nature, teaching takes place in or from the environment and lastly, education for the environment to promote nature conservation and sustainable growth.

The concept of nature schools in Finland (Finnish *"luontokoulu"*; Swedish *"naturskola"*) originated in neighboring Nordic countries. In Danish literature, they often call nature school a Forest School. Finnish Nature School is similar to "Udeskole," a Danish outdoor learning practice. In Udeskole, teachers use the local environment to teach specific curriculum subjects. For example, they measure and calculate the volume of trees to help children understand mathematics. The primary goal of nature school education, according to Aarnio-Linnanvuori (2005), is to familiarize students and educators with natural phenomena and to expand educational activities in nature. This makes sense,

given the fact that over 75% of Finland's land area is forested. Furthermore, "Everyman's Rights" (*jokaisenoikeudet*), a Finnish legal concept, grants everyone the right to enjoy the Finnish countryside freely, regardless of land ownership. This law makes it easier for schools to extend their classrooms outside. Using nature as a classroom is good for creativity, according to Chawla (2015), because natural environments may encourage children to engage in more imaginative play than built environments devoid of greenery.

Furthermore, one major purpose is to raise environmental awareness and interest in nature and promote a responsible way of living. Nature is viewed at nature school activities not just from the standpoint of natural science but also from an interdisciplinary and imaginative approach. Nature school education includes a great amount of activity and many learning methods. Various senses, adventures, and fairy tales are incorporated, particularly in programs intended for younger students. The older students can work more freely and on their own initiative (Aarnio-Linnanvuori, 2005). Nature schools provide educational programs with a variety of subjects. The nature of the school day is a unified entity that does not include individual classes. In education, the contents of many topics are blended (Aarnio-Linnanvuori, 2005).

According to the Finnish Association of Nature and Environment Schools (n.d.), nature schools offer pedagogical day programs for groups from regular schools, kindergartens, and teacher training courses. They also organize and develop the LYKE-network[1]. On a local level, the network provides environmental education services to schools and kindergartens. According to the official website of The Finnish Association of Nature and Environment Schools, the network now has 57 centers. The Ministry of Environment and the Ministry of Education and Culture provided resources for the network's construction. Much of the teaching and learning occur outside, and these concepts are often promoted in Finnish Nature School: Sustainability, interest in nature, and environmental sensitivity (Sjöblom & Svens, 2019). Basic education recognizes the importance of sustainable growth and ecosocial awareness and potential, adheres to their values, and leads students to pursue a sustainable way of life (FNAE, 2016).

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[1] The acronym 'LYKE' comes from the Finnish words for nature (*luonto*), environment (*ympäristö*) and sustainable lifestyle (*kestävä elämäntapa*).

According to the National Advisory Committee on Creative and Cultural Education (NACCCE, 1999), an environment that can stimulate creativity can be described as a place with various viewpoints, experiences, engaging materials and resources, and a relaxed atmosphere that encourages unique ideas. Following NACCCE's description, nature schools in Finland can be a potential environment that can promote creativity in children.

Though nature teachers can create their own program, it should be based on the Finnish national curriculum. Together with the regular school teacher, the nature school teacher, who is also a qualified teacher, leads the teaching during the nature school day. They all work closely together when it comes to planning and collaboration. It is important to note that school teachers in Finland have the autonomy to decide if they want to bring their class to a nature school, which also depends on the availability of the nature school. Since nature school teachers lead the nature school sessions and school teachers have the autonomy to employ nature schools, both teachers' perceptions and attitudes toward creativity and nature's role in supporting it are crucial.

4 AIMS AND RESEARCH QUESTIONS

This research explores teachers' perceptions of creativity and how nature school supports children's creative processes while in nature school sessions. According to Bruner (1996), a teacher's perception of a learner impacts their instruction. Since nature school is led by a nature school teacher with the help of a school teacher, it is fitting to investigate their perception of how they view creativity being supported in nature school sessions. Gaining a precise comprehension of teachers' perspectives on creativity is crucial to successfully implementing creativity within the classroom environment (Skiba et al., 2010).

It is easier to focus on finished art products and assume that creativity is being promoted automatically. Albert (1990) acknowledges that utilizing creative products as a starting point for studying creativity is inaccurate and instead advocates focusing on creative processes. Therefore, in this study, creativity is approached as the sense of creative behavior and creative thinking rather than just focusing on a creative product. I will investigate how teachers perceive children being supported in their creative skills, that is, creative thinking, behavior, and actions, while they are in nature school sessions.

This study will focus on teachers' views on nature school as an environment that promotes creativity in children. The research questions are:

1) *How do teachers understand the concept of creativity?*
2) *How do teachers describe nature school as an environment promoting children's creative thinking, behavior, and action?*

Understanding the perspective of the teachers about creativity is vital to this study because, according to Kampylis et al. (2009), teachers play an essential role in the development of children's creativity as they act as role models and mentors and spend a significant amount of time with students. As stated in the introduction, creativity is in great demand and has spread beyond the world of the arts into business, industry, and even economics. However, as Claxton (2002) contends, concepts of creativity may be loosely applied to comprehend the

33

mundane and dull. To explore how creativity is nurtured in the classroom, understanding how instructors view creativity is critical.

Robinson (2011) offers an insightful comment, stating that supporting creative learning in schools primarily depends on the teacher and that teaching should be regarded as a creative profession. Moreover, fostering creativity is essential to education and should be a guiding philosophy for all teachers (Cropley, 2001). Focusing on research question 2, this is equally crucial because Beghetto and Kaufman (2010) and Beghetto and Plucker (2006) assert, as stated earlier in the introduction, that teachers who understand the nature of creativity can avoid negative preconceptions and misconceptions about creativity and, as a result, make an effort to incorporate creativity into their curriculum.

5 METHODS

This section outlines the study's research strategy, methods, and processes. Specifically, I will present a summary of the research framework I carried out in my investigation: qualitative research, semi-structured interviews, and thematic analysis. I will explain and justify my decision to use these analytical tools and techniques to study creativity in nature school sessions. Lastly, I will share my background as a researcher for this topic and discuss ethical considerations that arose during the research process.

5.1 Research approach

This study intends to explore and understand the experiences and opinions of teachers regarding their views on nature and environmental schools as environments that promote creativity in children. As such, I employed qualitative research methodology in the conduct of this study. A qualitative approach to research is often used when exploring or describing a phenomenon or when trying to unpack the meanings people ascribe to a particular event or situation (Leavy, 2020). This research approach is well-suited to address my objective, as it allows for in-depth exploration of teachers' perspectives and experiences in a holistic manner. Moreover, qualitative analysis strives to enrich the understanding and insights concerning the research questions presented in this study. My research data relies on subjective and unstructured information from the research participants. I designed this research as a qualitative study because the perspectives I will collect are open-ended and experience-based (Creswell, 2008).

5.2 Snowball sampling

In this study, I used snowball sampling to recruit my research participants. According to Creswell and Poth (2018), snowball sampling "[i]dentifies cases of interest from people who know people who know what cases are information-rich" (p. 225). I chose this sampling method since there are few nature schools in Finland. Snowball sampling is typically employed in situations where the population size is extremely limited or when the target population is concealed or challenging to access. This method, also known as network or chain referral, is useful when there is a lack of access to an adequate number of individuals who possess the desired characteristics (Li et al., 2019).

I decided to identify a small number of individuals who would have the characteristics in which I am interested. Afterward, I included regular school teachers and asked if they could also suggest other people who could likely be key informants for my study. In qualitative research, sampling must be intentional (Creswell, 2013). After considering several factors in the conduct of my research, I designed the study to have six research participants only—three nature school teachers and another three regular school teachers—as the sample size.

5.3 Participants

The participants were three nature school teachers and three regular school teachers. Two teachers had less than five years of teaching experience, two had five to nine years of experience, and two had more than ten years of experience. In this study, my research participants were carefully selected as to who can best provide thick descriptions on the topic of creativity in a nature setting. I decided to include regular school teachers and not just nature school teachers because they have experience with how the children behave inside the classroom and outside with nature during outdoor activities. Comparing these experiences both inside the classroom and outside the classroom can help to see the difference between the two settings. Also, since nature school teachers and regular school teachers are both in a nature school session at times, it is fitting to also get the perspective of a regular school teacher who is with the children not just when they are in a nature school session but when they are in longer normal school time.

The names and identities of the participants were altered to preserve confidentiality, meaning all names used are fictional. The study's essence comprises the primary data collected through a semi-structured interview of the six research participants. Semi-structured interviews were conducted to facilitate open-ended questions to explore their thoughts further.

5.4 Semi-structured interview

As the goal was to explore the lived experiences of teachers and their perceptions of creativity, I chose the method of interviewing individuals to provide empirical data. Specifically, I utilized the semi-structured interview technique for data collection. I chose semi-structured interviews as a data collection method because they provide flexibility for exploring important angles and allow the interviewer to be an active knowledge producer, fostering a more dynamic dialogue compared to rigid interview guides (Leavy, 2020). I prepared a list of questions or topics in advance but also asked additional questions, delved deeper into responses, and adjusted the conversation based on what the respondent shared. Through the use of semi-structured interviews, participants have the freedom to provide their responses in an unrestricted manner or without limitations imposed by the nature of the questions (Cohen et al., 2011). Overall, this approach encourages a more flexible and open conversation, allowing the interviewer to explore the respondent's viewpoints, experiences, and insights in greater depth.

Brinkmann and Kvale (2015) define qualitative research interviews as "attempts to grasp the world from the participants' point of view, to unfold the significance of their experience, [and] to reveal their lived reality" (p. 3). In examining the research questions, *"How do teachers understand the concept of creativity?"* and *"How do teachers describe nature school as an environment that promotes children's creative thinking, creative behavior, and creative action?"* I developed a semi-structured interview questionnaire that attempts the following: 1) identify the teacher's perspective about creativity, 2) uncover participant's experiences in nature school that relates to creativity, and 3) know children's creative thinking, creative behavior, and creative action as observed by the

teachers. The interview guide represents the basic set of open-ended questions that I planned to ask each research participant.

In this study, I seek to investigate the teachers' perceptions of creativity and ways in which nature can support pupils' creative processes when they engage in learning in nature schools. As such, I created an interview guide (see Appendix 1) based on my research questions. I made two similar interview guides, one for nature school teachers and one for regular school teachers. Except for one question about the difference between outside and inside environments for regular teachers, all of the questions are similar for both nature school teachers and regular school teachers. The questionnaires have two parts. The first set of questions focuses on teachers' perceptions of creativity, while the second set of questions focuses on teachers' perceptions of children's play imagination and how they observe creative thoughts, creative behavior, and creative action.

This study's theoretical framework informed the formulation of questions in the interview. The first part of the questionnaire was about the perception of teachers about creativity, which attempts to answer the first research question of this study. Since both Dewey and Vygotsky believe that social experiences are linked to children's creativity, I included questions about teachers' perceptions of creativity, and then I asked them to give examples followed by their perceived roles in children's creativity. I also included questions about the possible obstacles and ways to improve children's creativity within the settings.

Lev Vygotsky's theory of collective creativity begins with imagination and is strongly tied to a person's experience and surroundings; thus, I inquired whether imaginative play happens in nature schools and how it occurs. Additionally, considering the emotional aspect of Vygotsky's collective creativity theory, I included questions about how children express curiosity and how they explore and experiment in nature schools. Furthermore, taking into account Nicholson's loose parts theory, I explored questions that can inform me about the loose parts of nature that children utilize in their play in nature schools, like the most common loose parts that children play with and how they play with them.

In the latter set of the questionnaire, in addition to the theoretical framework, I considered the three dimensions of creativity by Nolan (2002), which he referred to as creativity skills. The questions seek to discover how teachers perceive creative thinking, behavior, and action in nature schools and whether exposure

to nature schools fosters creativity in children. This is significant because, in the end, the teachers in the setting encourage or hinder children from behaving creatively. Considering Nolan's (2002) three skills of creativity helped narrow down the questions in my questionnaire, resulting in straightforward, focused interview questions that directly answer my study questions.

5.5 Procedures

I was granted a research permit to conduct research in one city in Finland. After determining my method and sample size, I then proceeded to plan how to conduct the research. I started my recruitment for potential participants by first asking school teachers that I personally know at one of the comprehensive schools in Finland. I also sent emails to nature school teachers. Second, I shortlisted and finalized my research participants. Each respondent had the option of choosing the location and time of their individual interview. From May 1 to June 5, 2023, I recruited and interviewed three nature school teachers and three regular school teachers. Four respondents were interviewed via Zoom, and the other two via face-to-face meetings. Before the interview, all were sent an information sheet (see Appendix 2) and asked to fill out a research informed consent form (see Appendix 3). On the day of the interview, I explained the study's purpose, the interview's structure, the management of their responses to the questions, and the procedures we are to observe throughout the research. Before and after the interview, I stressed that all the information, recorded or written, is confidential and kept private. Because the interviews were semi-structured, other or extra questions not on the list were also asked based on the topic and the flow of the discussion.

5.6 Data analysis

In this study, I employed thematic analysis as the data analysis method. Initially, I used a deductive strategy, using predefined themes aligned with the theoretical framework to derive insights from the data. However, alongside this deductive approach, I also incorporated an inductive method to explore emerging topics crucial in addressing the research inquiries. I transcribed all the data from the

interviews verbatim. I did the transcriptions manually by listening to the audio and/or video recordings several times. After the transcriptions were done, all the video and audio recordings were destroyed. Through repeated listening and reviewing of the transcriptions, I carefully identified essential points and made a list of emergent themes that authentically reflected the interviews. Ultimately, these themes were systematically organized in preparation for data analysis.

According to Creswell (2013), there are three aspects of data analysis in qualitative research: (1) arranging the data, (2) categorizing the data, and (3) representing the data in a discussion. To analyze my data, first, I examined the data for broad themes by transcribing the interview audio data to text. Building on the data I gathered from the research questions, I go through the data (e.g., interview transcriptions) and highlight significant statements, sentences, or quotes that provide an understanding of how creativity is supported in nature school settings. I followed the most common thematic analysis steps Braun and Clarke (2006) described. First, I familiarized myself with the data as I transcribed and read the interviews. Then, I decided on the theory I used and identified the main themes of the theory. I then identified keywords or codes based on the themes; I categorized the codes based on my themes, reviewed them again, defined them, and finally wrote reports about them.

Creswell (2013) contends that data gathering, analysis, and report writing are inextricably linked and frequently occur concurrently. While writing the results, I went back many times to read the literature review of this study and the theoretical background, ensuring that the theoretical framework backs up the themes I generated.

5.7 Role of researcher and ethical considerations

This study adheres to the National Advisory Board on Research Ethics' ethical guidelines. Before collecting data and recruiting participants, a signed consent form was obtained. The procedure ensured that the participants were willing to take part in the study. The informed consent summarizes the proposed research by stating precisely what the participants will do—the consent form needed to be written in an easy-to-understand and comprehendible manner. Participants' benefit or harm were considered, and their confidentiality and privacy were

protected. Participants were informed that they could obtain a copy of the interview if they so desired. The consent form specified how the data will be stored and used and who will have access to it. All research data were kept on a secure server. Furthermore, all data files were designated with a code that cannot be traced back to any single teacher or student, and analyses were carried out with codified data that lacks identity information. Lastly, no data containing identifying participant information was published or presented.

Though my experiences in education have given me insights into how children play both within and outside of a regular classroom, I recognized that I might have preconceptions as a researcher of this study (i.e., it is possible to have similar thoughts, values, and beliefs with the teachers). As a researcher, I acknowledge the challenge of separating myself from the process of meaning-making and identifying the core elements of the study because I am actively involved as both a participant and contributor in the research. Despite aiming for neutrality and attempting to distance myself from the participants' experiences, I find it difficult to completely set aside my own perspectives when discussing the research topic. Nevertheless, being mindful of my own background and preconceptions or biases regarding the subject was done diligently during data gathering, data analysis, and report writing through critical self-reflection or reflexivity.

Students experiencing outdoor education in a nature school in Finland.

6 RESULTS

This section summarizes the findings of the study data as well as the significant emergent themes. To recap, there are two research questions that this study wants to find out. The first part answers the question about teachers' perception of creativity. The second part answers the second research question, which describes nature school as an environment promoting children's creative thinking, behavior, and action, as reported by the teachers.

6.1 Teachers' perceptions of creativity

I started each interview by asking the participants about their definition of creativity and if they could think of an example to explain their view further and the role of creativity in children. I summarized my findings into two descriptive categories: (1) Creating something new and different from their own ideas and expressing that idea through imaginative play, and (2) Creativity is solving problems by thinking outside of the box.

6.1.1 Creativity is creating something new as self-expression

Four out of six participants viewed creativity as self-expression through using one's thoughts, combining elements, and making it into something new or different product, behavior, or concept to express themselves. Maria highlighted that she sees creativity in children in their thoughts when they express their own ideas through play. Maria commented:

> *Often, creativity is only linked to arts and music, but for me, it's more than that. I see that creativity occurs best in children's play and when they express themselves. In the play, children often get to decide for themselves and actively build what happens. In the play, children can deal with issues that concern them and try different scenarios safely. In my opinion, expression is, for example, pictures, bodily, verbal, and musical. I mentioned play because it is a central form of activity in all early childhood education activities, or at least it should be. In my activities as a teacher, it is always highlighted. In the*

play, children often get to decide for themselves and actively build what happens.

Maria explained that creativity is essential to children's expression since imagination and fairy tales live deeply in children and influence their actions in many ways. According to her, children can safely experiment with diverse settings and cope with issues that worry them while playing. Similarly, Anna reported that creativity is essential because, in a world of academics where kids do the same activity as others, creativity allows them to express themselves by creating something different. She also highlighted that creativity stimulates children's minds. When children are given a task, they can utilize the materials and develop their personal interpretations when given resources, and they do not need to be all the same as the rest.

David further commented that he considers a link between self-expression and self-esteem. He observed that the more children express their creativity, the more they become confident in creating different things. They make something out of their play; it can be art, free play, or some exercises where they have to devise their own idea to solve it. Similarly, Maria and Sarah described children's creativity as natural when they are born, as most evident in their play and when they express themselves. For Sarah, creativity is part of children's play and comes naturally with them. Sarah explained:

> *I think it is natural for children as they have it in them when they are born; they use it naturally; for example, when they play, they all the time invent new things and are creative and like they have imagination. They create new and different elements in their play. So, I think for children, it comes naturally. It's in them.*

The perception that creativity can be seen in children's personal expression is in line with Beghetto and Kaufman's (2007) mini-c, which they described as a novel and individually meaningful interpretation of experiences, practices, and events. This is similar to Vygotsky's view of creativity, wherein creativity has resided in children since birth, and that imagination was regarded to be a crucial component of creativity because of its ability to aid in the production of innovative combinations of pre-constructed elements.

43

6.1.2 Creativity is thinking outside of the box

Three of six teachers illustrated creativity as being flexible and finding different solutions to problems. These teachers surmised that creativity helps children think actively if they find solutions to different issues, and that helps their brains develop. Joanna mentioned:

> *It's important that they have the creativity to think outside of the box and also nature problems that we have today; they are still driving to the future, and as the decision-makers of the future, they (children) have to think of something else how to tackle those, and that's why we need them to have creativity to think differently.*

Moreover, Ellen emphasized the significance of creativity in expanding children's perspectives and problem-solving skills. She broadened the concept of creativity beyond traditional activities, highlighting its role in finding diverse solutions for various situations. Ellen stressed, *"Creativity is far beyond only like being creative like you are able to do crafts or music; it's also like how you can find solutions for different situations. Throwing questions promotes active thinking."* Additionally, she lamented the declining trend of active thinking among children today, attributing it to the prevalent use of electronic devices. Ellen noted, *"You have to promote creativity; I think it has, like nowadays it has got weaker, children aren't that creative any more than they used to be; I can't say why, probably because of these electronic devices that they don't really have to think actively."*

Likewise, Joanna explained that if a child is bored, it makes this child think more actively, and by thinking actively, children's brains are being used and developed. Joanna pointed out that creativity helps children perceive that something is not just one-sided and that there is more than one answer to a question or problem. This is essential because it makes them think actively. Joanne described how she views creativity:

> *I don't do any art here, but creativity is what we do out here outdoors; we do different kinds of methods, and we want them to learn and be excited; when we go outdoors, we will discuss this one phenomenon, for example, lights. In different ways, what do lights affect us? We have this lovely game about photosynthesis, of course, and then we think about what dark time in Finland is for plants and animals and how it affects us. I believe creativity becomes for this phenomenon-based learning, that we combine every school subject, and once in a while, some students realize that, "Hey, now we have math," they are thinking differently. They are thinking outside of the box.*

Joanna emphasized the link between thinking creatively and venturing beyond conventional approaches. She highlighted the encouragement of creativity in nature schools through a phenomenon-based learning method, stating, *"It is something new, and that is why they are very interested in that, the sense of new things, so it enhances the creativity of children here (nature school) because it is so different from the method they use in school most of the time."* Expanding on this, Joanna underscored the significance of experiential knowledge gained outdoors beyond what books offer. According to her:

> *Knowledge is good, the knowledge you can also get from books, but the action happens when knowledge also is happening outdoors, and it's not like they can learn what is behind that one phenomenon and what is behind that, what occurs outdoors what happens in everyday life if we do for example recycling, why do we recycle? of course we know the knowledge of that but we also know what can happen if we do this and this. We can create because we have this phenomenon-based learning, and I think that is why they can understand that this is combined with the nature we learn in the math lesson, for example.*

6.2 Children's creativity in nature school

After describing the teachers' perceptions of creativity, each participant was asked questions about children's creativity in nature school. I summarized my findings into eight descriptive categories, namely: (1) Using the senses, (2) Imaginative play, (3) Free play, (4) Questioning and reflective practices, (5) Nature and positive emotions, (6) Open, flexible, and risk-taker teachers, (7) Loose parts of nature and constructive play, and (8) Teachers and open-ended play.

6.2.1 Using the senses

According to the findings of this investigation, teachers' responses illustrated that students can be more creative outside because they have more opportunities to use all their senses. Four of six teachers reported that being in nature helps children become more creative because their senses are often stimulated outdoors. They noticed that children can learn more by seeing, hearing, smelling, tasting, and feeling. From the data, I recorded two to three activities in which children used the different senses. There are five generally mentioned senses:

sound, smell, sight, touch, and taste, but there are others: mechano-receptors improve balance and speed, intero-receptors sense blood pressure and oxygen content, and temperature and pain receptors exist (Beard & Wilson, 2006).

Anna highlighted the contrast between traditional classroom learning with books and videos and the immersive experience nature offers, where children engage with their senses. For her, nature offers a visual aid that encourages children to touch, see, and even hear it. Similarly, Sarah reflected on the conducive environment of nature schools for fostering creativity, noting, *"In nature school, it's somehow easier to be creative when you don't sit at a table; when you move, you use all your senses, your eyes, your nose, and so on; it also creates creativity when you are outside moving, experiencing with all your senses."* David expanded on this, emphasizing nature's abundance and variety as a catalyst for creativity, saying, *"Nature is trusted and full of stuff compared to the classroom. For example, there's so much material to play with, experiment or build. Also, there's so much stuff to see, hear, feel, and smell, boosting your creativity. Children actively and happily use all their senses."* Interestingly, Maria recounted an instance where children keenly observed natural phenomena in nature school. She shared:

> *Once, when we were in the forest at dawn, we were singing some song when a woodpecker flew into a tree. One of the children noticed the dart and pointed at it. We finished the song and watched the woodpeckers together. We learned its name and googled what it eats, et cetera.*

As the teachers revealed, nature school sessions allowed children to see, hear, smell, touch, and sometimes even taste different loose parts of nature. Using the data gathered through the interviews, and I recorded the children's activities in nature school in Table 1, wherein they use their senses.

Related to the topic of senses, another teachers' insight highlighted children's appreciation for the tranquility or silence found in nature school sessions. For instance, Joanna emphasized this need to be in nature once in a while amidst the school routine, stating:

> *When we get feedback like, "It's so lovely to have silence," I think it's good for many of those children because they don't get that silence during the school day. In every school building, there is a lot of noise; when we go into the forest, there is complete silence; once in a while, the children say, "Wow,*

this was lovely. I like that!" So I think that also produces creativity that they got to be still once in a while.

Joana said that many children attending the nature school commented that they liked the silence in the forest. Joanna surmised that children need silence occasionally to promote creativity because school buildings are full of noises everywhere, and being in the forest helps them recover from sensory overload.

TABLE 1. Nature activities and the senses utilized

Senses	Recorded activities in nature school sessions
Sight	▪ Seeing beautiful nature inspired them to write a poem ▪ Observing birds, ants, spiders, or beetles
Hearing	▪ Creating music by hearing some sounds in nature
Smell	▪ Doing the ant test by brushing the hand just outside the ants and smelling the acids
Touch	▪ Picking blueberries, or pinecones ▪ Constructing things out of hays, sticks, snow, and rocks ▪ Experimenting if the ice is slippery or if we can break it ▪ Splashing water, trying to direct it somewhere else, or creating a stream
Taste	▪ Tasting different berries and some herbs like *oxalis accusatella*
Balance	▪ Putting a wood file and letting the children balance on it

6.2.2 Imaginative play

Four of the six teachers acknowledged that loose parts from nature encourage children to play creatively, showcasing imaginative and other varied play types during nature school sessions. Ellen specifically outlined how the children demonstrated imaginative play in the nature school session. According to her:

> *When they are waiting in the fire for the sausage, they started to play this kind of war, and in the end afterward also, they have these own imaginary games going on and kind of some kind of drama and it's an age where they still need and like to play a lot, even first grader and second graders.*

Teachers described the children's imaginative play wherein they assumed diverse roles through their words and actions, and some children made visuals

or invented games to depict their experiences. Most of the pretend play scenarios reported by the teachers were child-led and utilized natural materials, such as sticks, branches, rocks, and water, in nature school sessions. Another example of imaginative play is children's tendency to doodle and make up stories. This is present with the observations made by the teachers in this study about children making up stories while they are in nature. For instance, Maria described the difference between a typical classroom and a nature school environment when it comes to promoting imaginative play:

> *Inside a kindergarten or preschool classroom, for example, children often play with toys exactly as they were designed: driving a car, or caring for a doll. But in nature, there are no ready-made toys or ready-made tools for working with art, in which case children invent them by themselves. In nature, children are allowed to build scenery for play, such as huts, houses, police stations, shops, et cetera. Inside, adults often forbid children from making a mess.*

The data from this study suggest that nature school supports imaginative play through the presence of loose parts of nature. Table 2 shows some of the examples provided by the teachers in the interview.

TABLE 2.   Nature loose parts and imaginative play

Materials in nature used	Imaginative play scenarios
Branches	▪ Used as fishing rods, and children are fishermen
Big rocks	▪ Used it to hide and imagine things coming out playing cowboys
Sticks	▪ Used in war games, sticks as guns, and weapons from video games ▪ Used in different situations: can be horses; sticks can be dolls, phones, and pens; pretend campfire out of sticks
Water	▪ Used to pretend in cooking like making soup ▪ Used as a currency to fight in more stealthy games, to protect, or to steal from enemies

6.2.3 Free play

Five out of six teachers highlighted that nature as an environment promotes freedom in children's play, and that helps them to express their creativity. Findings suggest that teachers allowed messiness and children to talk freely outdoors. In contrast, inside a regular classroom, they are bound by rules like not much talking inside or not messing around. Teachers do not allow children to play freely because of the noise level and for the potential chaos and mess they can create. The data showed examples of children working in groups and chatting more in nature school sessions because they can be louder outside and see loose parts of nature materials that interest them, so they play with them and talk about it with their peers and teachers. Moreover, in nature school sessions, besides playing unstructured and structured play, children also have a chance to eat together in the forest.

Teachers also observed fewer conflicts and issues during nature school sessions, attributing this to the expansive outdoor environment that fosters collaborative play and communication among children. The bigger the space, the more opportunities for children to play together and have conversations. Maria highlighted this aspect, stating:

> *Inside, adults often forbid children from making a mess or at least ask them to clean up their structures when playtime is over. In nature, the structures are allowed to stay in place". In nature, each playgroup can play in their own peace and move as much or as little as they want. In nature, there's room for everyone. The overall noise is also lower than inside. Children do not need to be pointed out if they talk loudly or squeal excitedly while playing. Inside, I would need to forbit that. I guess that's also part of children's verbal expression.*

In comparison to the structured classroom environment, nature school sessions offer a more open and exploratory setting for children, allowing them freedoms not typically available indoors due to cleanliness and noise concerns. Maria highlighted this distinction, stating, *"There is more space for children to play in nature than inside. The large space helps prevent children's arguments and issues, which often happen inside the house. Inside, issues are caused when children playing one game disturb children playing another, either intentionally or unintentionally."* Related to this, Ellen expressed the challenge of granting children free time to play nowadays. She expressed:

49

Life is so limited by time that there is no real possibility to give like children the freedom just to say, "Okay, we have the full day outside, we have lunch at this time, and I will call you and stuff like that, "of course, there's probably once in a while like that, but specifically at this school I think it was so academic that there's no possibility even to do that every time.

Aside from the fact that nature schools promote freedom in play, three teachers concur sadly that the time in nature school is too short to promote free play. However, two nature school teachers also commented that time is not a hindrance in promoting creativity in nature school if the school teachers continue bringing children outside and giving them the opportunities to play freely.

This study also reveals that as much as nature as an environment encourages play, teachers can also hinder it. Joanna commented that school teachers might unintentionally discourage it due to a lack of time or class rules:

It depends mainly on the school teacher also, how strict they want to be here in nature school, how much creativity they will let them do, this kind of creativity, for example playing knights there, because they will do that. They get their guns, of course, and it's quite nice, but it also depends on the school teacher; you have to be in line and be like this and that.

David implied that being too structured kills creativity; however, he also discussed how difficult it is to give children freedom when they disturb each other, misbehave, and use creativity in non-constructive things. David thinks structure is also needed so children do not cause too much disturbance to others, affecting the whole class's learning. David expounded:

To promote creativeness, you cannot be too structured with your teaching because telling exactly what you have to do can kill the creativeness, but then with some groups of children, you cannot really give that freedom because they start to disturb each other and behave badly, and use this creativeness to this non-constructive things. And maybe you want to give some freedom, but you cannot give them because it's too much disturbance.

Related to this, Joanna shared that the school teachers ask her to do more group activities because there is a need to strengthen the group relationship. She commented:

As a group, because they can be like cliques that don't match each other, they don't like each other, or they are not friends to each other, like these, so that is what I meant, and I think that would be what I want to enhance here, and because it would create the creativity also.

In sum, many teachers reported that they can hinder creativity by being too structured, but they also find that this is necessary to promote freedom in play. Making sure children are safe and not disturbing each other is needed in order for them to continue the nature school session.

6.2.4 Questioning and reflective practices

Five out of six teachers acknowledged the role of questioning and reflection in fostering children's creativity, deliberately prompting critical thinking by withholding immediate answers. David encapsulated this approach, stating:

> *[In nature school session] Children verbally telling different ideas and reasoning different phenomenons (sic), even though not all of them correctly, are trying to like solve like. I ask why the leaves drop in autumn, and they are trying to think usually; they say it is cold, so they drop; I ask more why they drop and why it is called like that.*

Following this thought, Maria emphasized the importance of teachers encouraging children's natural curiosity and exploration through inquiry-based learning, noting, *"Nature constantly offers new learning as long as you are ready to grasp the children's observations and questions about them."*

Teachers in the study not only facilitated question-driven learning but also encouraged students to ask questions and offer feedback throughout sessions, incorporating reflective sessions at the end of each nature school class. Ellen underscored her role in stimulating creative thinking by posing challenging questions. She recalled a science experiment on floating and sinking done in school, and at one point, they did something similar in nature school as well, where she probed the children to engage critically. Ellen shared, *"I always give them sometimes throwing questions—there was an animal, whatever—questioning them to make them actually think… That's the only support I gave, like, 'Are you sure?'"* Joanna echoed the same sentiment on fostering a culture of inquiry among her students. She said that she allows the children to ask questions so she could also think differently. She also discussed how she ensures her students are involved in their learning. Joanna pointed out the following:

As a teacher, you have to promote somehow (sic) kind of creative thinking by questioning why they think that things should be this way and not the other way, and some think of questioning them a lot also and promoting the kind of proper thinking for others. They can show creativity by asking creativity questions for us so that we can also think about some things differently than we have used to because we are here are also mostly in some kind of bubble that they live, in their work bubble, or in their personal life bubble, something like that but when some children ask some question, that we have to think about.

6.2.5 Nature and positive emotions

According to the findings of this study, teachers observed pupils having positive and pleasant emotional experiences during their time in nature school. Some of the children's emotions that the teachers reported include excitement, curiosity, amazement, and inspiration. These emotions often surfaced when children encountered something captivating or of interest. When they see something they are interested in, they show their excitement by expressing it to their teachers or their peers. Sarah elaborated on this observation:

For example, when they use the magnifying glass in nature, they explore, and they often want to show and tell like each other, the adults, the teacher, and me; they are often excited, and they want to talk about the things they find in nature, look at this I found this small thing and really interesting, nice looking or scary or something like that. I think they are really open to show and tell.

The teachers also reported that when the children are curious, they observe, focus, and ask more questions about what they see, hear, and touch. Teachers explained how the children in nature school are eager to go to the edge of the rapids or look at a scary spider or a bug because they are very curious. Engel (2011) defines curiosity as an urge to know more. One of the significant qualities of curiosity is the desire to embrace the world's wonders, mysteries, conflicts, and ambiguities. Maria's example of an amazed child who first joined a nature school class best described how emotions are linked to the behavior of the child:

The child is constantly amazed. He stays to observe the ants, notices a bird flying by, asks what the butterfly eats, asks where the rain comes from, and concludes that the wind is created by the swaying of the trees. Many of these questions the other children already know how to answer because they have thought about the same things before.

Additionally, David highlighted how children's curiosity actively engages their senses, mentioning that although they might express initial apprehension, their innate curiosity eventually drives them to explore and understand. According to him:

Children, they actively and happily use all their senses, and usually their curiosity; maybe they first say that it's scary or something, but when we actually do it, they want to look at them and see what they are doing.

Aside from seeing interesting things in nature, they are excited because they can use natural materials for their games. Joanna described how she uses feeling cards to know how the students are feeling before and after a nature school session:

I will tell them to pick one feeling card that they are feeling right now, and they should keep them in their pockets all day; just before the bus, I will give them a chance to change those feeling cards or give the same; it's the feedback of the day, its lovely to see that they will change that for example from boring to something exciting.

6.2.6 Open, flexible, and risk-taker teachers

Three nature school teachers reported openness and flexible risk-taking behavior while conducting their nature school sessions. Data in this study provided multiple examples of risk-taking behavior from teachers and students. Meadows (2006) asserts that choosing challenges, risk-taking, and the ability to confront uncertainty are valuable attitudes that can help boost creativity. Because nature as an environment is unpredictable, especially in a country where seasons change, there is always something different in the surroundings. Teachers talked about having the courage not to control the outcome of the tasks or session.

In the interviews, the teachers emphasized that they provide the pupils plenty of opportunities to take the initiative and initiate activities independently. They actively encourage students to think deeply, aiming not to limit them to a single answer but to nurture various potential solutions to problems. According to Sarah:

I think many activities in nature school, they are like planned but they are really open for creativity, children can make their own decisions about how they do a task, it's not beforehand decided, not decided the outcome to do a certain way, but they can decide themselves, no answer to it.

Sarah also highlighted the importance of allowing children the freedom to invent their own games and modify established rules, emphasizing the need for educators not to overly control outcomes but to choose exercises that offer multiple answers and approaches, thus fostering creativity. Joanna recounted an instance where children expressed a desire to approach a risky area near the rapids, illustrating the significance of acknowledging and accommodating their adventurous spirit within safe boundaries. Similarly, David shared a story from one of his sessions, describing how children engaged in experimentation, testing the slipperiness of ice, splashing water, redirecting its flow, and creating streams, showcasing their natural inclination towards exploration and hands-on learning.

6.2.7 Loose parts of nature and constructive play

All the teachers I interviewed reported that the children constructed something out of nature's loose parts while playing or as part of the nature school session tasks. The teachers noted that the abundant loose parts from nature encourage experimentation and making things using their hands. Pertaining to this, Ellen shared:

> *That probably kind of promotes creativity that they have these natural objects like stones, and sticks, or pine cones, and they kind of get inspired of doing something with those materials and not like ready-made things.*

Likewise, as Sarah commented in the interview, there is something innate in humans to pick up loose parts of nature and then create something out of them. In her own words, she described natural materials as diverse and irresistible. Some examples of natural materials the teachers gave were snow, spiders, branches, and other things depending on the season. Imagination and ideas will freely flow because there are no strict instructions they need to follow, and their ideas are equally respected in nature school. Insightfully, Maria mentioned that giving children pre-made toys or materials makes them much less likely to use their problem-solving and engineering skills. There are no ready-made toys in nature school, so children have to invent them themselves.

In sum, I compiled in Table 3 the different types of play and the creative products or actions the children made in nature school. Though the teachers observed different plays, the table shows that most of the plays described by the

teachers in nature school are constructive play using the loose parts available in nature.

TABLE 3.   Different types of play in nature schools

Different types of play	Creative activities out of loose parts of nature
Constructive play	- Huts, dens, forts, shelter making using sticks and branches - Nests for birds using hays - Constructing snowmen, snow animals, snow castles - Constructing different kinds of buildings like police stations, malls, and shops. The students created a pretend entrepreneurship village (*erituuskkuula*) - Decorating huts and dens using flowers and leaves - Making pictures with sticks and rocks or leaves on soils or sands - Water is also transported from puddles and used in games and paintings - Stocking stones to build a hut
Self-focus play	- Staring at nature, specifically river, birds
Functional play	- Hiding and climbing on rocks
Talking	- Children talking while walking in the forest

6.2.8 Teachers and open-ended play

Five out of six teachers acknowledged that their role in supporting children's creativity is providing materials and planning exercises and activities to help them think creatively. Teachers in this study hinted that if they want to promote creativity intentionally, they should plan exercises to help children develop their creativity. In describing her role as a teacher, Sarah expressed how she supports her students' creativity:

> *My role is to give opportunity to the children to be creative to practice this creativity in nature, to support them to do it and letting them get inspired by nature, of course, and doing exercises that support this and creating activities that allow them to be creative.*

In connection with this, Maria highlighted the importance of being observant in understanding children's interests. She mentioned that by closely observing their play and listening to their conversations, she could identify topics that captivate

them, allowing her to tailor activities or discussions based on their interests. Likewise, Sarah explained that through planning, she can make sure that the exercises she chooses offer space for children's creativity.

According to Banning and Sullivan 2011, teachers can provide children with necessary materials according to their interests, supporting and advancing their exploration of ideas and concerns across time. Table 4 enumerates the examples of creative actions undertaken by the students through the structured activities and the mix of natural and manufactured materials used as recorded from the teachers' interviews.

Aside from the findings that teachers need to observe children's needs and plan accordingly, all three nature school teachers pointed out that one of their roles in nature school is to inspire the school teachers to continue bringing the children to nature more often. Still, aside from that, they also want to collaborate more with the teachers because they know more about the students. They can give more valuable feedback to them regarding how children benefitted from the program. Joanna commented:

> *I see instantly that maybe some children have some problems in school. The teacher says that once in a while, it was so good for these students particularly because there were different perspectives of all the students, they [teachers] said that it was very good, particularly for this person and this person. It's lovely for the teachers because they see all different parts of students here working in different kinds of learning environments.*

Joanna suggested that children learn in different ways, so it is the teacher's role to provide various learning methods. She emphasized that children do not have to be like everyone else since they may learn more by seeing, hearing, and experiencing things, and it is the teacher's job to assist them in figuring out how they know best. Nature school provides an environment where different learning methods can be practiced, which might help children learn much better. Since nature school teachers are limited when it comes to time spent with the children, she alluded that the school teachers know the children better; therefore, it is beneficial that they coordinate more to plan for the nature school session. Joanna and Sarah expressed in the interview that they hope to inspire teachers to go outside often and continue what they do in the nature school.

TABLE 4.   Structured activities planned by nature school teachers

Nature or manufactured materials used	Planned activity by the nature school teachers
Loose parts	▪ Build the letter of the alphabet ▪ Build mandala shelters and dens using sticks and branches ▪ Build spiders in the spider program ▪ Construct beetles or other animals using leaves, sticks, and other stuff found in nature ▪ Build nests for different bird species using twigs and branches ▪ Build some kind of invention that can solve a problem in the world (e.g., climate change, a machine, or something that can save the world) ▪ Build an arc or some animals using snow
Loose parts and poem books	▪ Read poems about imaginary animals that no one has seen before, then build animals from natural materials, and children created their own view of how they look
Loose parts and markers	▪ Create nature bombs with children's names
Nature sounds and recorders, cell phones	▪ Listen to nature ASMR (Autonomous Sensory Meridian Response) theme ecosystem services ▪ Make recordings from nature, loop it, and listen
Photosynthesis lesson	▪ Imagine we are animals (e.g., herbivores and carnivores in a food chain) ▪ Imagine we are plants and trees (e.g., what happens to the trees in spring, how photosynthesis occurs)
Paper and pen	▪ Write something (song, poem, etc.) inspired by nature ▪ Write or invent some stories about some animals
Cardboards	▪ Make borders out of cardboards and look for natural art (e.g., looking through the borders, then seeing different 'paintings' in nature)
Color papers	▪ Use color sheets and find those colors (e.g., explore the pigment present in the surroundings)
Sticks and math lessons	▪ Build cubes or draw some mathematical equations on their papers

Small cartoon character figures and trees	▪ Hide the tiny figures in different trees and then figure out where it is afterward
Paper and any natural material	▪ Organize canvas paints ▪ Teach how to use natural colors (e.g., out of blueberries, dandelions, grass, mud, etc.) and paint with them
Cups and buckets	▪ Have fun in the rain ▪ Bring cups and buckets intended for sand play

7 DISCUSSION

In this section, I present and analyze the emergent themes from the interview. In each theme, I described how the teachers in this study perceive creative thinking, creative behavior, and creative action of children being supported in the nature school. As this study focuses on how creativity is supported in nature schools in Finland, I concentrated on the teachers' perceptions by centering on their experiences. My research discoveries are outlined in two sections. The first part outlines how teachers perceive creativity in nature school settings. The second part is how teachers perceive pupils' creative thinking, creative behavior, and creative action being supported in nature schools. I also discuss this study's implications to education as well as its limitations.

7.1 Perceptions of teachers on creativity

To understand how teachers perceive creativity in children, I asked about their definition of creativity in the interview, followed by an example of creativity. I also inquired about the role of creativity in children's lives. I analyzed their answers to the three questions to understand their thoughts better.

7.1.1 Creativity as imaginative play

Teachers pointed out that creativity is at work when children create something new and different from their own ideas and express that idea through imaginative play. Pretend play might not appear to be productive to others who do not see its importance in young children, but to teachers who do, they might conduct and encourage tasks that promote imaginative play more. Children use metaphors in their pretend plays, and the understanding that this imaginative play is helping them in their creativity is crucial.

Teachers' perception that creativity can be seen in children's imaginative play is in line with Vygotsky's view of creativity, which is that imagination is an important component of creativity. The definition of the teachers is also consistent with "mini-c," wherein creativity is expressed in novel and personally meaningful interpretations of experiences, actions, and events (Beghetto & Kaufman, 2007). Teachers' descriptions of creativity are congruent with NACCCE (1999), which defines creativity in education as the innovative development of outputs that have both originality and value. If children produce unique ideas that are not considered valuable to others, is it still regarded as creative? Craft (2005) argued that if an idea is solely valuable to the learner, it is still creative according to the NACCCE definition. This finding is important in supporting creativity in children as this affects how teachers allow or even encourage pretend play in their teaching practice.

7.1.2 Creativity as problem-solving

Teachers leaned towards the idea that creativity is about thinking actively, being flexible, and finding solutions to problems. Starko (2018) postulated that when children find and solve problems, their thinking is being supported. When creative people search for new creative projects, these numerous problem-solving themes characterize them: investigating with interest, playing and wondering, and capturing questions (Starko, 2018). Cummings and Blatherwick (2017) argued that educators foster students' curiosity about the world and stimulate their creative growth by creating an atmosphere that challenges them to think in new ways. If teachers believe that finding solution to a problem promotes creativity, there is a higher chance that they will use teaching strategies that allow students to problem-solve and think actively. It is, therefore, beneficial for students' creativity if teachers give them opportunities to find and solve problems. It is also essential for children to think actively, not rely on available information, and for teachers to tell the exact answer.

The nature school teachers described how phenomenon-based learning is used in nature school as a pedagogy that promotes different ways of seeing things. Natural phenomena can be observed in nature, and that will help the students think more actively and think outside the box. According to Ferreira

(2021), the phenomenon-based learning approach is a method wherein learning enables generating experiences more than addressing or exposing children to a specific subject matter; it begins with children's agency and curiosity, as well as the concept of complexity. The emphasis on "real-world phenomenon and the environment as a source of learning" (FNAE, 2019, p. 48), also known as phenomenon-based learning, is the second fundamental component in the Finnish early childhood education and care (ECEC) curriculum.

Both definitions reported by teachers appear to be that of an understanding of creativity from recent research that points out that creativity is for everyone and not just confined to arts and music, as previously believed. According to Cropley (2001), academics and theorists who support creativity in education reject the elitist approach and focus on creativity that exists in everyone, at least as a possibility. It is vital to find out teachers' perceptions of creativity because, in the past, creativity was only for a few gifted individuals; if they think otherwise, they can encourage their students to be creative in their learning because everyone is capable of being creative.

7.2 Nature school as an environment that promotes creativity

The second part is focused on information about the children's creativity in nature school. To find out the teacher's perceptions about the link between nature school and creativity in children, I discussed the results according to three creative skills proposed by Nolan (2002). Table 5 shows the themes that emerged related to each creativity skill. However, the themes are generally linked to each other. I tried to group them in a way that was easy to understand.

TABLE 5.   Summary of themes related to creative skills

Creative Skills	Themes
Creative thinking	▪ Creative thinking is promoted using the senses ▪ Imaginative play promotes creative thinking ▪ Free play promotes creative thinking ▪ Thought-provoking questions and reflection promote creative thinking
Creative behavior	▪ Nature provokes positive emotions that inspire children to explore and experiment ▪ Open, flexible, and risk-taker teachers encourage children to explore and experiment
Creative action	▪ Loose parts of nature encourage constructive play ▪ Teachers who observe and plan open-ended play

7.2.1 Nature helps children's creative thinking by using their senses

The teachers in this study implicated that being in nature allows children to use more of their human senses, and that helps them to observe and learn about their surroundings. Nature, known for its versatile and ample space with rich natural materials, gives children many opportunities to use their senses. This finding is supported by Beard and Wilson (2006), who described how the forest provides sensory stimulation and that the higher the levels of "sensory work," the more children learn. The more children learn, the more they become creative. Loose parts of nature stimulate children's senses and activate their creativity (Miller et al., 2013). This is consistent with Vygotsky's hypothesis that having access to a wide range of sensory experiences can enhance children's imagination. The more children experience, the more they can imagine. If children are given a chance to use their senses more, their creative thinking is being supported. There are many elements of nature that children can see and hear outside that they cannot see and experience inside a classroom. The more we take them outside and expose them to new experiences, let them see, hear, feel, and touch things in reality, the more opportunity they will have to express their creativity, which they already have.

Nature provides a space wherein children use their different senses, but on the other hand, nature also offers silence that gives them a break from sensory

overload (Beard & Wilson, 2006). Research also supports this by suggesting that green environments are therapeutic, aiding attentional regeneration and reducing mental weariness (Kaplan, 2001). The opposite extreme of over-stimulation is silence: no sound, no stimulus. Beard and Wilson (2006) point out that silence and darkness are becoming increasingly difficult. Children need the senses stimulating outdoor environment, but also the silence in nature schools in order to contemplate and think, and this reflection practice helps their learning, hence their creativity.

7.2.2 Loose parts of nature encourage imaginative and constructive play

Another remarkable component that emerged from the data was the imaginative play and constructive play occurring in nature school sessions, as reported by the teachers. In the first part of this section, I reviewed teachers' perceptions of creativity as being about self-expression. If teachers think that children's creativity is exhibited when they play pretend, it is expected that they will encourage children to play imaginatively. The teachers illustrated that children in nature school used different loose parts of nature in their play. According to Holmes et al. (2019), creative play includes pretend and symbolic play, in which children think creatively. As informed by the theoretical framework of this study, Vygotsky (2004) maintains that imagination is always created using resources reality offers—the more children experience, the richer the act of imagining.

Consistent with Nicholson's idea of loose parts, the notion of creativity provides a chance for children to express creativity by using things that may be manipulated, altered, and created via self-guided play. Loose parts can be moved, taken together, constructed, modified, disassembled, and reassembled in infinite ways (Nicholson, 1972). Louv (2008) contends that much of our learning occurs by doing, making, and feeling with our hands. Nature school promotes children's creativity because the environment provides open-ended materials that encourage creative action. Loose parts of nature foster creativity and imagination because it does not dictate what children should do with them. It allows them to experiment and to explore. Not unexpectedly, play is linked to various creative processes, including divergent thinking, insight, and problem-solving (Fehr & Russ, 2016; Russ, 2014).

63

The majority of the creative things that the children created from nature's loose components were neither specified nor predetermined by the teachers. Through play, learners can also become creative. In contrast, inside a classroom, as Maria described, manufactured toys frequently come with a pre-written story, an assigned significance, and a message to children on how to use them and what to play or do with them. As supported by the literature of this study, open-ended materials and toys that allow for various play have been shown to increase development, inspire creativity, and promote problem-solving abilities. If children have no ready-made toys since play is kids' "work," they will have no choice but to use natural resources to be their toys. They will be innovative and creative because it puts them in a situation to think outside of the box.

Understanding the importance of loose parts of nature in nature school sessions will help teachers to utilize them more. Since they are readily available in nature, it makes it easier to access and to intentionally use them in their session will make a significant impact on children's creative action. Loose parts of nature can also be brought to the vicinity of schools where children usually play and not necessarily in nature schools. Since it is more accessible to students, this can give them many opportunities to imagine, tinker, and manipulate loose parts of nature.

Therefore, to promote creativity, teachers need to understand the role of imaginative and constructive play in children's creative thinking and creative action so they do not see this as non-sense daydreaming or a messy activity but as a necessary exercise for children. To say that children are born creative only means they have the potential to be creative. That does not mean they can express their creativity automatically. Educators and parents must provide opportunities and resources for children to express themselves through play. Bringing children to nature school and allowing them to play with the loose parts of nature is one of the opportunities teachers can utilize to promote creative thinking and creative action.

7.2.3 Freedom in play promotes creative thinking

According to the findings of this study, teachers consider the freedom to pursue play to be stronger in nature school sessions. The freedom the teachers

described in this study relates to the spacious outdoors that allows children to play freely with their peers and freedom from a teacher-oriented education. As an external environment, nature school provides a more versatile and spacious environment that allows freedom for peer-to-peer play, conversation, and collaboration. This finding is similar to one research (Flannigan & Dietze, 2018), wherein children in outdoor play settings use their voices to interact with their peers in various ways, including pitches and volumes, without the customary limits imposed in indoor environments. Voices can be louder, and movement can be more expansive in open places (Frost et al., 2001), which, according to the teachers in this study, gives more freedom for children to play.

In nature schools, the children are more free to play, express themselves, and socialize with one another. As teachers do not need to make a lot of rules and restrict noises and mess when they are in nature, they can have a more playful learning environment. Vygotsky (2004) asserts that children need to socialize and be exposed to another person's perspective. The more we constrain children in their verbal expression and socialization, the more we limit their social imagination. The more children can imagine, the more their creative thinking is being supported.

Moreover, nature school promotes play; however, as the teachers observed, it is becoming harder to have freedom in play due to lack of time and increased academic focus. This observation is supported by research. Since 1955, children's free playtime has steadily decreased (Gray, 2013; Hirsh-Pasek et al., 2008). According to Sahlberg (2009), conventional schooling has a dual and contradictory role in nurturing and suffocating creative potential. Concerning the issue of limiting pupils' creative potential, he observed that as they go from one class to the next, there is a greater emphasis on academics. As a result, the adventures and playful environment typical of early childhood learning in school tend to be dominated by teaching and learning. According to Kampylis (2010), one example of creativity-suppressing approaches is when teachers attempt to keep their class quiet and under control because they have been taught that this is what effective educators do. Inside a classroom, teachers may find it difficult to change their teaching methods on the spot and deal with the noise and unusual arrangements that creative teaching and teaching for creativity need. Perhaps

bringing children into nature more often gives them the freedom they need to support their budding creativity.

On the other hand, though playing freely without much control of the adult is essential, we must be cautious about believing that children's play is always beneficial because children's play may be a venue where they perform power dynamics and transmit cultural and social prejudice and injustice (Grieshaber & McArdle, 2010). When teachers are only concerned with the educational value of play or choose not to intervene in children's "free play," recognizing and responding to unfair actions becomes challenging. As a result, teachers may ignore the subtle and complex structure of children's interactions (Grieshaber & McArdle 2010). When teachers do not intentionally promote freedom in children's play, we cannot guarantee children a positive experience. This coincides with Dewey's theory of experience, suggesting that an experience does not necessarily promote growth and that teachers must learn to distinguish between attitudes beneficial to continued growth and those detrimental. Teachers need to see the direction of the experience. Understanding the trajectory of an experience is vital; it hinges on how teachers either impede or facilitate children's play.

It is also important to point out that if children do not feel safe in their play, no matter how good the physical environment they are in, learning will be difficult. When they feel too stressed out or too exhausted in their school or experience injustice or unfair treatment in their play, these will affect them internally. According to Vygotsky's theory of collective creativity, each person's perspective on what they are experiencing is determined by their emotional experience rather than an external structure, place, or event (Rey, 2011). Nature school is part of Finnish education, and the play that happens supports learning and, hence, supports the curriculum. Nature school teachers and regular school teachers need to be mindful of allowing the children to play freely and find time and space to create a playful learning environment. However, they also need to recognize the power dynamics in all relationships, including those that occur in children's daily play.

66

7.2.4 Thought-provoking questions and reflection support creative thinking

According to the findings of this study, teachers think that their thought-provoking questions and reflection techniques in nature school sessions increase children's creativity. Time spent allowing the mind to roam, reflect, and consider in an unstructured manner is beneficial. Dewey (1938/1997) emphasizes that learning occurs when children are given the chance to reflect by asking them questions and giving them time to think. When an authentic experience is deepened by reflection, shared meaning by thinking, and changed by action, the new experience generated becomes richer, broader, and deeper, according to Kolb and Kolb (2009).

When teachers ask questions about natural phenomena in nature school sessions, it helps children to ponder, think actively, and consider different answers about this experience. Students can also ponder and reflect in a typical classroom, which is more related to an executive network task because children are usually assessed and graded on their reflection and thinking. In nature school, on the other hand, the more children are given the chance to think, ponder, and reflect in an unstructured, unpressured way, the more creative they become. According to Cummings and Blatherwick (2017), this reflective space can create discoveries and creativity.

In the first part of this section, I discussed the perception of teachers that creativity is about active thinking. If teachers ponder that children should be thinking outside the box, it is no surprise that they will encourage children to think actively by reflecting and by asking thought-provoking questions. Starko (2018) argues that since we cannot change the culture in which our kids live, we will need to find methods in the classroom to pause, take a breath, and reflect if we want them to learn and create most effectively. Bringing them to nature school as part of their school curriculum can be one of the methods for them to think creatively by learning to ponder and reflect in an unpressured way.

7.2.5 Positive emotions stimulate creative behavior

The teachers observed positive moods like eagerness, excitement, and curiosity when the children saw new and exciting things in nature and played games

together. Teachers described in this study that curious, excited, and interested children ask more questions and even show risk-taking behavior. Having a positive mood, like curiosity, appears to promote creative behavior in children in nature school. Perry (2004) states that children are encouraged to engage in new exploration and discoveries when they are curious. According to Vygotsky (2004), the way children perceive, comprehend, and experience things is influenced by how they feel. If children are always terrified or fearful, it might make it difficult for them to enjoy or explore; however, if children are in a good mood, it changes how they perceive the entire event.

Inside a four-wall classroom, children may be engaged in doing a task but not necessarily curious (Starko, 2018). Engel (2011) investigated how children in fifth grade and kindergarten showed curiosity and concluded that kids in classes that were not overcrowded or underfunded spent several hours each day without displaying any curiosity or interest. So, what elicits children's curiosity? The findings of this study reveal that nature evokes children's curiosity. Nature's beauty has been shown to stimulate or boost positive emotions. Individuals in a positive mood solve more issues and use more insight than those in a negative mood. This finding is supported by research. For example, research by Subramaniam et al. (2009) highlights that a positive mood broadens our focus and makes more things appear relevant and fascinating.

Children's interest is piqued when they are exposed to loose elements of nature, see and experience new things, and have unique experiences that would not be available in an indoor setting (Flannigan & Dietze, 2018). Therefore, if we want children to develop their creativity, we must preserve their curiosity (Starko, 2018). As postulated by Vygotsky (2004), children learn more when they discover things for themselves via emotional connection. When children experience excitement and curiosity, tend to express and share these feelings with their teachers and peers. Therefore, a positive mood can foster increased social interaction, particularly noting that outdoor environments, as previously discussed, often offer more tolerance for social interactions. Nature school is a potent environment to promote positive emotions that can boost creative behaviour.

7.2.6 Open, flexible, and risk-taker teachers promote creative behavior

Teachers reported that being open, flexible, and embracing risks in their nature school sessions can help develop children's creativity. Being open to children's ideas and being flexible in nature school sessions may mean not continuing the planned task as a teacher. This requires being a risk-taker if the suggested activity of children involves risks, and being ready to embrace uncertainty is crucial since the teacher did not prepare it. A teacher can embrace uncertainty and risk-taking inside a classroom, but being outdoors offers more opportunities because change elements reflect the unknown and might induce anxiety about the future, and the comfort zone gets overstretched (Beard & Wilson, 2006).

Being open to new experiences might not be seen as a creative act, but openness, flexibility, and risk-taking are creative behaviors that are precursors to creative thinking and creative action, as supported by Nolan (2002). For Perkins (1981), openness is a fundamental characteristic of creativity. Likewise, McCrae (1987) highlights that an open person prefers to go beyond the normal and relishes the unexpected. Still, consistent in the literature on creativity, especially mini-c creativity, this is considered a genesis of creativity or part of a creative process (Beghetto & Kaufman, 2009). The more teachers are open, flexible, and willing to take risks, the more they can supply their students and themselves with a steady flow of questions, ideas, and issues (Starko, 2018). Moreover, risk is not just about the safety of children in the surroundings but also about the risk of not being correct or not getting the result the teacher intends. According to Kim and VanTassel-Baska (2010) and Sternberg (2012), when people are rewarded for taking risks and encouraged by their mistakes, they discover new approaches to issues.

As nature school teachers in this study refer to phenomenon-based learning as one of their strategies to promote creativity in nature school sessions, Ferreira (2021) asserts that the teacher's role in phenomenon-based education is to use their sensitivity and capacity to bridge the phenomena of interest and the various conceptual aspects that can be investigated with it. She further explained that teachers need a distinct mode of interaction and flexibility in pedagogical planning, testing the teacher's professional competencies and imposing fresh viewpoints in teacher-student and student-student relationships. Nature as an

environment gives many opportunities for both children and teachers to take risks and be flexible; however, it does not automatically mean children will take a risk or be open to new experiences automatically when in nature; they need to have teachers who set an example, allows and encourage them to take a risk and be open to new ideas and be flexible.

7.2.7 Teachers who observe and plan open-ended play nurture creative action

The teachers in this study indicated that observing children and knowing their interests, limitations, and potential helps them plan for tasks or experiences that help students in their creativity. There is much literature about the importance of free play in children; however, structured play opportunities are also valuable, according to the teachers we interviewed. According to Starko (2018), guided play, a "middle ground" between free play and direct instruction, is an option for early education. Adults help the learning process by comments, questions, or coplaying, but the play is still child-directed. According to Craft (2005), when teachers plan a creative activity and do it with the students, the children's creative abilities are reinforced. Additionally, teachers cannot separate an experience from other experiences. In line with Vygotsky's theory of collective creativity, social experiences that enrich the child's imagination come from their peers and teachers. The more ideas and interaction they get from the rich experience of the teachers, the more they can imagine.

Similarly, Dewey's theory implies that play and natural environments do not automatically contribute to good growth if educators do not consciously control the direction of their experience in that setting. The idea that observant teachers promote creativity is supported by Dewey's theory about the importance of understanding what is happening in the students' minds and being sympathetic to each learner. When teachers observe the students keenly, they will be more in touch with their students' limitations, potential, interests, and needs; hence, they can plan more activities that promote their creative learning.

The findings of this study showed how teachers used different materials in their nature school tasks that led students to act creatively. Zamani (2016) states that blending natural and manufactured components can increase engagement,

70

cooperation, creativity, and imagination. Banning and Sullivan (2011) addressed the function of teachers in outdoor learning provisioning. Experience and judgment are required to determine when, what type, and how much training is required for children. To promote creativity in nature schools, we need teachers supporting outdoor learning and planning open-ended, play-based experiences. We need teachers who are adaptable planners familiar with the location and its potential. That is why involving the school teacher in the nature school sessions is beneficial as they are the ones who can connect the children's different experiences in their school days and use these experiences in nature as they continue their learning in regular school days. One important thing about nature schools in Finland is how the school teachers and nature school teachers collaborate. Nature school teachers leading the sessions are experienced professionals familiar with the environment, and the possible activities and materials children can use in their tasks. On the other hand, the school teachers are familiar with each student, their needs, interests, and even strengths. Nature learning requires teachers familiar with the environment to see the opportunities for children to experience this natural phenomenon; hence, nature school teachers play an essential part in providing this outdoor experience to students.

As nature school teachers emphasized, collaboration between teachers is essential for integrating children's experiences, and nature school sessions should not be considered separate from mainstream schooling. Nature school teachers provide opportunities to practice creativity by providing inspiration and activities, and regular school teachers give insight into the students. Moreover, they can inspire the teachers to continue it on regular school days since their time with the students is longer. This part of collaboration with teachers can also be seen as teachers planning and thinking about what is best for children in the long run.

7.3 Implications to education

Creative thinking should be promoted by utilizing resources that promote imaginative play, especially in younger children. Different loose parts of nature or open-ended materials should be placed in the children's play area. Nature school is just one of the units that can promote creativity in children. Imaginative play

also happens in daycares and after-school clubs, and the more child professionals understand the principles surrounding creative play, the more we can promote creativity in children's education. Considering the sociocultural theory of learning, Cummings and Blatherwick (2017) suggest that as much as teachers need to promote and scaffold children's creativity, instructors and teachers also require practice and education in these types of imaginative activities and experiences as the mentors who assist, model, and lead students' creative and sensory experiences.

Children's curriculum should actively promote creative behavior such as risk-taking, openness, and flexibility. These creative behaviors are being modeled or hindered by teachers. Given how creativity is needed in children's education, creative learning should be one of the focuses of pre-teacher education, especially for teachers of younger children. Training and workshops about creativity in nature play can inspire child professionals to utilize the outdoors to support children's creative learning.

Teachers can encourage creative actions by providing open-ended materials and inspiring children to act creatively. Schools do not need elaborate art classes to promote creativity in children's education, though that would not hurt. Schools can support children's budding creativity through opportunities to imagine, tinker, wonder, and play. If 'mini-c' creativity could be nurtured in places where children play, schools must strategize how to use this opportunity to improve children's creativity. Play is essential in learning and creativity, which can be brought to classrooms. Teachers can facilitate a playful learning environment, encouraging collaboration between teachers, peers, and pupils. Additionally, researching natural outdoor spaces and loose parts is critical to advance options for child-oriented play areas.

Nature school has much potential to promote creativity; however, due to some restrictions like time, nature school teachers hope the school teachers who joined them in the sessions will be inspired to use more outdoor learning in their curriculum. It is important to note that we can never replace what the outside world can offer our children. Going outside requires more effort for teachers and students, especially in winter, when they need to wear layers of clothes to be warm; knowing and understanding how outdoor learning benefits the children

72

may motivate teachers to use nature school as a collaborator more often in their teaching methods.

Finland is blessed to have great access to nature, and it would be ideal to use it more often to encourage children's creativity. Nature school in Finland is unique in a way that is tied into the mainstream curriculum; other nature schools worldwide are stand-alone schools. The advantage is that it can reach many students as time is carved out from the regular school day. There are 2,039 comprehensive schools in Finland (Statistics Finland, 2023), but only 57 nature school centers so far. In two nature schools, there is only one teacher; the other nature school has two staff members. Based on the number of schools, there seems to be a lack of nature schools all over Finland that can cater to the growing number of students. Nature school is an asset that can provide students with authentic experiences and is ready to be utilized by school teachers. Nature school teachers must be supported and given more human resources to accommodate more classes. If nature schools can be utilized alongside other in-school and out-of-school units and organizations, it will significantly encourage creativity in children in Finland.

7.4 Limitations and further research

One of the limitations of this study is the small number of participants. I only have six participants, making it challenging to generalize my findings. The school teachers I interviewed have limited experience in nature school and only attended one or two sessions, though they have experience in other outdoor learning from their class excursions, forest visits, and recess outdoor play. The three school teachers I interviewed are all preschool teachers and the nature school teachers cater to students from kindergarten up to seventh grade. In the future, it will be beneficial to investigate the perspective of teachers who teach higher grades. Observing the children's play, actions, and interactions with peers and teachers in the nature school setting will also be beneficial to investigating creativity further. Creativity is such a complex construct that it needs further research. Research on nature play is happening in nature schools and during break times, forest trips, after-school outdoor recreations, and family outdoor trips. Further research is helpful in these non-formal educational settings so educators can be more

informed about the opportunities where we can support children's budding creativity.

8 CONCLUSION

The need for creativity is becoming apparent in education; it is vital to see if creativity is supported in classrooms. This study focuses on teachers' perspectives on creativity supported in nature schools, a Finnish education collaborator that promotes holistic education. To explore teachers' perceptions about nature schools promoting creativity, I interviewed teachers who work in nature schools and regular school teachers who attended nature schools with their classes.

After transcribing and analyzing the data using thematic analysis, this study reveals that teachers perceive creativity in two ways. First, children use creativity to express their own ideas through imaginative play. Secondly, teachers perceive creativity as problem-solving using active thinking. These findings will help the teachers promote creativity in children by encouraging and facilitating imaginative play and giving them opportunities to reflect on play with different ideas to think actively. Additionally, in examining teachers' perspectives on nurturing children's creativity within nature schools, I employed Nolan's (2002) framework of creative skills, encompassing creative thinking, creative behavior, and creative action—this framework aimed to understand better how teachers perceive the creative process in this context.

First, teachers' perceptions of creativity imply that the following themes support creative thinking: *opportunities to use the senses, imaginary play, freedom in play, and thought-provoking and reflective teachers.* Nature provides abundant ways to stimulate the senses, making children observe and play more imaginatively using nature's loose parts. Nature's spacious environment also allowed children to play more freely with one another, allowing more socialization and collaboration. As children observe natural phenomena, creative thinking is promoted by thought-provoking teachers who encourage students to reflect on their learning—helping them think more actively without giving them the exact formulas or answers to every problem.

75

Second, teachers' perceptions of creativity illustrate that the following themes support creative behavior: *positive emotions and open, flexible, and risk-taker teachers.* Nature school as an external environment provides the experience of witnessing natural phenomena that cannot be replicated inside a classroom. Natural phenomena can evoke positive emotions like excitement, curiosity, and inspiration, making them focus and explore more. In nature schools, the encouragement of creative behavior in children stems from teachers' readiness to embrace risks, their comfort with uncertainties, and their facilitation of expanded experiences, exploration, and experimentation in outdoor settings. This finding suggests that the more risk the teacher takes in their pedagogy, the more opportunity for children to learn and discover new things in nature.

Lastly, teachers' perceptions of creativity suggest that the following themes support creative action: *the presence of nature's loose part and the observant teacher who plans open-ended play.* Nature school promotes creative actions in children because of the presence of the loose parts of nature that children can accessibly play. Loose parts of nature are open-ended materials children can easily manipulate, construct, and experiment with in their play. On the other hand, teachers can significantly influence children's creativity as much as nature with loose parts by providing different manufactured materials or planned tasks that can improve their play. The more ideas and interactions children receive from the teachers' extensive expertise, the more they can envision.

In summary, the findings of this study reflect mini-c creativity, which is also supported by Vygotsky's collective creativity theory. Children begin to play and explore their creativity early in life, and this can be supported in nature schools, which then mini-c creativity activities such as imaginative play and self-expression can be encouraged by teachers. The study further highlights the interconnectedness of various constructs: the environment, teachers, and students. It underscores that children's creativity is shaped by their surroundings, interactions with peers, and the guidance of teachers. These elements are not isolated but rather intricately linked in shaping children's creative development. Consistent with Dewey's interaction theory, nature school as an environment does not necessarily promote creativity without teachers ensuring the experience is directed towards growth; teachers must utilize the external surroundings (e.g., loose parts of nature, manufactured materials), such as physical (e.g., health and

safety) and social (e.g., peer-to-peer and teacher collaboration) and also the internal which means that educators need to understand what is going on their pupil's mind. We may not be able to see one-of-a-kind creative products in every nature school session. Still, nature school gives children the experience of a natural environment rich with open-ended materials, which can 'spark' or 'ignite' their creativity and most probably help them to be creative in other areas of their life in school, homes, and even in their careers in the future.

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APPENDICES

Appendix 1. Interview guides

Set 1. Nature School Teachers

A. Warm-up questions: Teaching background and experiences of nature/outdoors class

Possible questions:

1. How long have you been a nature school teacher?
2. What training did you undergo to be a nature school teacher?
3. How many nature classes do you conduct every week?

B. Main questions: Views on Creativity – Try to attain a more focused information about the respondents' understanding and experiences of creativity

Possible questions:

1. How would you describe creativity? Can you give some examples?
2. What do you think about the role of creativity in children's lives?
3. In your view, how does the nature school promote creativity? Can you give an example?
4. In your opinion, what is your role in supporting children's creativity in nature school?
5. What are the obstacles to implement creative learning methods and practices in nature school?
6. How would you improve nature school practices to better support children's creativity?

C. Main questions: Views on children's creative thinking, behavior, and action in nature school – Try to attain more focused information about the children's creativity in nature school

Possible questions:

1. What are common open-ended materials found in nature that children enjoy playing with?
2. How do children play with open-ended materials?
3. Does dramatic play occur in nature school sessions? Can you give an example of when and how this happens?
4. How do children share their ideas or express their curiosities during nature school sessions?
5. How do you see children exploring and experimenting in nature school?
6. What do children create in nature school sessions?
7. Are there any other ways the children show creativity in nature school

Set 2. Regular School Teachers

A. Warm-up questions: Teaching background and experiences of nature/outdoors class

Possible questions:

1. How long have you been a school teacher?
2. What encourages you to become a school teacher?
3. How often do you bring your class to nature school?
4. Do you enjoy bringing your class to nature school?
5. What subject do you usually integrate with the nature school sessions?

B. Main questions: Views on Creativity – Try to attain a more focused information about the respondents' understanding and experiences of creativity

Possible questions:

1. How would you describe creativity? Can you give some examples?
2. What do you think about the role of creativity in children's lives?
3. In your view, how does the nature school promote creativity? Can you give an example?
4. In your opinion, what is your role in supporting children's creativity in nature school?
5. What are the obstacles to implement creative learning methods and practices in nature school?
6. How would you improve nature school practices to better support children's creativity?
7. In your own experience, what is the difference between children's play in the classroom and nature school?

C. Main questions: Views on children's creative thinking, behavior, and action in nature school – Try to attain more focused information about the children's creativity in nature school

Possible questions:

1. What are common open-ended materials found in nature that children enjoy playing with?
2. How do children play with open-ended materials?
3. Does dramatic play occur in nature school sessions? Can you give an example of when and how this happens?
4. How do children share their ideas or express their curiosities during nature school sessions?
5. How do you see children exploring and experimenting in nature school?
6. What do children create in nature school sessions?
7. Are there any other ways the children show creativity in nature school

Appendix 2. Information sheet

**Exploring Teachers' Perceptions
of Fostering Creativity in Finnish Nature School**

You are invited to participate in a study that explores children's creativity in nature schools. After reading this information sheet, you will have the opportunity to ask any questions you may have. You will be separately requested to provide consent for participating in the study.

Purpose of the research

The purpose of this study is to explore teachers' perceptions of creativity and how children's creativity can be supported in Finnish nature schools. The participants will be teachers working in nature schools or regular school teachers with experience bringing their students to nature school sessions.

Procedures for collecting research data

The data will be collected from in-depth, semi-structured interviews. The interview will last 30 to 60 minutes. During the interview, I will meet you in a convenient location or via Zoom, a virtual meeting platform. The interview will be conducted in English. To ensure accuracy, the interviews will be audio-recorded when conducted in person or video-recorded when conducted via Zoom. The recorded information is strictly confidential, and only the investigator will have access to it. All personal data collected during the study will be processed in compliance with the EU's General Data Protection Regulation (GDPR) and the data protection laws of Finland.

The interview materials will be carefully stored on a password-protected server at Tampere University, with no one else having access to them except the investigator. After the recordings have been transcribed, you will be offered an opportunity to validate your interview transcript. If you wish to, you will receive a copy of the transcript to review via secured email, and correct any factual errors. Access to documented anonymized information (i.e., notes and transcriptions) will be limited to the investigator and supervisors.

After the transcription is completed, the recordings will be destroyed. After the study is completed, the transcriptions will also be deleted. The results will be published as a master thesis that will be made available as Open Access on the TAU website (www.tuni.fi) to interested parties and researchers. The results will be reported so that you cannot be identified as a participant in the study.

Voluntary participation
Participation in this study is entirely voluntary, and you have the right to withdraw at any time without consequences.

Potential risks and benefits of participation
The procedures and methods used during this study do not involve health risks, social risks, financial risks, or risks relating to personal data breaches. Your views will be beneficial for the research community interested in fostering creativity in education.

Please contact me for any additional information.

Sincerely,

Jackelyn Bugarin-Uy
Department of Education and Culture, Tampere University
+358453475500
jackelyn.uy@tuni.fi

Appendix 3. Informed consent form

Exploring Teachers' Perceptions
of Fostering Creativity in Finnish Nature School

Consent for participation in a research study

I have been requested to participate in the research study identified above. I have received information about the study in writing and have had the opportunity to ask questions from the researcher conducting the study.

I understand that participating in the study is voluntary. I am aware that I have the right to refuse to participate and the right to withdraw from the study permanently or for a temporary period at any time and without giving a reason. I understand that any personal data collected in the course of the study will remain confidential.

I hereby give my voluntary consent to participate in this study.

_____
Signature

_____   _____
Name in block letters   Place and date

_____   _____
Phone number   Email address