

*Outdoor Education - Authentic Learning in the Context of
Landscape Literary education and sensory experience.
Perspective of Where, What, Why, How and When of learning
environments. Inter-disciplinary context and the outdoor and
indoor dilemma.*

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**The distinctive nature and potential of outdoor education from a
teacher perspective**

An intervention study of teachers in nine-year compulsory school

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June, 2006

Summary

In the article, it is argued that a larger part of the school's teaching should be conducted in an outdoor environment. This could increase pupils' motivation. Earlier research on the outdoor environment has shown positive effects on both wellbeing and health. In an intervention study of teachers in the nine-year compulsory school, the teachers in the intervention group used outdoor education under supervision. In interviews after the intervention, it was found that the teachers held fairly clear, if varying, conceptions of the distinctive nature of outdoor education. Measurements of the mood among the teachers in both the intervention group and a reference group showed that their mood had become less positive during the years that had passed between the measurements, although less so among the teachers in the intervention group.

Question and theoretical background

Question

The overarching research question in the present study is: *What conceptions of outdoor learning do teachers have and what is the impact of an outdoor educational intervention on these conceptions and on the teachers' wellbeing measured as the outcome on a scale that rates mood.* The investigation is designed as an intervention study with a total of 11 participants, 6 in the intervention group and 5 in the reference group. Learning in traditional teaching is usually based on texts and has often resulted in surface-oriented learning, i.e. it is the text itself rather than its object that is the subject of learning. With a pedagogy based on *sensory experience*, learning would probably have a deeper approach. Direct physical contact with natural and cultural phenomena increases the *authenticity* in learning by providing a link to an approach that should reasonably be innate in human beings. We learn not only by seeing and hearing but also by smelling, feeling, tasting and touching; "to grip to grasp", to use a metaphor for the distinctive character of outdoor education. We argue that in the authentic encounter with the outdoor environment there exists an important source of motivation for meaningful and creative learning processes (Dahlgren & Szczepanski, 1997). The research group at the Centre for Environmental and Outdoor Education, Linköping University, has proposed the following definition in an attempt to describe the field of outdoor education:

- * Outdoor education is an approach that aims to provide learning in interplay between experience and reflection based on concrete experience in authentic situations.
- * Outdoor learning is also an interdisciplinary research and education field, which involves, among other things:
 - the learning space being moved out into life in society, the natural and cultural environment,
 - the interplay between sensory experience and book-learning being emphasised,
 - the importance of place being underlined.

(Center for Environmental and Outdoor Education, 2004)

A characteristic of the distinctive nature of outdoor education is action-oriented learning, which emphasises *development of knowledge through activity*. Further, the natural environment is regarded as both the *place* and the *object* of learning. We also see outdoor education as a *way* of learning. Learning in the cultural and natural environment is more than an opportunity for fresh air and exercise. Linguistic concepts are incorporated through firsthand experience and direct physical contact with the phenomenon out of doors. Outdoor education enables interaction between emotions, actions and thoughts to take place. In the institutionalised school, the classroom often limits this interaction. These assumptions are the main reason for including measurements of moods via the Mood Scale. Human mental function is usually divided into three basal categories: thinking, will and emotion (Parkinson, 1996). The term mood falls primarily into the category emotion, but influences and is influenced by thought together with the fact that mood can have a direct influence on motivation and will (Parkinson, 1996). It is reasonable to assume that changes in mood play an important role in the interplay in the learning environment and the propensity to complete an educational task.

Outdoor education has the prerequisites to become an integrative, complementary education form in a pragmatic and progressive pedagogy tradition by offering students and teachers opportunities to learn based on observations and experiences in authentic situations.

We should create the necessary conditions for learning in interaction between text (book-learning) and non text-based practices (sensory experience) where physical activity and movement can support learning. The identity of outdoor education can be found in both *edited*, arranged environments such as botanical gardens, zoos and natural and cultural history museums prepared for educational activities and purposes. It can also be found in *unedited* environments such as our cities, cultivated, forested and water landscapes. Outdoor education is a theoretical perspective, one of the few – if not the only – example of how a pedagogy is defined with one expression, which specifies learning's location: its *where*.

Outdoor education's *didactic identity* is determined by the fact that the physical natural and cultural environment furnishes the content of learning, i.e. the identity of the phenomenon outdoor education is characterised by actual physical presence also by its holistic nature. Outdoor education is, however, not automatically more holistic than traditional classroom teaching. In the hands of an unaware educator, reality itself can be exposed to fragmentation. The experience, in every sense of the word, is often specific and situated (Dahlgren & Szczepanski, 1997):

Reflection is required to be able to transform experience into knowledge. We argue that the distinctive nature and identity of outdoor education has a potential, as if it is realised through educational awareness, that can benefit meaningful learning (Ibid, p. 40)

With outdoor education, a more movement-intensive form of learning is created in preschool and school, which is currently supported by several scientific studies focusing on our relations to the physical environment (e.g. Grahn et al., 1997). Through the way we have built society, we have eliminated people's natural need of

movement and this is probably one of several reasons for the high ill-health figures in society.

It is reasonable to assume that the desire to learn is dependent on the feeling of health and wellbeing. The curriculum supplements in these areas are a consequence of a growing number of reports pointing to changes in both health risks and life style. Children do not get enough exercise and gain weight. Since all pupils spend a large part of the day in school, the school's ways of arranging learning play an important role in the development of their health and ability to learn (The Swedish National Agency for School Improvement, Curriculum Supplement, 2003).

In view of the conditions in modern society, it is important that spaces for outdoor education are created in our urban environments. Biological and ecological diversity should be increased in parks, green refuges and schoolyards together with opportunities for greater contact with this diversity (Björklid, 2005, Dahlgren, & Szczepanski, 1997, Lindholm, 1995, Åkerblom, 2004). Today, the densification of our living environments often eliminates the green areas around the cities, which are replaced by shopping centres, residential accommodation, roads and multi-storey car parks. This trend does not promote the health factors in the relationship between humans and the physical environment. Today's society also creates school environments in preschool and school, which far too often lack green areas for playing and learning (Danielsson et al., 2001, Mårtensson, 2004, Sandberg, 2002). When the protective fences increase, the individual is also separated from the surrounding world and access to more movement-intensive learning environments. Today, the principal movement arena for children and young people often consists of a triangle comprising the home, the shopping centre and school.

From a health promotion perspective, we must thus begin to think about how the whole education system can help to break this "triangular life form" and create other communicative environments for learning.

Earlier research on the distinctive nature of outdoor education

Knowledge as activity

Researchers in Umeå (Hartig, T. et al., 2003) have shown in a study how eye movements are linked to hand movements. When this link has been established, imagining the movement is sufficient to reinforce what has been learnt. The nerve circuits connecting the movements and the thoughts that go with them are thereby activated and become automated in the body (TIG 8/2003).

Both Dewey and G.H. Mead argue that learning must be seen as part of a social act and as processes in an intersubjective web. For Dewey, learning was a continuous construction of experience where the learning process's creative elements could be the unforeseen encounter with the unstructured environment. In outdoor-based learning, this feature is more present than the structured encounter with the unforeseen in a classroom context, which can easily become a more reproduction-oriented environment with learning separated from its authentic context where

phenomena and processes really occur. Dewey also discusses the criticism of the narrow activity orientation to which the progressive education movement has been exposed. Dewey's original wording was: "Learn to Do by Knowing and to Know by Doing". This was a central message in the book *Applied Psychology*, which he wrote together with J.A. McLellan in 1889.

According to Dewey, the activity "learning by doing" or "learning under the skin" is by itself insufficient to explain the learning process. It is the relationship between knowledge and act that is primary. This is clearly expressed in one of his later writings:

Learning by doing does not, of course, mean the substitution of manual occupation or handwork for textbook studying. (Dewey 1915/1979, p. 255).

The school trip method

At the beginning of the 20th century, Johan Bager Sjögren, a senior lecturer of theoretical philosophy, was a strong advocate of the school trip method. The reasons behind the method included teaching and fostering, where the educational trip was already an established method for the acquisition of knowledge. A quotation (Bager Sjögren, 1985, p. 169), which was used by Rantatalo (2002) in her doctoral thesis (p. 87) illustrates this under the heading "In the open air – the new school order"

Despite all the progress made, it can also easily be seen that the word and the book, or as the old catchphrase goes, verbalism, which was the school's archenemy in the old days, is still far from being overcome. Consequently, we should give the young people no other textbook than reality itself – for only it [reality] corresponds to the demands of the objectification principle. (Ibid, p. 87)

A health, environmental and movement perspective

Studies by Kaplan and Kaplan (1994) show that activities in nature give satisfaction. Visits to natural and cultural areas result in people being more satisfied with their leisure time and functioning better in the workplace. Nature relieves stress, concentration improves, spontaneous observation increases, we become more alert, calmer, less disposed to conflict and clearly healthier when we re-establish the connection with the physical environment. The influence of our evolutionary heritage, the so-called biophilia hypothesis, is perhaps one of the causes of these physical reactions (Kellert & Wilson, 1993). In another investigation, Hartig et al. (2002) showed that both systolic and diastolic blood pressure fell in persons who spent 40 minutes walking in a nature reserve but not when they spent the same amount of time in a busy city centre. When the physical environment stimulates emotions and experiences, we have a greater sense of wellbeing. This was interpreted as an expression of the influence of the outdoor environment. Plants and contact with nature creates harmony, an environment that can be taken in, environments with green refuges and Nature's design benefit our health.

Organic forms are preferable to straight lines. Sterile environments with straight lines, endless corridors and symmetrical facades have a negative effect on health. These

types of environments do not reinforce a sense of context. When pupils make their own observations and gain their own experiences, which is typical of learning in outdoor environments, they acquire the status of subjects in the interaction with the teacher. The classroom situation, rather, reduces the pupils to objects since their own observations play a very marginal role.

The subject role reinforces the feeling of control, which many teachers and pupils feel is lacking in today's classroom. In today's classroom, the educational goal is, rather, removed from its context and the reality in which the children's bodies exist – their bodies change and contain change/movement. The traditional classroom does not relate in a dynamic way to the life the child feels in its body. In this way, we are separated from the life world, the contact with objects and life itself, which can be seen in Merleau-Ponty (1977) and Duesund's (2003) description of the experiencing body, the personality's subject through which awareness takes form. The learning body in movement increases the status of the sensory experience's path to knowledge in the learning process. This makes visible the body's circularity, i.e. the learning body becomes at the same time subjectively lived but also physically objective. The life values are "too reflexive", we experience learning as being directed towards the intentional object before we reflect on it. The architect and researcher Alan Dilani, at the Department of Design and Health at KTH South in Haninge, conducted this study of organic forms and sterile environments in collaboration with Karolinska Institutet in Stockholm, Harvard University, International Academy for Design and Health and the University of Montreal, Kanada. The study was reviewed in the journal *Utblick Folkhälsa* (1/2003, p. 9-11).

There is no doubt that movement and physical activity are health factors and that children with access to a green and varied outdoor environment are healthier, vary the games they play more and develop a better ability to concentrate than children in artificial and less stimulating outdoor environments. It has also been found that large preschool playgrounds with greater biological diversity stimulate the children to spend more time out of doors. The good place for small children is the "sandpit", but also space-forming green environments, which create personal space, challenges, excitement and fascination as well making it possible for the children to rest and reflect (Grahn, 1997). Other studies confirm these positive effects of spending time out of doors on our health, motor learning, ability to concentrate and learning (Fjørtoft, 2000, Ericsson, 2003, Nilsson, 2003).

In a doctoral thesis reporting on an intervention study, which is part of the Bunkeflo project in Skåne, Ericsson (2003) showed how motor activity, ability to concentrate and achievements in Swedish/writing ability and mathematics visibly improved when one hour a day was set aside for movement and physical activity. 251 pupils in nine-year compulsory school, grades 1-3, were studied. Outdoor activities indirectly increase movement and physical activity, which are of vital importance for the pupils' health. In her doctoral thesis *Landskap i leken* (2004), Fredrika Mårtensson describes how the natural environment forms games. The children release control and allow the environment to form their activities. One could say that "the environment plays with the children". Out of doors, the children interact more intensively with the physical environment. The teachers grant the children greater freedom of movement out of doors and allow them to explore the environment on their own. Playing out of doors is very concrete and mobile, and the children communicate more with their bodies than

with words. Nature's ambiguity means that the children can decide how to use the environment. The children move from one place to another. They make use of the situations that arise in their contact with the environment. Areas where they can run give them a sense of space and create incentives for movement (Mårtensson, 2004).

Heurlin - Norlinder (2005) states in her doctoral thesis *Platser för lek, upplevelser och möten* that there is a lack of insight into the importance of the local environment and places for children's development. The local environment's importance as an informal learning environment is emphasised in this study. The thesis takes as its starting point children's own experiences and descriptions but it also has an adult perspective on what is regarded as being important for children's development. It is also noted that children's access to the local environment has decreased, which has resulted in a loss of freedom of movement (Heurlin - Norlinder, 2005).

Data collection and analysis method

The in-depth interviews in this study were conducted at Byskolan and Stadsskolan¹ in the municipality of Linköping during 2003 as part of the project Health and Outdoor Education. The interviews were conducted following an intervention in the form of training in outdoor education at Byskolan, which was the intervention school. Stadsskolan was the reference school. The intervention consisted of giving the participating teachers experience of the form outdoor education could take. However, the aim of the intervention was not to emphasise the distinctive nature of outdoor education in comparison with traditional classroom teaching. Accordingly, the interviews conducted in the two groups before, and in the intervention group also after, the intervention can in no way be said to provide a measure of how well the intervention group took in the actual content of the training. Rather, we were more interested in studying what conclusions the participants in the intervention drew regarding their participation in the training. Parallel with the interviews, we have also studied how outdoor education can also increase the wellbeing of the teachers.

Accordingly, in addition to the interviews, the so-called Mood Scale questionnaire was used in the study. This is an instrument for measuring bipolar dimensions of mood (Svensson, 1977, Svensson et al., 1980, Sjöberg et al., 1979, Sandberg et al., 2002, Nowlis, 1956). The teachers filled in the questionnaire on four occasions during both the first and the second year. The value one stands for "does not correspond with how I feel right now at all" and four stands for "corresponds precisely with how I feel right now". Examples of adjectives used in the questionnaire are secure, relaxed, exhilarated, energetic and sociable. The adjectives are divided into six dimensions: hedonistic tone (feeling of wellbeing), extraversion, social orientation, activity, relaxation and control.. The dimensions are analysed separately and in the form of a total sum and have a min-max of 12-47. Higher values represent a better mood. The method has been used in several clinical studies by the research group (Mörelius, 2005).

The qualitative analysis of the interviews comprised the total of 11 informants who participated in the study, 6 at Byskolan and 5 at Stadsskolan. Below, we will describe

¹Byskolan = rural school Stadsskolan = urban school

the results of this analysis in the form of descriptive categories with quotations that are typical of the category's meaning. The results are reported for each of the eight question areas included in the investigation. The overarching research question in this section of the study was, as mentioned in the introduction: *What conceptions do teachers have of learning out of doors?*

The qualitative analysis applied here, which is *phenomenographic*, attempts to describe the different conceptions of – or ways of experiencing – a phenomenon that can be observed and distinguished in a group of subjects. The results are reported in the form of labels and descriptions of categories of ways of experiencing the phenomena. Some quotations from informants, which can be regarded as typical of each group of answers, are also given. This approach is descriptive and qualitative and is thus not based on predefined categories.

Learning from a phenomenographic perspective is a qualitative change in the way of experiencing, conceiving of a phenomenon, in this case, learning out of doors. Language is the path and the instrument with whose help the individual's conceptions are understood. Here, our goal is to describe the meanings in different ways of experiencing learning outdoors.

There are, however, problems with the interview as a method of data collection. Briefly, the interview can be said to generate linguistic data. This means that it could easily be verbal ability that is analysed instead of the underlying conceptions of a phenomenon. The interviews originally consisted of eight areas. In this context, however, only one area – dealing with the distinctive nature of outdoor education – will be reported.

The concepts reliability and validity have been discussed at length in connection with qualitative analyses (Bell, 1993; Taylor & Bogdan, 1984, and others).

Interjudge reliability is usually 75 – 100 per cent in most phenomenographic studies when another person (co-judge) reads and categorises the same interview material as the researcher him/herself. Validity in a phenomenographic study refers principally to how accurately and validly the categories represent the content of the interviews. In the present study, the categories have been formulated in consultations and negotiations between several judges, what is called *negotiated consensus* (Dahlgren, et al., 1992). With this procedure, the method for calculating interjudge reliability is transformed into a method for increasing validity in the categorisation. It is important for the validity of the interpretation of the meaning content of interviews in a longitudinal study that as much effort as possible is made to ensure that the context of the interviews is as similar as possible. Investigating how different persons conceive of a phenomenon means distinguishing, delimiting and describing meanings, although not necessarily giving explanations of a certain way of experiencing something.

Results

The interview study

We denote the informants from Stadsskolan with an s and the informant from Byskolan (the intervention school) with a b. The informants are numbered 1-11. The subjects from Byskolan are numbered 1 – 6, numbers 7 – 11 denote the teachers at Stadsskolan. Here, we denote an answer before the intervention with (f) and after the

education intervention with an (e) after the quotations. This applies only to Byskolan where the intervention was carried out.

The results of the interview study are presented below. The account begins with the main question asked in each area during the interview. This is followed by the categories of answers identified after which significant excerpts from answers representing the different categories are given.

Why should one teach outdoors?

This question begins the section of the interview where the focus is on the distinctive nature of outdoor teaching. As is often the case in interview studies, these main domains have usually been approached with several questions. The categories possible to distinguish are presented and named below.

A. Better health and learning through movement in an outdoor environment (Subjects numbers: 1, 5, 6, 8, 7, 9, 11)

Examples of answers: You often learn better at the same time when you get to move about out of doors and get healthier (1). I think that one has more energy when one is out of doors, get a bit of fresh air and move around. Using one's body when one learns (5). One can move around in a completely different way, you get fresh air and can use your senses in a completely different way compared with indoors (11).

The most prominent features in this answer group are thus the central role played by health and movement. A multitude of sensory impressions, as described by subject 11, are also described in several of the answers.

B. Better connection with reality outdoors (2, 10)

Examples of answers: You get a better connection with reality in a different way than sitting and looking in the books (2). They're the ones who'll get to see what it really looks like (10)

Both answers in this group emphasise the importance of authenticity. In the answer from subject no. 2, there is a hint of suspicion of the school's traditional emphasis on learning by reading texts.

C. Both halves of the brain are activated better out of doors (Subject no. 1, 3)

Examples of answers: Fresh air means that your brain perhaps works a bit better (3). Both halves of the brain work better when you move around (1)

Here, we return to the interaction between the body and learning, even if it is in a slightly different sense compared with the first group of answers.

D. Several senses are activated outdoors (Subjects no. 3, 5, 10)

Examples of answers: I think you can use more senses when you're out of doors than when you're sitting indoors (3). You can look at a picture or listen to something being related, but seeing it for real, using all your senses (5). This business of involving all one's senses is important for children (10)

Already in category A, there is a hint of the importance for learning of the diversity of impressions. Here, however, this argument is explicit and more developed than in the examples in category 1.

E. Better connection between theory and practice out of doors (Subjects no. 4, 5)

Examples of answers: Suddenly you understand the connection between measuring, being able to measure and so it becomes tangible in some way (4). Being able to connect pictures to practice, what you see, what you do, feel, then you learn better (5)

F. All the subjects you can have outdoors (Subject no. 3, 6)

Examples of answers: You can use woods and land, plants and animals and whatever you want in both maths and Swedish, science subjects and even social studies, I think (3).

Plants and animals, matter and whatever there is and then utilise it and incorporate it in the different subjects. One could have English, Swedish, Maths, everything (6)

The answers express a conviction that not only the subjects that are more obviously associated with the outdoor environment, but also practically all content, can be taught in the outdoor environment. One interpretation of the answers could be that the informants emphasise that outdoor education is more a way of learning and a place for learning than a content for learning.

H. Outdoors, we understand the connections in nature better (5, 8)

Examples of answers: I think it's really good that one gets a relationship with nature and understands the connections (8)

Getting it in its right context (5)

The answers are fairly general, and it is the context that is most important. This means that they are related to the answers in categories B and E.

What does outdoor education mean to you?

One of the questions concerned the possible distinctive nature of outdoor education. Here, we have elected to divide the answers into two groups, before and after the introduction of the educational intervention in outdoor education in the intervention

school. One reason why we were unable to conduct a follow-up interview in the reference school was that they did not feel that they had time for further interviews. We do not consider this to be significant for the results since the reference group was not subjected to any intervention. There is, of course, always a possibility that teachers in the reference group could have changed their conceptions at the time of the second interview in the intervention group. These changes are probably fairly small.

A. The teachers see the distinctive nature of outdoor education (Subject no. 1e, 2e, 3e, 4f, 4e, 5e, 6e)

Examples of answers: Outdoor education is a different, pleasurable form of teaching that provides scope for more than writing and the production of knowledge, so one can show knowledge in a different way than producing things all the time. Sort of learning more with one's body (2e)

From the beginning, it was just a matter of going outside and moving about in the countryside. It's being able to integrate several subjects and learning with all one's senses, they see and they do and they can connect. We've been able to learn most things out of doors, it was a new idea for me (5e)

In this category, which we have called *the teachers have a clear conception of the distinctive nature of outdoor education*, all the informants in the intervention group see the distinctive nature of outdoor education a year after the intervention had been carried out in the follow-up interview. This means that the teachers conceive of learning out of doors and see qualitative differences between learning out of doors and indoors. They do not see any polarisation or dichotomisation, an "either or", which Åkerblom (2005) asserts in his doctoral thesis. Our informants in this category move between text-bound and non text-bound practices in a very pedagogically aware way.

The teacher as an active co-exploring educator plays a central role in ensuring that teaching out of doors is as successful as possible when the place cannot be regarded as creating activities. Here, we question the conclusion drawn by Åkerblom in his thesis – that study visits and excursions are not dependent on the efforts of teachers and pupils – when he compares situated activities in the school garden. It would be interesting to develop from a didactical perspective the hypothesis he proposes (ibid. p. 67) about movement between qualitatively separated place and text-bound practices, i.e. that learning's where, when, how, what and why become the subject of reflection in and communication between reflecting practices (Dahlgren & Szczepanski, 2004).

The teachers in this main category see learning outdoors as being more authentic, sensory and body-related, movement intensive and health promotional than learning indoors. They also see clearer groups of themes, contexts and concept formation in their teaching by linking learning to the outdoor environment in Swedish, Mathematics, science subjects and social sciences, i.e. several subject areas, which, by tradition, are not usually located outdoors in teaching. As a result of the educational intervention in outdoor education, the security factor has increased in the encounter with the physical environment. Here, book learning is united with sensory experience

(Dahlgren & Szczepanski, 2001). We feel that the informants see an integration of analogue, catalogue and dialogue forms of knowledge, which are each other's prerequisites and which they can relate to each other. See also a discussion about this in Margaretha Grahn's thesis (Grahn, 2005, p. 136 – 150).

B. The teachers do not see the distinctive nature of outdoor education (1f, 2f, 2e, 3f, 5f, 6f, 7f, 8f, 9f, 10f, 11f)

Examples of answers: It's holding the same lessons one has indoors outdoors (**1f**)

To me, there's nothing mysterious, nothing special about outdoor education; rather, it's just that I learn outside or that I learn inside and I can do both things (**6f**)

What you do in Swedish you can do just as well outdoors as indoors, that's what outdoor education is to me. Indoor and outdoor education are perhaps somewhat peculiar concepts, it ought to be unnecessary (**10f**)

We have called the second category *the teachers have no conception of the distinctive nature of outdoor education*. This category contains all the informants with the exception of one prior to the intervention. The teachers in this category have a fragmentary conception of how teaching should be carried out outside the classroom context. They see no qualitative difference between teaching indoors and outdoors in terms of the way of learning. They see and often refer to nature and the excursion in this main category. Here, they often refer more to outdoor life-oriented activities such as cooking food, barbecuing sausages and building small huts. The excursion creates a meeting with the natural environment but this does not explicitly mean that outdoor educational activities and teaching take place. In this description category, teachers see no difference between teaching indoors and outdoors. The importance of direct experiences is also emphasised in this category without directly linking it to learning.

The results of the Mood Scale questionnaire. A comparison between the urban and the rural school

The Mood Scale questionnaires showed a deterioration in the mood of the teachers at both the schools between the first and the second year. The deterioration in "activity" and "social orientation" was, however, significantly lower among the Byskolan teachers ($p=0.020$ and $p=0.013$, respectively) (table 1, figure 1, figure 2). The dimension extraversion showed a close to significant deterioration among the Byskolan teachers ($p=0.059$). The fact that all the teachers had lower values on the Mood Scale on the second occasion is, of course, a worrying result. We will return to this result in the discussion below.

Discussion

To begin with, it is worth mentioning that the scope of the present study is cause for considerable caution when it comes to handling the results and the discussion of these results. However, the interviews show that the intervention has resulted in all but one

of the teachers having a conception of the distinctive nature of outdoor education after the intervention. (One of the teachers in the intervention group had a clear conception of the distinctive nature at the beginning of the intervention.) The two groups, the intervention group and the reference group, can thus be regarded as being fairly comparable at the beginning of the intervention.

Even if the interview studies enable us to reach somewhat deeper layers of people's thoughts about their life and the surrounding world than, for example, questionnaires, it is, of course, unreasonable to claim that the participants in the intervention will always, and in a profound way, understand the distinctive nature of outdoor education in a sense different from the one prior to the intervention. It is obvious that they have an answer to the question of what characterises outdoor education and distinguishes it from traditional, mainly classroom-situated teaching.

The Mood Scale questionnaires showed that even if the overall ratings had fallen between year one and year two, the Byskolan teachers ratings had fallen by a significantly smaller amount than those of the Stadsskolan teachers in two dimensions, *activity*, which e.g. measures how active and concentrated one feels, and *social orientation*, which e.g. measures how cooperative and helpful one feels. The dimension *extraversion*, which e.g. measures how talkative and pleasant one feels, showed a close to significant deterioration in the case of the Byskolan teachers, which might possibly have a significant impact in a study with a larger corpus. This could possibly be due to the introduction of outdoor education at Byskolan because teachers and pupils are out of doors and moving around (activity) as well as working more in groups than in the classroom (social orientation and extraversion). The fact that the Byskolan teachers were given attention and experienced a change in their work routines, which was not the case with the Stadsskolan teachers, could in itself possibly result in a better self-experienced mood among the teachers at Byskolan.

The fact that the Mood Scale results show a falling trend in both teacher groups is, however, more difficult to explain. It is, of course, possible that the cuts in school resources, which have taken place in recent years, have resulted in higher demands on the teachers' professional role and that it is the repercussions of this period of cutbacks that have impacted on the results. In addition both the principal and administrative manager at Stadsskolan were replaced during the period in question.

Acknowledgement

The authors wish to express their gratitude to Alex de Courcy for translating the Swedish manuscript into English

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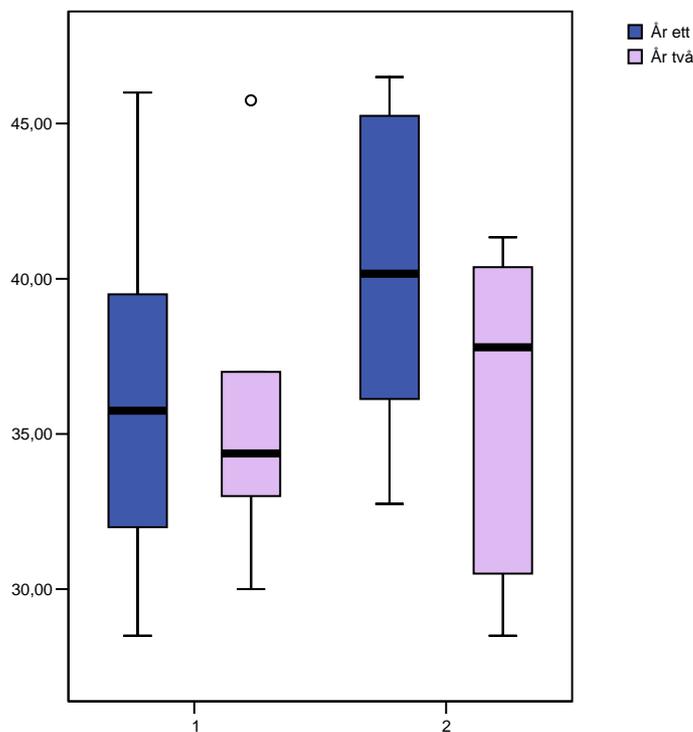
Appendices

Table 1. Mood Scale variables. Change between year one and two (Wilcoxon), difference in change between the schools (Mann-Whitney) and the correlation between the years (Spearman's Rho) NS = Non Significant ($p > 0.05$)

	School*	Number	Median year 1	Median year 2	Pvalue	Median difference yr 2 – yr 1	Pvalue	Correlation yr 1 – yr 2	P value
Hedonistic tone	1	6	29.00	27.25	NS	-2.88	NS	0.943	0.005
	2	8	28.50	24.38	0.036	-4.38		-0.108	NS
Activity	1	6	35.75	34.38	NS	-0.75	0.020	0.771	0.079
	2	8	40.17	37.79	0.012	-4.83		0.946	<0.01
Extra-version	1	6	21.88	20.50	NS	-0.38	NS	0.600	NS
	2	8	24.00	19.13	0.012	-3.25		0.611	NS
Relaxation	1	6	22.63	21.25	NS	-0.38	NS	0.348	NS
	2	8	18.04	17.50	NS	-0.00		0.719	0.045
Social orientation	1	6	28.00	27.50	NS	-1.38	0.013	0.088	NS
	2	8	28.25	24.75	0.012	-3.75		0.994	<0.01
Control	1	6	26.38	25.13	NS	-0.00	NS	0.543	NS
	2	8	27.00	26.50	NS	-1.13		0.671	NS

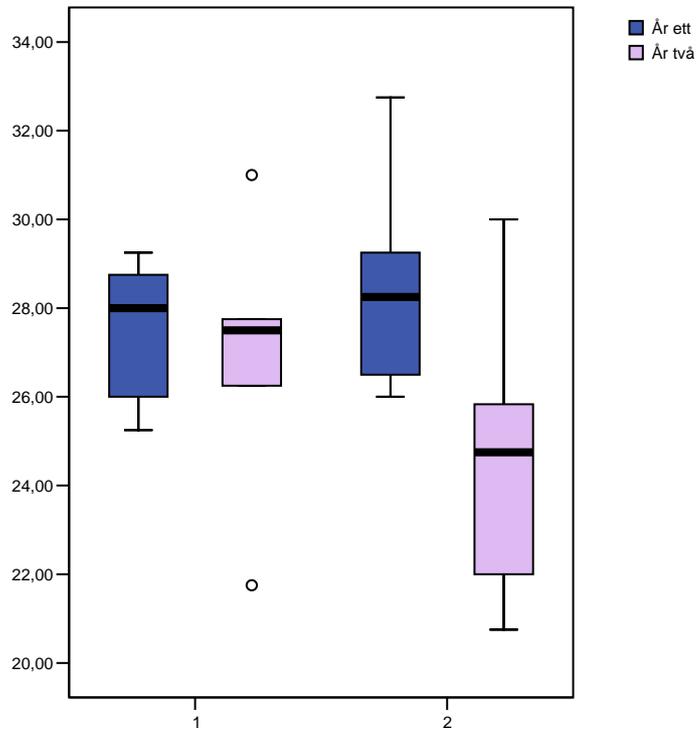
*1 = Byskolan, rural school 2 = Stadsskolan, urban school

Figure 1. The Mood Scale dimension “activity” – a higher value represents a better result (the boxes represent quartile deviation with the median marked, the circles represent outliers)



1 = Byskolan, rural school 2 = Stadsskolan, urban school År ett = Year one År två = Year two

Figure 2. The Mood Scale dimension “social orientation” – a higher value represents a better result (the boxes represent quartile deviation with the median marked, the circles represent outliers)



1 = Byskolan, rural school 2 = Stadsskolan, urban school År ett = Year one, År två = Year two