

A-B-C – Shaping Alphabets with Methods of Outdoor and Multisensory Learning

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ABSTRACT: In this study the development of literacy skills is connected to outdoor learning, visual arts, and the thinking skills method. The study represents design research where the teachers and the researchers actively work together pursuing for more child-centered and motivating pedagogical approaches for learning literacy. The teaching experiment described in this article consists of playing with the shapes of alphabets, creating the forms of alphabets, and trying to find those alphabets in the outdoor environment, and empathizing with imaginary characters living in the immediate surroundings of the school. The methods used in the experiment brought child-centeredness and playfulness to learning. The holistic approach encouraged children to be active and supported their achieving a range of learning goals simultaneously and effectively.

Keywords: *emergent literacy, outdoor learning, multisensory learning, design research, primary education*

Introduction

This article presents a teaching experiment where children explored the forms of different alphabets in the immediate surroundings of their school. During the experiment the first graders created alphabets out of different natural materials like leaves, flowers, stones, and sticks using the method of Earth and Land Art connected to multisensory and outdoor learning. The aim of this study is to increase the child-centeredness and activities in learning literacy in accordance with the new curriculum (to be implemented in 2016) for primary schools in Finland and at the same time to enhance holistic learning by connecting many learning targets to the learning

tasks of primary education. In addition, children's learning environments are extended to different natural and built up environments like parks, forests, yards, and gardens. One of the most interesting learning environments in this experiment is the garden belonging to the Department of Teacher Education at the University of Turku located in the vicinity of the Teacher Training School of Rauma.

The national core curriculum for basic education in Finland is to be revamped by the end of 2016. The new core curriculum (FNBE, 2014) requires altering the educational approach to learning to encompass more holistic approaches. The aim of the holistic approach is to offer children holistic learning experiences, to take into account the learners' interest in the subject, to enable learners to adopt an active role, and to expand the school environment. Applying the holistic approach is the key goal in all learning, and an integral part of the draft Finnish national curriculum for basic education that aims to offer students a complete and comprehensive learning experience. The objectives of the holistic approach are diverse: It is intended to increase the learner's subject area knowledge and understanding, but it may also manifest as improving learners' attitudes, logical thinking, evaluation methods, and coherent and artistic thinking (FNBE 2014).

In this article, the learning targets of visual arts and emergent literacy are connected and the learning is supported with outdoor and multisensory learning and also methods of thinking skills and using iPads to document the experiences. The educational approach in visual arts is based on the concept of Earth and Land Art. Earth and Land Art represent art forms where the artefact is created with materials found in nature, and remains in the natural environment (Matilsky, 1992, pp. 36–55; Naukkarinen, 2003). The research questions in this article are as follows:

- What benefits do the outdoor learning experiences, the methods of visual arts, and imposing limitations on tasks bring to emergent literacy in schools?
- What are the benefits of the teaching experiment from the perspective of holistic learning in primary education?
- How does the instructional design for emergent literacy based on outdoor and multisensory learning work?

Theoretical Framework

Emergent literacy

Emergent literacy refers to a period between birth and the time when children can read and write. Emergent literacy involves literacy growing through authentic learning experiences at home and in school. The emergent literacy theory is based on the perception that children's development in listening, speaking, reading, and writing are interrelated, and that strengthening any of these areas will lead to all four areas being developed. The key skills for emergent literacy in addition to fluency are print concepts, phonological awareness, phonics, and other word recognition strategies. Print concepts refers to children understanding the relationship between spoken and written language, understanding the concepts of words, alphabets, and sounds as well the directionality of print. Phonological awareness refers to the ability to hear and separate the individual words and sounds within spoken words. Phonics is an essential skill in comprehending literacy skills and refers to the ability to correctly associate alphabets of the alphabet with the corresponding sounds (Shaywitz et al., 2004; Tracey & Morrow, 2015.)

Writing is an integral part of emergent literacy. Writing ability is rooted in the first years of a child's cognitive development and is developed through authentic learning activities and experiences. The authentic writing activities and experiences are created through making notes and writing alphabets that are written for real purposes and to real recipients (Tracey & Morrow, 2015). Effective writing instruction consists of several important components: a purpose for writing, choices in how and what to write, a real audience, and a suggested format. Writing is a complex interaction of cognitive and physical factors that involves small muscle development and hand-eye coordination to form alphabets, words, and paragraphs. It also requires vocabulary which allows effective self-expression and communication alone or with others. Oral language is important for writing because it demands similar abilities as writing (Bromley, 2015).

There is no clear consensus on whether it would be easier to learn to read first or to write first. Some theorists claim that the process of writing helps children to understand written language and prepares them for reading and understanding the writing of others (Bromley, 2015). However, there is a strong relationship between spelling and writing (Cunningham & Cunningham, 2010). Good writing depends on the automatic use of spelling skills. If students struggle with spelling, they allocate a good deal of their cognitive resources to spelling, when they should be practicing other aspects of writing. Difficulties with spelling also affect the words children use, because they seem to prefer words they are comfortable writing (Bromley, 2015). It is important to help children understand the processual nature of writing. Children who struggle with writing often

need intensive, individualized, and explicit guidance in the art of writing. It seems that they do not understand the importance of planning, transcribing ideas, and revising their texts, or of generating ideas (Troia, 2006).

To motivate small children to read and write we have to stimulate their interest, and bolster their confidence, and dedication. If the child is interested in learning to read, the motivation is usually intrinsic and the children are willing to read for their own sake, not for rewards, or to please their teachers or parents. Confidence is tied closely to the success of reading and it is more intimately linked to achievement than any other motivation in school. Controversially, children who struggle to learn to read soon begin to doubt their abilities and stress their limitations. Some struggling readers may even stop trying, and thus hamper their opportunities to ever be good readers. It is important to pay attention to this cycle of doubt and failure in the early years of emergent literacy. Every child has the potential to be a dedicated learner. From the perspective of reading abilities, the dedication consists of persisting with the effort of reading, learning to value reading and the information acquired through reading as means to achieve future goals in life (Guthrie, 2015; Poikkeus et al, 2013).

Many theorists recommend child-centered approaches in emergent literacy. This means that children should be provided with motivating opportunities that stimulate exploration in playful environments. In addition to child-centered learning opportunities the learning should involve social interaction with others (Karvonen & Rikkola, 2006; Tracey & Morrow, 2015). According to Vygotsky the interaction is most beneficial if children interact with others who are more advanced linguistically, cognitively, socially, and emotionally (Vygotsky, 1978). Connecting different art forms to learning literacy may help children to elaborate their ideas, interests, and experiences. It appears that children like different art-based methods because different art forms enable children to face challenges, be spontaneous, make meaningful choices, work at their own pace, attend to details, take pride in craft, and derive satisfaction from a job well done. From the perspective of learning literacy, art can be seen as a form of language through which children can communicate. For those children who are not yet able to express their thoughts and feelings in words, art has even greater meaning than those who are already literate. When using different art forms in early childhood education, it is important to provide an unhurried and an unstructured time for children to work with art materials in a playful and relaxed manner (Jalongo & Narey, 2006).

Outdoor Learning

Nature provides limitless opportunities to nurture children's interests and skills (Lester & Maudsley, 2007). Moving and playing freely in the nature is one of the most natural and powerful modes of learning for young children (Bilton, 2010). Rohde and Kendle (1994) indicate that both observing nature and being in the midst of it have beneficial effects on feelings of pleasure and can counter negative feelings. Outdoor learning is appropriate for children, and the outdoor environment provides children with opportunities for development and to be more active, since it offers access to both manufactured and natural materials (Cosco, 2006).

It seems that outdoor learning helps children to restore their focus and sustain their attention span (Berman, Jonides, & Kaplan, 2008). In addition, children can remove themselves from confrontation when they work outside and are less likely to be frustrated or uncooperative (Ouvry, 2003). While providing physical exercise and improving children's fitness, being in outdoor environments offers opportunities to enhance social relationships by interacting with others and improve children's social skills. In addition, children can run and jump and be noisy outdoors, behavior that is often not allowed inside (Rivkin, 1995; Tannock, 2008).

Blanchet-Cohen and Elliot (2009, 2011) have studied different educational approaches in outdoor environments and noted certain similarities: children enjoy and concentrate on learning more outside, which also means enhancing the children's development. The educators value children's opportunities for outdoor play and understand the skills children learn outdoors. The natural environment provides an ideal context for group activities and in natural environments the development of knowledge, concepts, and skills are embedded within authentic, purposeful, and often real life tasks—examples cited include building dens, creating a pond area and clearing a path through undergrowth (Maynard & Waters, 2007).

It seems that children who are connecting with natural spaces have a greater sense of satisfaction with their lives. In addition, adults appear to relate differently to children in the outdoor environment: when inside, children are expected to sit still and be quiet; outside they are allowed to run around and make a noise (Rivkin, 1995). This means that children can push the boundaries of who they are and what they can do without the fear of being commanded to behave properly (Bilton, 2010; Ouvry, 2003).

Schools and kindergartens could conduct far more outdoor learning than they generally do. It seems that teachers go outside only in good weather and in relation to their "normal" outdoor activity. When outside, teachers implement the same tasks, and

employ the same pedagogical approaches as they do when working in the classroom: mostly teacher-directed tasks focused on the learning of subject knowledge and basic skills. In addition, outdoor learning usually takes place in the school yard: little use tends to be made of natural environments. It also appears that being in the outdoor environment was seen as having little to do with learning curriculum content (Maynard & Waters, 2007).

There are many studies indicating that children spend less time outside and more time with television and electronic games. This lack of opportunity to move freely outside and connect with nature might be one of the reasons for problems like childhood obesity (Temple, Naylor, Rhodes, & Wharf-Higgins, 2009). Despite the evidence for the benefits of playing outdoors in a natural setting, the focus of education remains on the inside environment.

Multisensory Learning

Outdoor learning connects all the senses to learning (Classen, 1993). Multisensory learning activates the learning process and enhances the learning experiences by transforming the traditional information into bodily and sensory information, which can be combined with emotions, skills, and knowledge and is thus more holistic (Sava, 1998). In multisensory learning, children are encouraged to apply the tools of sensory knowing in a conscious way as a part of their multisensory instruction. Traditionally, sensory knowledge is combined with artistic and creative processes (Lusebrink, 1990, 2004; Sava 1998). This artistic knowledge consists of emotional and practical knowledge, as well as knowledge acquired through skills and senses (Sava, 1998).

The main aim of multisensory education is to stress the importance of sensory knowledge and make it visible and familiar within the practices of education. Using sensory practices, students are encouraged to use and take advantage of sensory knowledge in a conscious way (Lusebrink, 1990, 2004; Sava, 1998). Making things and various art-based methods can activate sensory knowledge. The use of multisensory tools and learning by doing are also inscribed in the aims of the Finnish curriculum for basic education (FNBE, 2014).

John Dewey has emphasized the role of sensory knowledge and aesthetic experiences in the perception of the environment (Dewey, 2005). The bodily way of thinking and perceiving the environment is useful in education, both for learning and for teaching. Multisensory approaches embody multisensory understanding and the basis of multisensory learning is created by the use of movement, through different activities

and through the senses in an appealing learning environment. Multisensory learning starts from a multisensory orientation, which means stimulating sensory awareness and alertness and helping learners to become more aware of their senses and physical strength (Keskitalo, 2012). Multisensory orientation requires sensory exercises, which seek to activate tactile, auditory, and kinesthetic senses in parallel with the sense of sight (Järviluoma, 2000; Keskitalo, 2012).

Multisensory learning is closely connected to the art of walking. Walking pedagogy stresses the sensory knowledge of the environment and visual culture. The purpose of walking pedagogy is to sensitize sensory perception and sensory knowledge of the environment by highlighting the colors, sounds, touch sensations, and kinesthetic experiences of different environments (Keskitalo, 2012). Walking pedagogy uses a walk as a space for thinking. The ideal place for walking is a relaxing and pleasant area in nature or in a park, where natural features act as mental catalysts on the sensory level (Careri, 2003; Keskitalo, 2012; Solnit, 2001). Pleasant environments offer sensory stimuli, which activate the walker's memories during the walk and stimulate the emergence of a 'bodily brainstorm' to emerge. The bodily brainstorm created by walking consists of three levels: motion, as the walker acquires a sense of being in the environment; the bodily brainstorm itself, in which walking is used as a space for visions, images, feelings, theories, dreaming and understanding; and finally physical and mental activity, where the physical movement is intertwined with the walker's mental ability (Keskitalo, 2006).

The Methods

Design Research

This study represents design research. Design research is conducted by a researcher or researchers with experience of and interest in building theory and instructional designs in collaboration with teachers. The teacher is considered a member of the research team with the responsibility for implementing the instructional design (Stephan, 2014). Design research has both pragmatic and theoretical goals by further developing particular forms of learning and specific theories by systematically studying learning and the means of supporting them (Cobb, Confrey, diSessa, Lehrer, & Schaubl, 2003). The attraction of design research is based on the fact that it is closely connected to practical settings (Stephan, 2014).

Design research can be implemented in various ways, but it most commonly means managing classroom experiments in which the research team collaborates with a teacher (e.g., Cobb, 2000; Confrey & Lachance, 2000; Gravemeijer, 1994). The purpose of design experimentation is to develop theories about the process of learning and the tools supporting the learning. The target groups of design research are multiple: individual students, a classroom community, a professional teaching community, a school, or an organization. In design research, the intent is not only to investigate the process of supporting the learning in new ways, but the researchers and the teachers also select aspects of the learning and of the tools of supporting it as paradigm cases of a broader class of phenomena. Design studies typically test innovations and investigate the possibility of educational improvement by representing new ways of learning. The prospective and reflective aspects of design experiments result in the iterative feature of design research. This means that the research process consists of cycles of invention and revision (Cobb et al., 2003).

Design experiments constitute ways of addressing the complexity of educational settings. Elements of a design research typically include the tasks or problems that students are asked to solve, the kinds of discourse that are encouraged, the norms of participation that are established, the tools and related material means provided, and the practical tools by which classroom teachers can conduct relations among these elements (Cobb et al., 2003).

This study represents Classroom Design Research (Cobb et al., 2003). In CDR an instructional design is tested, analyzed, and revised by teachers in their classrooms. The main activity of researchers in this approach (CDR) is highly interventionist in that the researcher proactively alters the classroom context and strives for change. The goal is not to test if the design worked, but rather to explore the implementation to provide an analysis of the way in which the design was realized, and reveal means of supporting that realization for those who might wish to adapt the design in their own contexts (Cobb et al., 2003). The Classroom Design Research cycle consists of three phases: design, implementation, and analysis (Figure 1).

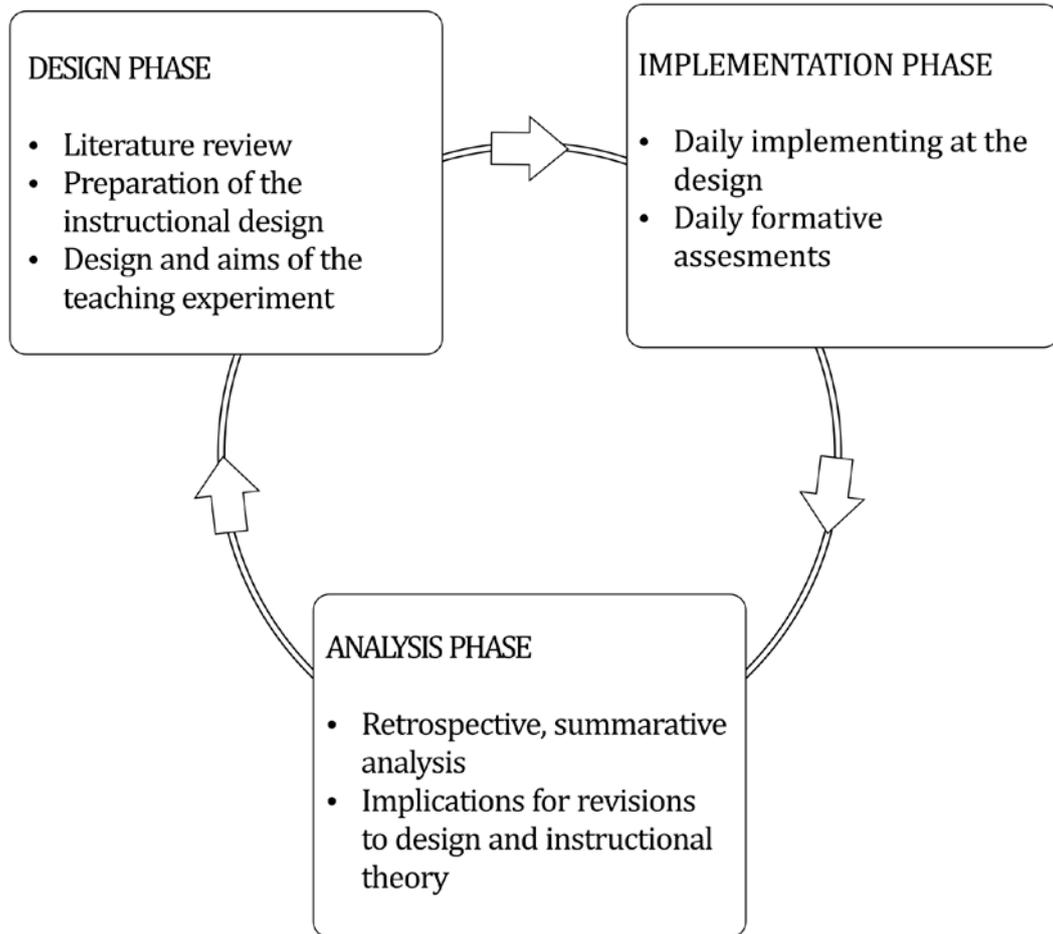


FIGURE 1 The phases of design research (Stephan, 2014)

The data for this study were collected from a first-grade class in a Finnish primary school in fall 2014. The first cycle of implementing the instructional design consisted of four different sequences. The research data for evaluating the benefits of the implementation consist of photos taken by the children, the personal memos of the student teachers, researchers and the teacher, the lesson plans, and the overall plan of the teaching experiment, and the videos and photographs taken by the class teacher and the researchers. The data were aimed at supporting the observations made by the participants, since observation is the central research method. (Observation as a research method e.g. Ödegaard, 2012; Kinnunen, 2011; ETA 2008) The research represents qualitative research and the research method was content analysis supported multi-sensory analysis (Raittila, 2008). The multi-sensory analysis bases on continuous and incremental sensory-ethnography (Pink, 2015), and it was needed to determine the sensory and bodily meanings of children's outcomes and their relevance in the implementation.

The overall analysis of the data is based on observations and discussions between the different actors of the learning process. The premises of the research are observations and discussions implemented prior the learning experiment. The aim of this was to determine the level of competences from the perspective of learning and literacy skills. During the implementation observations were made from the activity hours, reflective discussions and from video data. The observations contained both the individual and group perspective. (ETA, 2008) The aim of the observations and discussions were to observe children's activities in outdoor environments, the development of multisensory knowledge and literacy skills as well as the intertwined of the visual arts to learning literacy from the perspective of outdoor learning. Special attention was paid to the possible changes in children's activity, skills and behavior. These changes were confirmed by the observations prior the research and by the teacher. The student teachers were in charge of conducting the lessons and the teacher had time to concentrate on observing the children and their actions. In this study the data are only analyzed from the perspective of emergent literacy, not visual arts.

The Framework of the Design

The starting point of the design for this research was to create child-centered learning opportunities for emergent literacy, and to practice spelling and compiling the alphabet through holistic learning in outdoor spaces. To accomplish these goals, the research design connected emergent literacy and visual arts to multisensory learning. The method chosen to do so was Earth and Land Art (Careri, 2003; Matilsky, 1992).

Land Art and Earth Art are specific methods in the expanded field of environmental art, and in this study they connect multisensory learning and the outdoor environment. Earth Art consists of art pieces, performances, and environmental processes constructed from natural substances like sand, stones, asphalt, and plants (Hannula, Moilanen, Moilanen & Toivanen, 1995; Suderburg, 2000). The aim of Land and Earth Art is to implement fragile and sensitive acts in the environment, which means site-specific working with installations outdoors, in galleries and during journeys (Matilsky 1992; Suderburg 2000). Walking and creating art in an outdoor environment involves perspectives and attitudes that resemble and are connected to conducting research, since the shared foundations are observations, which are represented visually and in a multisensory way (see Keskitalo 2012, 2006).

In an attempt to help children concentrate on emergent literacy and make the tasks more challenging and target-oriented for them, we decided to use the method of applying limitations, which is a concept known from approaches to enhancing thinking

(Sokol, Lasevich, Jonina, & Dobrovolska-Stoian, 2013). The limitations of the experiment arise mainly from the use of the thinking approach (TA) and the thinking task framework, since the teacher participating in the experiment was a consultant in the TA developed by Alexander Sokol. TA focuses on simultaneously developing the thinking and subject matter skills of learners (www.TA-teachers.eu).

The thinking task framework is an approach interested in enhancing thinking in traditional teaching. It consists of three steps: introducing a challenging task and contextualizing it for the learner, getting the learner to build a strategy to complete the task, and reflecting on the outcomes of the task, the strategy and the tools employed for developing / improving the strategy. Formulating a challenging task can be achieved by transforming a typical task to a non-typical one, juxtaposing seemingly unconnected things and by introducing limitations to the task (www.ta-teachers.eu). The tasks designed for this experiment have features of all the approaches making the tasks more challenging, but the experiment concentrates on the limitations element. It is possible to apply limitations to tasks in various ways. According to the TA, imposed limitations can reduce the time available to complete the task, change its parameters, restrict the resources available, introduce repetitions, or preclude obvious answers, and limitations can also be introduced to affect the number of divisions, number of available answers, and the expected result (www.ta-teachers.eu).

The following figure 2 describes the framework for the design of the teaching experiment.

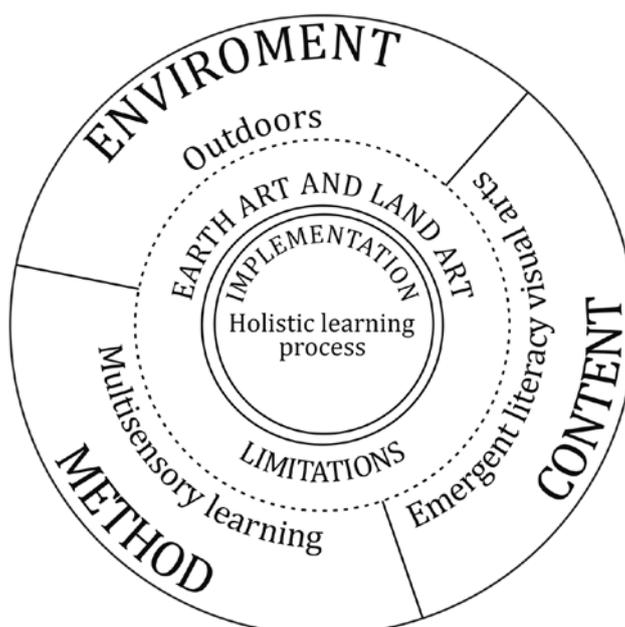


FIGURE 2 The framework for the design of the teaching experiment

The Design for the Teaching Experiment

The final design consists of four different sequences or tasks on emergent literacy connected by a joint theme of friendship and imaginary people living in the nearby environment. All the teaching experiments were implemented in an outdoor environment near the school and the learning was supported through the use of tablet computers (iPads). The researchers and the class teacher created the design based on the literature review of the researchers and student teachers implemented the design in cooperation with the class teacher. The researchers observed all the lessons and participated in the feed-back discussions after the implementation. The following figure (Figure 3) shows the sequences of our design.

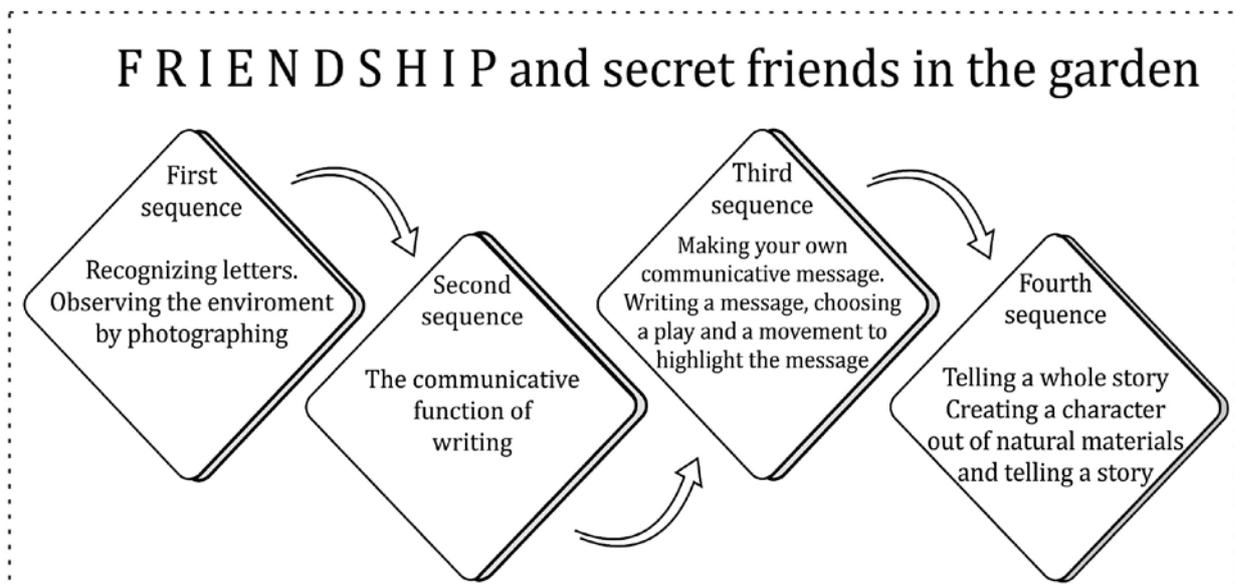


FIGURE 3 The sequences of the design

The implementation of the design

The first sequence involved taking an observational walk in the garden and school yard trying to identify the shapes of alphabets from natural and man-made elements (Figure 4).

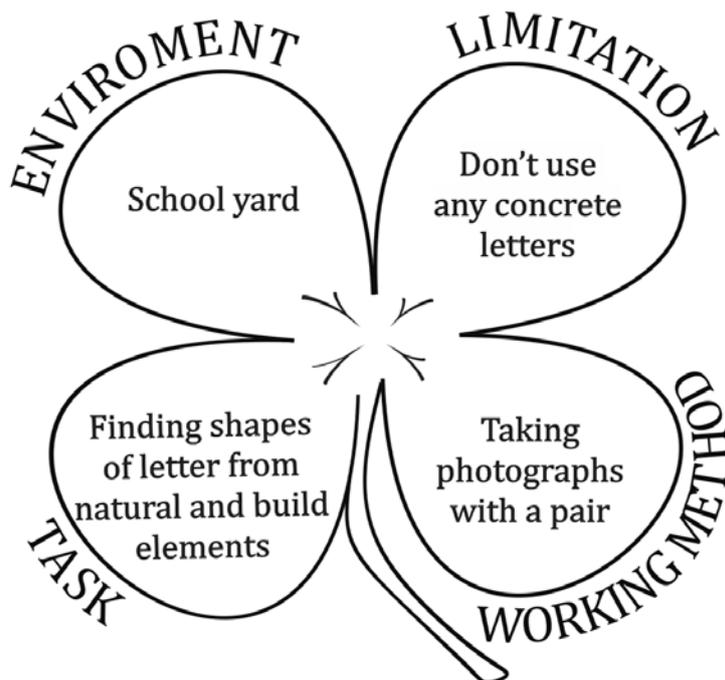


FIGURE 4 The first sequence of the teaching experiment

The children worked in pairs and tried to recognize the elements in the environment which reminded them of alphabet shapes. They then documented them by taking photographs on an iPad (Figure 5). The photographs of these shapes were presented in the classroom.

Children were very motivated during the task and after some hesitation they found shapes of alphabets in the environment that the adults had not thought of. However, the children clearly had to change their perspective on perceiving the environment, on the appearance of alphabets, and on the tasks on recognizing alphabets. During the tasks the children also learned alphabets, compared the forms of different alphabets, and had enthusiastic discussions about the forms of the alphabets in pairs. The children's visual sense was clearly strengthened. This was demonstrated in the classroom after the excursion: the children endlessly identified new forms of alphabets from the photographs taken from the schoolyard. From the perspective of the literacy this task concentrated on the shapes and directions of the alphabets and on spatial perception.



FIGURE 5 Children taking photographs of the shapes of the alphabets in the school yard

The second sequence was about sending a message to an imaginary friend in the garden (Figure 6). The whole class planned the message together, the teacher wrote it out, and the finished message was divided into units of alphabets.

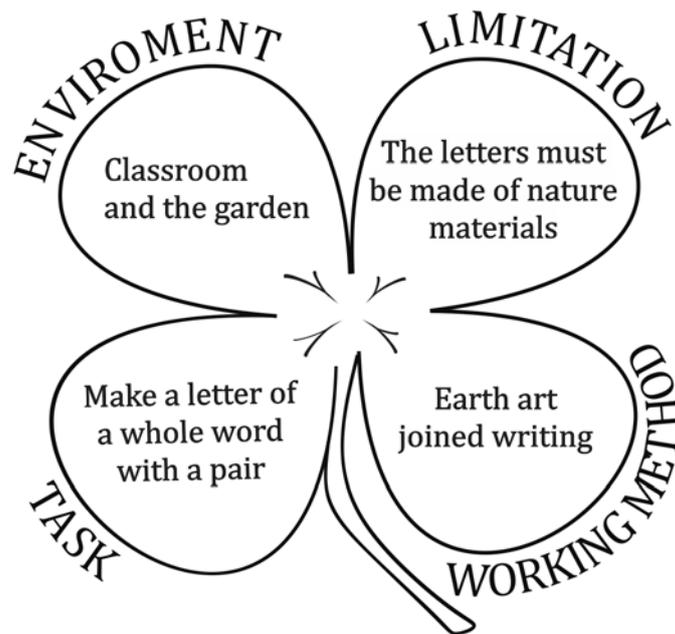


FIGURE 6 The second sequence of the teaching experiment

Children made the alphabets of the message from natural materials they found in the yard working in pairs. They photographed the alphabets after they were happy with them (Figure 7).



FIGURE 7 Children making alphabets from natural materials in the school yard

During this task children concentrated hard and the introduction of the imaginary recipient of the message clearly motivated them. The task utilized almost all the senses: The children chose the material for their alphabets by touching, smelling, and looking at different items. It was important for them to make the alphabet as beautiful as possible: they pondered the colors, shapes, sizes, smells and the meaning of the selected natural element. Popular elements were flowers and fruits, which the imaginary friend might like. From the perspective of emergent literacy, the task demanded hand-eye coordination and the perception of the details of the alphabets kinesthetically. The large size of the alphabets helped the children, and they also learned how to plan their activities together with a partner. The task was satisfying for the children, since working with natural materials enabled the children to develop and customize their alphabet until they were satisfied with it: they ran around in the yard looking for different types and sizes of natural materials, tested their suitability for their alphabet, and negotiated with their partners. Finally, the children wanted to construct a signature to the message as a group from leaves (Figure 8).



FIGURE 8 Children and their signature

The third sequence was asking children to express their ideas on friendship for the imaginary friend (Figure 9).

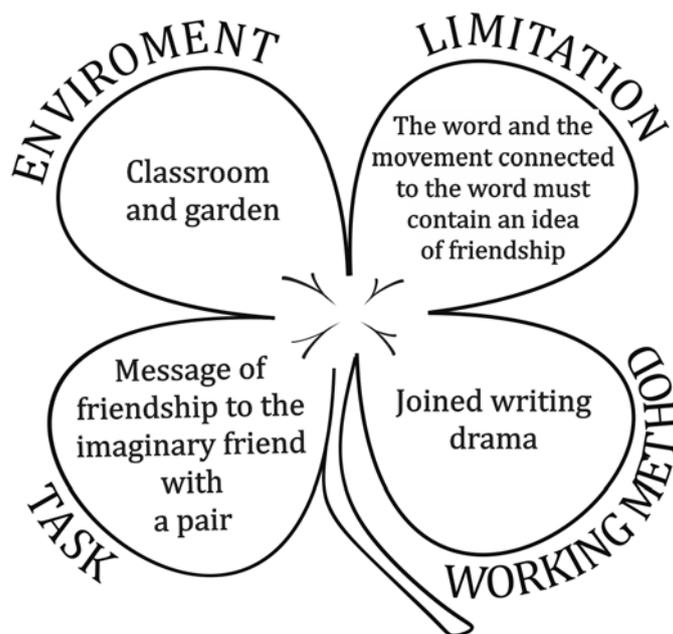


FIGURE 9 The third sequence of the teaching experiment

The children worked in pairs to write down on paper single words or sentences expressing their ideas on friendship. The papers were then laminated and hung in the garden for the imaginary friend to read (Figure 10). The thoughts were presented in the garden by reading them to others and by connecting a movement to the sentence or the word.



FIGURE 10 Children expressing their thoughts on friendship

This task concentrated on the communicative role of writing and was started in the classroom with the challenge set to express the idea of friendship on paper. The senses were connected to the task while creating the alphabets by tearing papers. However, this classroom task resembles the previous tasks implemented outdoors. Starting the task in the classroom seemed to restrict the children's activity and the student teachers said that the children were noisier.

The outdoor learning contained the choosing of an appropriate place for the message and inventing a movement to describe the message. Children walked around the yard and negotiated about where to place their message and how to present it. Most of them also took advantage of the environment when presenting their message and the movement connected to it. Some of them chose to surprise the audience by jumping out from bushes. The movement also connected bodily and kinesthetic learning to emergent literacy and from the perspective of emergent literacy the memorizing and learning of alphabets were supported in many ways: by invoking several senses, by working in pairs, by tying the task to a real purpose.

The fourth sequence required the children to individually imagine what kind of a character would live secretly in the garden (Figure 11).

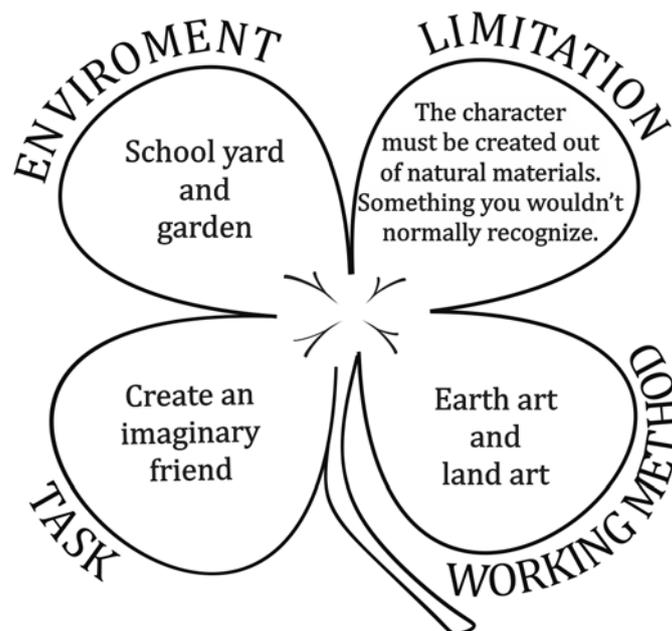


FIGURE 11 The fourth sequence of the teaching experiment

Children made individual characters from natural materials from the garden like leaves, sticks, apples, and flowers (Figure 12). Children built these characters as site-specific installations in the garden. Afterwards they spoke about these characters by the story crafting method and photographed the character.



FIGURE 12 An imaginary character made of natural materials

This task was the culmination of the whole process. The previous tasks created a personal relationship with the imaginary character living in the garden and helped the children empathize with the imaginary world. This meant that all the children had a lot of material for constructing their own visual and verbal characters. Creating the visual character appealed to all the senses and the children became immersed in making the character: they selected and changed materials carefully and walked around the yard looking for inspiration. The stories showed a multisensory learning and most of the stories contained details connected to different senses. From the perspective of

emergent literacy, this task serves as an example of respecting children's interest and confidence in, and their dedication to the learning process. The children were allowed to use their imagination, to proceed at their own pace, and to work on the task in such a way that they were satisfied with their performance.

Conclusion

Connecting multisensory learning and thinking skills in an outdoor learning environment had positive effects on the learning of literacy among a Finnish primary school group. The children's participation and thinking, as well as the child-centeredness, increased through their undertaking tasks that included both limitations and freedom: children were able to use their creativity and simultaneously reach the learning targets. The limitations made the tasks more challenging, forcing the children to come up with creative and new solutions to the tasks they were assigned to. The making and learning of individual alphabets was more motivating because the roles of single alphabets became more communicative and purposeful than in the traditional educational approaches. In addition, connecting outdoor learning to emergent literacy made the learning of alphabets more diversified and seemed to develop the children's hand-eye coordination and motor skills.

The children enjoyed moving around the school yard and garden. While learning the alphabet forms and the basics of writing they were allowed to run and play. The memory traces of the alphabets became more stable through the use of different senses and the holistic and bodily adaptation of alphabets. In addition, working in pairs and in an outdoor environment enhanced the cooperation and communication between the children and enabled the teacher to get to know them on a more personal level.

During the study the school days became more holistic and the children learned multiple things at the same time: cooperation, ICT-skills, visual arts, and literacy skills. It seemed that the lessons became more free-formed than usual and children had more time to implement the tasks. This was probably due to the fact that they only had one task for each lesson. However, the lessons were effective since the one task contained many learning targets. The use of the outdoor environment and their imagination seemed to motivate the children and bring playfulness to the school day. This is shown by the fact that most children continued the learning process at home independently by making alphabets at their home yard and photographing the forms of alphabets with parents. One of the reasons for the tasks being motivating was the fact that they differentiated the learning and the children did not become frustrated. This means that all the children

had enough time to accomplish the tasks, they all had a chance to present the outcomes to others, and they were all happy with the outcomes.

The analysis of this implementation of our design shows that in the future more attention should be paid to the target setting and evaluation of the holistic learning process. However, the use of limitations seems to benefit both target setting and evaluation. The limitations and the whole design made the tasks challenging and to resemble research. This seemed also be motivating for the children and, through the application of limitations, they were able to evaluate their outcomes themselves. The limitations made the tasks cognitively clearer.

Many teachers fear that working outdoors and letting children move and work freely might reduce the effectiveness of their lessons. The setting of limitations and carefully chosen method helped the children to work in a target-oriented manner and the learning was personalized.

Discussion

The teaching experiment described in this study is in accordance with the curriculum (2016) for primary schools in Finland and it enhances holistic learning by connecting many learning targets to one specific learning experience. Versatile educational approaches bring joy and experiences of success to the learning as well as supporting the creative characteristics of children. Art-based and situated methods and the use of a range of senses increase experiential learning and reinforce motivation. The motivation is also confirmed by pedagogical approaches that support self-management and the sense of belonging to a group. Different art-based approaches contribute to the growth of the children's sentient knowledge, healthy self-esteem, and creativity. Children should be able to express themselves in various ways and act in constructive interaction with different people and groups. The choice of pedagogical approaches should also support collaborative learning, where knowledge and understanding are developed to support interaction with others. (FNBE, 2014.)

Many theorists recommend child-centered approaches in early childhood and primary education. This means that children should be provided with motivating opportunities that stimulate exploration in playful environments. In addition to child-centered learning opportunities, the learning should involve social interaction (Tracey & Morrow,

2015). Our study shows that outdoor learning spaces connected to art-based learning creates possibilities for interaction and child-centeredness in a natural way, and teachers should be encouraged to test these kinds of opportunities. However, moving the pedagogical approaches in this direction needs careful planning and target setting. It seems that in our experiment the limitations promoted children's thinking and set clear targets for the tasks.

To motivate small children to read or write we have to strengthen children's interests, confidence, and dedication (Guthrie, 2015). Connecting different art forms to learning literacy may encourage children to develop their ideas, interests, and experiences (Jalongo & Narey, 2006). Outdoor education in early childhood and schools has been largely ignored; few educators value the opportunity for learning offered by working outdoors; many do not know how to facilitate children's curiosity and connection with the natural elements (Davis, 2009). It may be a reflection of the duality that educators face in education: education is dominated by a requirement to meet specified outcomes, while simultaneously being expected to incorporate more informal, process-led approaches to learning. The development of new approaches to the outdoor environment might provide teachers with tools for realizing the potential of that outside environment and of thinking about children's learning in a more holistic and integrated way (Aubrey, 2004; Maynard & Waters, 2007).

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