

How Schools with Good Academic Results Justify Their Use of Outdoor Education

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DOI: 10.12735/ier.v3i4p16

URL: <http://dx.doi.org/10.12735/ier.v3i4p16>

Abstract

In this study, we focus on how teachers and headmasters in Norwegian schools achieving good results on national tests justify the use of outdoor education; a practice often considered time-consuming and less effective than traditional classroom education.

The research strategy used in the study is case studies. The cases are three schools with good academic results. The study is based on seven semi-structured interviews with teachers and headmasters from the three schools. The interviews were analyzed in a comparative analysis process, aiming to develop appropriate categories descriptive of the argumentation for outdoor education.

The results show that the emphasis on academic outcome is strong, but schools using outdoor education regularly have a broader justification. They recognize outdoor education as a tool that helps create a holistic learning environment. Variation, motivation and social skills are important elements contributing to the child's holistic learning. Using the statements from teachers as a guide, we introduce "The Flower of Outdoor Education".

Keywords: Outdoor education, holistic learning, variation, motivation, social skills

1. Introduction

There is a long tradition for outdoor education in Norway. The idea of the pupil actively learning in his own local environment has been an integral part of all the different curricula used since World War 2 (Jordet, 2010). Outdoor education is a term used for all education situated outside the classroom, including excursions to museums, local industry and so on. In Norway, outdoor education has traditionally been focused on the development of physical and social skills, in addition to topics from the curriculum (Jordet, 1998, 2010).

In 1989 the OECD pointed out that Norway had no system for monitoring the quality of the schools (OECD, 1995). This, in combination with the fact that Norwegian pupils scored rather low in international tests like PISA and TIMMS, led to the introduction of national tests in mathematics, reading and English. The first test was carried out in 2004 and 2005, as described in a white Paper from the Ministry of Education and Research in Norway (Utdannings- og forskningsdepartementet, 2004). The testing was evaluated and revised in 2006, and reintroduced in 2007. Since then, all Norwegian pupils in grades 5, 8 and 9 have been tested in mathematics, reading and English every year.

The results from the national tests show great variation between different counties and municipalities, as well as within the municipality and within the school. There are also significant

differences related to gender, social background and ethnical background (Grøgaard, 2012). Children from families with a higher socio-economical standard (SES) will statistically achieve better results in school. However, some schools achieve high scores in national tests despite the fact that they are situated in lower SES communities.

The focus on national tests, combined with the pressure from international tests, has led to an increased focus on theoretical and measurable knowledge (Jordet, 2010). This may lead to a decreased focus on other values that are not easily measured. Some research (i.e. Rickinson *et al.*, 2004) indicates that this may affect the use of outdoor education, making it harder to find arguments to spend time outside the classroom.

The project “Classroom practice in schools achieving good results on national tests”, a sub-project of the project “Learning Regions” financed through The Research Council of Norway, is studying how national tests influence classroom practice in schools achieving good results, seen from the perspectives of headmasters, teachers and pupils (Lyngsnes & Vestheim, 2015). The data collection for the study showed that some of the schools used outdoor education as an integrated part of their pedagogical practice, and this led to an interest in how and why these schools use the outdoor classroom as context for teaching and learning.

1.1. Why Consider Outdoor Education

In spite of the fact that outdoor education is often seen as a positive phenomenon, relatively few teachers and schools are using this type of didactics. The demands for academic knowledge and abilities, and the increased focus on tests, lead to an increased focus on learning outcomes, the goals of the curriculum, and effective methods to reach these goals. Since teaching in a classroom is considered a more efficient use of time, this method is often preferred. Outdoor education is seen as a more time-consuming method (Carrier, Tugurian, & Thomson, 2013). There are, however, studies showing that outdoor education is an effective method for learning academic topics. For example in a study from Germany, great effects in academic outcomes were found from half a day with outdoor education. The academic outcomes were linked to animals and insects, and the attitude outcomes were more positive attitudes toward insects (Drissner, Haase, Wittig, & Hille, 2014). A study from Slovakia found that an outdoor education program about plants (3X120 minutes) gave the children significantly more knowledge about plants compared with a control group. This difference was significant even after three months. Additionally, the amount of children enjoying natural science increased in the experimental group (Fancovicova & Prokop, 2011).

How is it possible that outdoor education, which is considered a less effective teaching method, still can make significant differences in academic learning? Dismore and Bailey (Dismore & Bailey, 2005) carried out a study of outdoor education in England. 671 children ages 9 and 10 participated. The results showed that structured reflection made it possible for the pupils to understand the connection between real life outdoors and the abstract teaching in the classroom. The outdoor education led to increased understanding and felt usefulness of the academic topics. The researchers also found that this way of teaching was effective for all pupils, independent of their abilities. They even saw that pupils, who had some trouble with the academic topics in the classroom, could be some of the high achievers outside. The teachers in the study reported the pupils to show more engagement and motivation. Perhaps this difference is the result of additional opportunities offered when using outdoor education, making the teaching less abstract and more concrete. According to the history of the evolved child, the children in earlier generations always learned in a concrete setting (Bjorklund & Bering, 2000). The methods used when dealing with academic subjects outdoors, may also increase the depth of understanding (see for example Blooms taxonomy: Bloom, 1956; Krathwohl, 2002) which in turn may make it easier to remember. Learning in natural settings and green environments may also have the benefit of increased concentration (Berman, Jonides, & Kaplan, 2008). Since outdoor education often leads to an increase in physical activity (Fiskum &

Jacobsen, 2012a, 2012b; Mygind, 2007), the relationship between physical activity and cognitive ability may also influence the process of learning (Ahamed *et al.*, 2007; Etnier, Salazar, Landers, Petruzzello, & Nowell, 1997; Sibley & Etnier, 2003; Trudeau & Shephard, 2008).

There are also studies connecting outdoor education and motivation: for example a study based on interviews with teachers showed the connection between contact with nature and the pupils' academic engagement (Maller, 2009). An American study found that outdoor education in a natural environment increased the amount of child initiated learning, as well as reducing the amount of under-achievement. The study found that this kind of learning had a positive impact on children's self-esteem, making it possible for them to see themselves as strong and competent children (Maynard, Waters, & Clement, 2013). Another study found self-efficacy in different tasks to be related to each other, for example those with high self-efficacy in the outdoor wilderness also demonstrated increased self-efficacy in academic tasks at school (Widmer, Duerden, & Taniguchi, 2014).

1.2. The Aim of the Study

In this study we focus on the views and practices of outdoor education in three schools, trying to find out how teachers and headmasters justify the use of a practice often considered time-consuming and less effective than traditional classroom education. The intention of the study is not to find evidence for the learning effects of outdoor education, but to find out how teachers and headmasters at schools who are successful perceive outdoor education, both the obstacles and the benefits.

2. Method

The research strategy used in the study is case studies; the cases are three schools practicing different forms of outdoor education. The schools also achieve good results on national tests, despite the fact that they are situated in lower SES communities.

The three schools used as cases are all situated in rural communities, and they have easy access to natural environments within walking distance from the school. The schools are of a medium size, compared to the Norwegian standard.

Data was collected by visiting schools, interviewing teachers and headmasters. At two of the schools, the interviews were conducted in cooperation with two other researchers as part of the data-collection for the sub-project "Classroom practice in schools achieving good results on national tests". These interviews covered many different themes, including outdoor education. To collect more data, a third school was paid a separate visit. The interviews with the headmaster and the teachers from this school were focused solely on outdoor education; the data material from this school is therefore somewhat bigger.

2.1. Interview

This study is based on seven interviews with teachers and headmasters from the three schools. The teachers were interviewed in groups, representing grades 1 to 4, grades 5 to 7 or a mixture of the two. The interviews were semi-structured (Kvale & Brinkmann, 2009). Our own preconceptions, based on prior experience with outdoor education, were important when formulating the main themes we wanted to ascertain in the interviews. The main themes of interest concerning outdoor education were organization, obstacles, physical activity, social learning, concretization, and motivation. These themes recurred in all the interviews.

By using semi-structured group-interviews, the teachers were given the opportunity to explain their own views concerning the use of outdoor education, and their arguments for using outdoor

education as a way of reaching the competence aims of the curriculum. Interviews are seen as a good way of collecting data about the way the informants think, experience and interpret their own practice (Kvale & Brinkmann, 2009). Semi-structured interviews with the school headmasters highlights discrepancies in the schools' perception of the importance of outdoor education, while using different informants contributes to the reliability of the study by approaching the same phenomenon from a variety of perspectives.

Our own experience with outdoor education has been positive, which will naturally color our thoughts and feelings. The preconceptions of the researcher may lessen the construct validity and, the objectivity of data collection (Yin, 1994). We have tried to minimize the effect of our preconceptions by using open questions, allowing the respondents to talk freely about their own thoughts and experiences. As mentioned above, the data collection at two of the schools was conducted in cooperation with two to four other researchers. This may increase the construct validity by ensuring that one set of preconceptions is not allowed to dominate the interview, thus making the subjectivity of each researcher less significant. Nevertheless, the preconceptions of the researcher cannot be completely ignored, and honesty about one's own preconceptions is important.

2.2. Analyzing the Data

In the first step of analyzing the interviews, the informants' statements were interpreted and grouped into six main themes of interest (organization, obstacles, physical activity, social learning, concretization and motivation). These themes were used to describe the three cases. The different themes were then analyzed again in a comparative analysis process, comparing themes to develop appropriate categories to describe the core message of the interview. These categories were then used in the comparison between interviews and between schools. NVivo was the data analysis tool used in this process.

Two researchers worked together to analyze the data, thus increasing the reliability of the analysis. The results of the analysis were also presented and discussed in a group of researchers connected to the sub-project, "Classroom practice in schools achieving good results on national tests".

The goal of this analysis was to develop categories descriptive of the argumentation for outdoor education as part of these schools' efforts to help the pupils to reach the competence aims of the curriculum, and to uncover similarities and differences between schools.

2.3. Ethical Considerations

The data used in this study is part of the data collection of the sub-project "Classroom practice in schools achieving good results on national tests" which has been approved by the Norwegian Social Science Data Services (NSD). Although the topic for this study is not considered sensitive, the data is still treated confidentially. To avoid recognition, the name and location of the schools are not mentioned, and all respondents have been anonymized.

3. Results

3.1. The Cases

School A has about 190 pupils and 24 teachers, grade 1 to grade 10.

The school uses outdoor education in grades 1 to 4 about 3 hours a week. Within walking distance from the school there are adapted outdoor areas used regularly. The school has a school garden situated on a farm nearby and an agreement with the farmer where pupils in grades 3 and 6 use the farm as a learning area. The regular use of outdoor education decreases from grade 5, but in lower

secondary (grades 8 to 10) the pupils have two longer school trips to outdoor areas. The headmaster of the school emphasizes the need to concretize the theoretical topics of the curriculum, especially mathematics, even for the older children, and points to outdoor education as one way of achieving this.

Data from this school consists of one interview with the headmaster and one group-interview with teachers representing grade 1 to grade 4.

School B has about 190 pupils and 23 teachers, grade 1 to grade 10.

The area surrounding the school has been adapted for play and learning activities, and is used for outdoor education. The children are encouraged to use the area, for example by providing building materials to build small cabins or shelters. The school has established a routine in which the entire school spends a full day outside, working together with different subjects, such as mathematics or science. There is, however, no regular plan or schedule for the use of outdoor education; the individual teacher must determine whether the topics from the curriculum are suitable for outdoor education. Because of this, the use of outdoor education varies, but some of the teachers use it quite often.

The school emphasizes the close cooperation with the local community, and has regular visits to local industries or public services. It is also noteworthy that practical knowledge, for example playing a music instrument, is emphasized as an important factor in the development of the children.

Data from this school consists of one group-interview with the headmaster and the vice headmaster, and one group-interview with teachers representing grade 1 to grade 10

School C has about 145 pupils and 17 teachers, grade 1 to grade 7.

Similar to school A, this school uses outdoor education regularly 3 hours a week from grade 1 to grade 4. There are adapted outdoor areas within walking distance, but the children are also taken on longer walking or bicycling trips. The school has a hen house and the pupils are responsible for cleaning, feeding the hens, and collecting eggs. As for school A, the regular use of outdoor education decreases from grade 5.

Data from this school consists of one interview with the headmaster, one group-interview with teachers representing grade 1 to grade 4, and one group-interview with teachers representing grade 5 to grade 7.

3.2. Support and Obstacles

Both the teachers and the headmasters at the three schools confirm that the local communities support the use of outdoor education, and that the parents are mostly positive. However, some of them are also concerned about the learning outcome of outdoor activities. The parents of children starting at school C participate in an “introduction course for parents” where they, among other things, are shown the area used for outdoor education and how they use it. According to the headmaster of school C, one of the fathers later said that if he had not had the opportunity to participate in the presentation of how they used outdoor education, he would never allow his child to take part in it.

Both the teachers and the headmasters from school A and C express the view that outdoor education could have been used more from grade 5 up. The main obstacles for this are time and organization. Time, because outdoor education is considered time-consuming and not as efficient as regular classroom education, and the demands for academic achievement increase from 5th grade. It is difficult to find time to spend on activities not directly related to the learning outcomes dictated by the curriculum.

It's hard. It really is. To do everything we are supposed to do according to the curriculum, that's almost impossible. But we strive to get better. To reach several

goals simultaneously. To let the curriculum guide our teaching, not the books we are using. To combine different subjects. The education can be more varied, more exciting because of this. (Teacher, school C).

Organization is considered to be an obstacle when outdoor education is not scheduled in the timetable, because several teachers are involved, and changing the timetable of the day may be difficult. At school B, where there is no regular schedule for outdoor education, this is said to be the main obstacle for spending a day, or part of a day, outside the classroom even for grade 1 – 4. However, it is done, especially with the youngest children, but the frequency has been reduced:

It's not right, you know, to keep these children sitting on a chair the whole day long. They are not made for that... But of course, the focus on learning outcomes is much greater now than it used to be. (Teacher, school B)

3.3. Different Priorities

Two schools (A and C) are very similar in the way outdoor education is organized and in the way they described their practice. The third school (B) has a different approach in that they do not have regular outdoor education; the decision to use outdoor education is left to the individual teacher. The focus at this school is almost entirely on the competence aims in the curriculum:

We have said that if you can't pin a competence aim to your activities outdoor, you can as well stay inside! (Headmaster, school B)

Some teachers, especially science teachers and physical education teachers use it quite often, but the focus is then almost entirely on the specific subject.

Teachers are aware of other aspects of outdoor education, but are loyal to the signals from the headmaster:

We in primary school use it (free play), but you know, when we are outside we have a goal, we teach a subject. Then, when we are outside, they get a carrot in a way; they can play a little. We must not forget the importance of playing, especially for the little ones. ... Play is not just play. When we allow the children to play, we have an ulterior motive. And they will understand that we are in fact teaching a subject. (Teacher, B)

Even at school A and C, where they have outdoor education on a regular basis, the focus on competence aims is emphasized. At these schools, however, both teachers and headmasters have a broader justification for the use of outdoor education. The results from these two schools will therefore form the basis for further analysis.

3.4. Why Use Outdoor Education?

The teachers and headmaster from school A and C argue that being outdoors creates a wide variety of different learning situations that can stimulate the development of the pupils; that can make them “blossom”:

And then there are some side effects that I find incredibly valuable. One is that the pupils mastering the outdoor environment best are often not the same as those who are mastering the classroom best. And then there's the aspect of social learning. You can find new friends, bonding to the class environment in a different way when we are in the woods. We have a small campfire, and it's sort of cozy. And you can hold a hand and you can talk with the pupils about something completely different from what you're supposed to learn in math now, something completely different - maybe you said something very important to them that day? So there are so many side effects - that is not why we go out in the woods, but it is important. (Teacher, C)

I think it's a marvelous learning arena! We can see how the pupils grow, how they blossom when we are outdoors ... (Teacher, A)

Through the analyses of the interviews, two main categories stand out as important: variation and holistic learning. Outdoor education makes space for a wide range of activities creating variation, and variation is the foundation of the growth and “blossoming” of the children. Variation creates different learning situations that stimulate social learning, courage and stamina. The children can experience the mastering of challenges, which in turn increases motivation and understanding. Holistic learning is the final goal of this process.

3.4.1. *The Roots of Variation:*

Outdoor education is described as a way of achieving physical activity, play, realistic learning situations, and enquiry based learning. These can be seen as different dimensions of the main category variation.

- *Physical activity*

The increased opportunities for physical activity are seen as important for all the children, but it is also described as especially important for some groups:

We have a large class now, with many active boys who are not very fond of school – at least they were not very fond of it. So it is important to create opportunities for them where they thrive and feel that they master the situation ... (Teacher, C)

- *Play*

The opportunity to let the children play is also an important aspect. Some of the teachers describe play as a method to achieve learning without knowing that you have been taught. As an example, one of the teachers from school C describes how a child who could not yet read or write, spelled out the name of his father with sticks thinking that this was playing, not writing:

... in first grade we used sticks to make the letters that they had learned, or spelling their names if they could, and a child that had not read or written anything until then had suddenly made the name of his father – a long name... (Teacher, A)

- *Realism*

Outdoor education is seen as an opportunity to create realistic learning situations where theoretical knowledge can be used in a “real life” setting. This method is described as important for many different subjects, for example mathematics and science. It is considered a way of helping children to understand theoretical subjects, and is also seen as a way of creating learning situations that will give children the opportunity to use different learning strategies.

We know that we have to use different methods to ensure that the children reach their goal. And we think that outdoor education and a practical approach is good – we can reach a lot of pupils ... (Teacher, A)

... it is easier when you can “make it real”... we can build a boat and bring it outside to test it in the creek. It is easier than using the sink. (Teacher, C)

- *Inquiry*

Outdoor education is described as a way of stimulating the children’s curiosity, thus giving teachers the opportunity to use experiments and inquiry based teaching: “Does this stick come back if we throw it into the water here? Where does it go?” – Things like that. This is also described as a good method for combining outdoor activity and traditional classroom teaching.

3.4.2. *The Effects of Variation, and the Roots of Holistic Learning*

The variation made possible by using outdoor education is described as an important factor in developing stamina and self-confidence, in developing social skills and relations, in giving all children the opportunity to experience mastering, and in increasing the motivation for learning and the ability to concentrate on a given topic. All these effects can be seen as dimensions leading towards the final goal of holistic learning.

- *Developing perseverance through physical challenge*

Hiking trips in the mountains or bicycle trips are used to motivate the children to push themselves harder. The teachers link this physical experience to the ability to push themselves in general, that mastering the physical challenge gives children the courage and self-confidence necessary to master mental challenges:

... let them be thirsty, let them be tired, let them feel that they can endure. They don't die – they can handle it. And they can also handle it when they have to push themselves a little to sit still and write in a book for an hour or so ... It's about making them stronger as a person ... (Teacher, C)

- *Developing social skills through shared experience and strengthened relationships*

Outdoor education is described as a good method for giving the children shared experience. The well-being and cohesion of the group is increased by being together in play and activities, and this also leads to closer relationships between the children within the group, and between the pupils and the teacher. The teachers emphasize the importance of forming good relations (*... I'm convinced that if we had not formed such good relations between us and the children, we would not be where we are today ...*), and they also emphasize the effect outdoor education may have on the ability to accept each other, since the variation allows the children to show many different aspects of themselves.

- *Mastering and motivation*

The variation made possible by outdoor education is seen as an important motivating factor. Variation can be motivating in itself, and through variation all children can experience mastering of different tasks, a feeling closely linked to motivation. Outdoor education is seen as a good method for adaptive education since the children can approach the theme in question in different ways and on different intellectual levels:

... I think that it's much easier to adapt the teaching to the individual child when we use outdoor education. It's more automatic, in a way ... The children can work with the theme in question on their own level ... (Teacher, A)

Using outdoor education can thus be seen as a way of motivating all the children, not only those who are theoretically strong.

3.4.3. *Holistic Learning*

Through outdoor education, the children can combine theory and practice. Their theoretical knowledge can be connected to real life situations. Through realism and inquiry-based approaches to the theme, the children can use different learning strategies, thus also enabling those who are not strong theoretical learners.

For some children sitting in the classroom is OK, but some thrive and blossom when they can be outside. And I think that we, if all we did was sitting at the desk, would hamper the development of many children. (Teacher, A)

The Norwegian Curriculum emphasizes the development of all aspects of the human mind and body, the integrated human being. Outdoor education is seen as important in reaching this goal, perhaps even the only way of reaching it:

... talking about the general part of the curriculum, the integrated human, I think outdoor education is essential. You get to use yourself in ways that you cannot achieve in the classroom. You can integrate your whole personality... (Teacher, A)

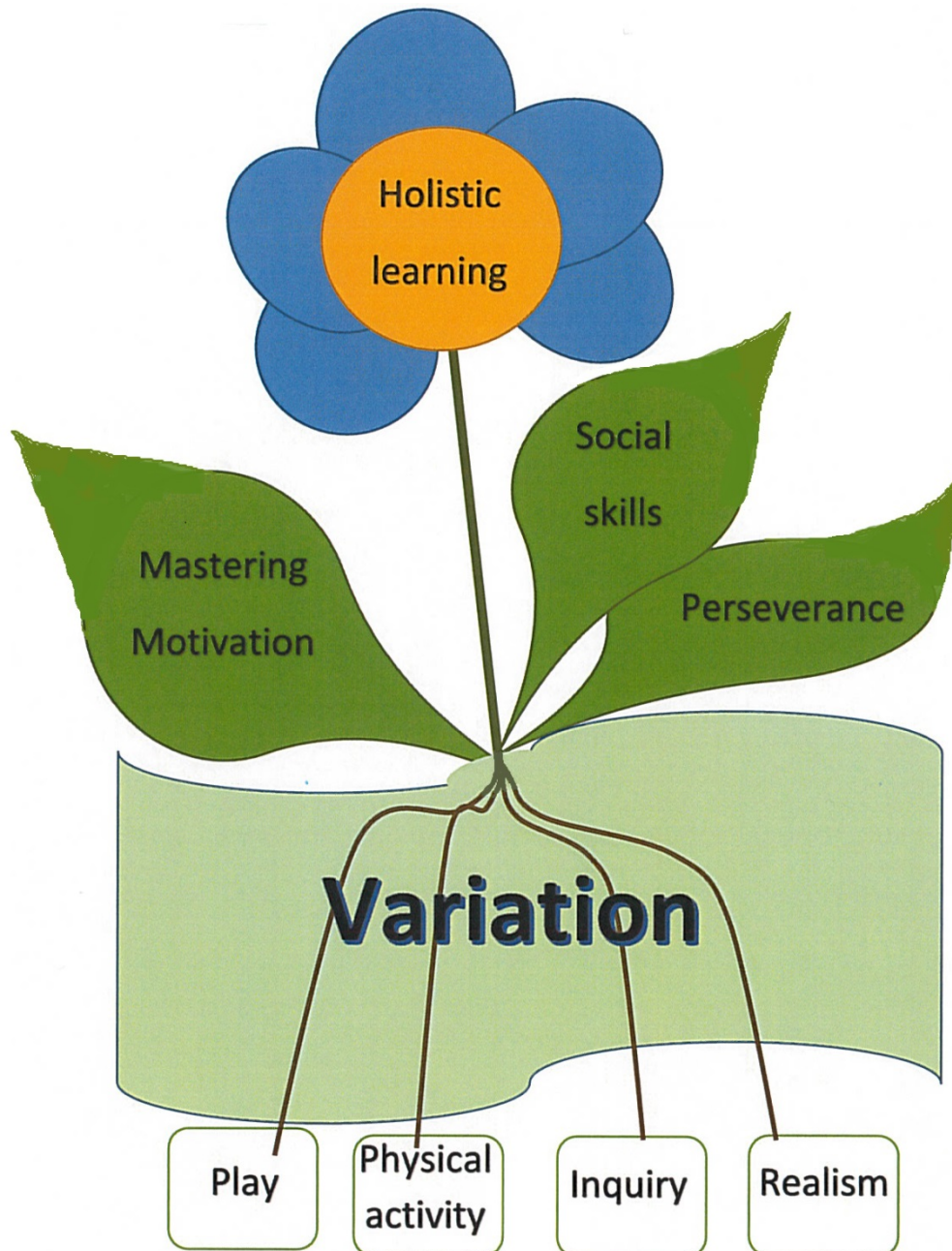


Figure 1. The flower of outdoor education

The process of stimulating holistic learning by means of outdoor education can be illustrated as a flower (figure 1) where the outdoor environment provides space and opportunities to a wide

variation of learning situations (the “roots” of the flower). This variation stimulates physical and mental stamina, social skills, and good relationships in the group of children. It allows the children to experience mastering of different situations, and increases motivation for learning (the “leaves” of the flower). The roots and the leaves will then be the nourishment needed to achieve the goal of holistic learning and let the child “blossom”.

4. Discussion

The teachers in the study talk about the children’s blossoming both directly and indirectly. This is in accordance with Rousseau’s statement (Rousseau, 2010); make the education natural and the child’s potential will grow and blossom. Consequently, we have to let children develop freely and not be so concerned with filling their heads with as much knowledge as possible. The flower we have drawn based on the teachers’ statements (the flower of outdoor education), has components that represent the children’s need for play, physical activity, enquiry, and the need for concrete, not abstract, learning. It also presents the importance of mastering, motivation and perseverance, as well as social skills, to make sure the learning process is positive and leads to a holistic learning. The flower image reflects this group of teachers who support Dewey’s ideas that education is holistic and not mechanical and dualistic (Dewey, 1966, chapter 11). The children need to use their whole body in the process of learning, because the body is their intellectual tool (J. Dewey & E. Dewey, 1915, chapter 1).

4.1. The Roots of the Flower

The roots of the flower of outdoor education are based on variation and several factors leading to variation, as well as addressing the individual needs of each child. Since every child is unique, variation and activity is important to let every child blossom.

Each of the four roots of variation has a specific purpose in creating a holistic educational environment. Play is a part of being a young human being (Huizinga, 2000), and consequently it is important to help the children blossom. The teachers also highlight the variability of affordances and the possibilities for individual choice that play gives the children. This can make task challenges more suitable for each child, which is in accordance with Csikszentmihalyi’s (2000) zone of flow.

Physical activity is seen as important for human beings (Bailey, Hillman, Arent, & Petitpas, 2013; Chaddock *et al.*, 2012; Donnelly *et al.*, 2013; Hillman, Buck, Themanson, Pontifex, & Castelli, 2009; Raine *et al.*, 2013), and the need for physical activity is not a new idea. John Dewey and his daughter, for example, wrote in 1915 (J. Dewey & E. Dewey, 1915) that nature created the young human being to be in motion, not static, sitting behind a desk for hours. To sit quietly and physically passive in a classroom requires a lot of behavior regulation (see for example Fiskum & Jacobsen, 2013; Jacobsen & Svendsen, 2010) which is especially difficult for some children (Fiskum & Jacobsen, 2012a). Decreasing these demands for behavior regulation may therefore increase possibilities for learning.

The third root of variation is Inquiry. This way of learning often works from the bottom up, creating the interest before the learning goals are understood, consequently activating more internal and real motivation for learning. (Fallik, Rosenfeld, & Eylon, 2013). This can then give rise to a deeper understanding, a concept supported in Bloom’s taxonomy (Bloom, 1956; Krathwohl, 2002).

The last root is Realism, which supports the concept of the evolved child (Bjorklund & Bering, 2000) and can be seen as an evolved need. In earlier generations children learned in realistic settings. Today most learning activities are abstract, situated in a classroom, and the children may not be able to understand the connection to the real world.

4.2. The Energy Supplies of the Flower

The leaves of a plant are the seats of photosynthesis, and as such are a necessary “power station”. In the flower of outdoor education, this power station consists of the feeling of mastering, of motivation, of perseverance, and of social skills.

Motivation can be seen as the force that gives energy and direction to our behavior (Deci & Ryan, 1985). The feeling of mastering is essential for motivation. For example, the feeling of mastering brings us into a positive circle of motivation; feeling some kind of mastering, motivates us to try harder which increases our abilities and fosters more experiences of mastering (Harter, Whitesell, & Kowalski, 1992). Mastering is therefore crucial for motivating children (Csikszentmihalyi, 2000; Deci & Ryan, 1985; Harter, 1980). Another element that is important for a child’s motivation for academic work is the child’s interests. If children are not interested and motivated for the task, some of them may be able to sit quietly and regulate their behavior, but in their heads they are “doing other things” than the academic work (Dewey, 1972). Working with children’s motivation and their ability to feel mastering is therefore crucial at school. The roots, and the different things they represent, accommodate the variety of interests and needs children have. The variability represented by the roots, will open for different activities and approaches, embracing more of the children’s nature (Fiskum, 2015), This in turn can give rise to the leaf of motivation.

A Danish study found that increased social skills are an outcome of outdoor education (Mygind, 2007) increasing the social relationships between the pupils. Similarly, a British study found outdoor education beneficial for emotional variables like energy, mood, stress and anger (Roe & Aspinall, 2011) which then contributed to improved social skills. In a study from the United States, they found that a five-day camp out in nature in which no electronic devices were allowed, the children significantly improved their ability to understand facial expressions representing different moods (Uhls *et al.*, 2014).

Increased social skills might also be a result of better emotional regulation or executive function, which is increased by physical activity (Etnier *et al.*, 1997; Sibley & Etnier, 2003; Tomporowski, Davis, Miller, & Naglieri, 2008) or by being exposed to a greater variety of experiences (Panksepp, 1999; Sroufe, 1996).

Some of the teachers in this study see the potential for transferring the mastering experiences pupils gained through physical activity in nature into expectations of mastering in academic topics. This confirms the results Widmer *et al.* (2014) found when applying Bandura’s concept of self-efficacy; an increased self-efficacy in the outdoor wilderness was connected with a high self-efficacy in academic tasks within the classroom.

4.3. The Flower: Holistic Learning

According to the analysis of the interviews, holistic learning consists of two dimensions. First, *the academic topic is approached from many sides, giving it a wholeness that is achieved by making a connection between the theoretical and the real life topic.* This wholeness can provide motivational benefits and may lead to a broader understanding. The other dimension is the opportunity for the child to use all his or her senses and abilities, which can benefit the development of the whole child. This way of filling the gap between theory and real life supports both Dewey’s views (see for example Dewey, 1966, chapter 1), and that of the evolved child (Bjorklund & Bering, 2000). Outdoor education increases children’s communication with each other (Fiskum & Jacobsen, 2012a, 2012b, 2013) and consequently may have a positive influence on children’s social relationships (Bentsen, Mygind, & Randrup, 2009; Mygind, 2009), their health and wellbeing (Bentsen *et al.*, 2009; Kamitsis & Francis, 2013; Zelenski & Nisbet, 2014), and their feelings of stress relief (Maller, 2009). For children showing aggression, inattentiveness, impulsiveness or hyperactivity, the outdoor education practice may have an even more positive effect on their

behavior (Fiskum & Jacobsen, 2012a; Roe & Aspinall, 2011; A. E. van den Berg & C. G. van den Berg, 2011) and as a consequence may influence the development of self-esteem (Mead, 1934). Exposing children to physical challenges which they then discovered they could endure, was also something the teachers commented on, hoping this physical experience would transfer into perseverance and greater ability to endure challenging tasks in the classroom. Maybe it does: a study of 262 youngsters found self-efficacy in the outdoor wilderness did transfer into self-efficacy in academic topics at school (Widmer *et al.*, 2014).

4.4. Concluding Remarks

The intent of this study was not to find evidence for the learning effects of outdoor education. Instead, it examines how teachers and schools who are successful perceive outdoor education, and we have considered both the obstacles and the benefits they have experienced. The greatest obstacles are the lack of time to spend on less efficient teaching methods, and the challenge of organizing outdoor education within the limits of a time schedule involving several teachers and different subjects. Teachers and headmasters, as well as parents, seem to be positive about the use of outdoor education, but the emphasis on academic outcome is strong at all three schools.

The teachers from schools A and C, who use outdoor education regularly, recognize it as a tool which helps create a holistic learning environment through the utilization of play, physical activity, and the development of perseverance. Experience of mastering, increase in motivation, perseverance, and social skills gleaned from outdoor education may take time away from academic teaching in the classroom environment, but this group of teachers still found this tool useful. Their statements are in accordance with the theories and research articles we have outlined in this article: outdoor education may be a tool that allows children to blossom and at the same time achieve good academic results.

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