

## **Children with Reading Disabilities and Outdoor Education**

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### **Abstract**

This study explore if children with reading disabilities have differences in experiences and show different behaviors during indoor school and outdoor education in Norway. In the first study children with reading disabilities are compared with the rest of the classes in how they report wellbeing in different school settings. Thirty children participated in this study. In the second study the answers from the six children with various degrees of reading disabilities were analyzed further, and qualitative observations of their behavior, both indoor and outdoor, were analyzed. The studies reveal that outdoor education can reduce the amount of unpleasant elevated arousal. Unpleasant elevated arousal can lead to internalized and externalized problem behavior for the group of children with reading disabilities.

**Keywords:** reading disabilities, outdoor education, wellbeing, mastering, problem behavior

### **1. Introduction**

Outdoor education can be defined as a pedagogical method, where the aim is to reduce level of abstraction by relating the learning topics to real life. Outdoor education could be either into the wild environment or into the built environment. This is a quite normal way of doing alternative and complementary teaching in Norway, since we have a public right of access, which gives us the opportunity to visit nature environment without permission from the owner. When Norwegian teachers take the children into the wild environment, the time schedule usually involves both teaching time and time for free play in the natural environment, and there seems to be a variation between academic goals and goals within social goals or goals within a holistic development. Using outdoor education as an alternative and complementary way of working is not a new method in schools: In Norway the curricula have given relevance to this idea about using the local environment in teaching since 1939 (Jordet, 2010, p.13). The amount of outdoor education seems to be growing, but still there is not a lot research about this form of teaching in Norway or in other Scandinavian countries (see for example these doctoral theses; Bentsen, 2010; Hyllested, 2007; Jordet, 2007; Munkebye, 2012; Mygind, 2005). There is a broad area of topics which still needs to be explored more in outdoor education, and the issue of children with reading disabilities is one area which would be interesting to explore:

Earlier studies have shown outdoor education as a useful intervention to reduce undesirable behavior, such as different degrees of agitations, as well as to vitalize the children, provides a positive experience and increases the amount of desirable behavior like for example, more focus on task and more holistic presence (Dyment, 2005; Dyment & Bell, 2008; Fiskum & Jacobsen, 2012b,

2012c; Ozdemir & Yilmaz, 2008). Outdoor education seems to have a special effect in reducing externalizing behavior among pupils showing a lot of this form of behavior (Fiskum & Jacobsen, 2012a; Roe & Aspinall, 2011), and to vitalize the pupils with internalizing behavior (Fiskum & Jacobsen, 2012a). Interviews with children, who are used to outdoor education, reveal a picture of children who are exploring their environment, having fun and engaging in a lot of activities (Fiskum & Jacobsen, 2012b).

The findings from the studies mentioned above may indicate positive experiences during outdoor education. The ways we experience the situation have impacts on how we feel in the situation and the characteristics of our motivation: We can be motivated for an activity on the basis of several reasons, and also be demotivated from several reasons. The Reversal Theory (see for example Apter, 1997; Apter, 2001; Apter, Cowles, & Kerr, 1988) divides the reasons into opposite pairs. This theory is called a metamotivational theory, because it concerns the states behind the motivation. To feel that we are mastering the situation, or that we feel a low enough arousal to feel comfortable, is the most positive outcome in the *telic* state (from the *telic/paratelic* domain) in The Reversal Theory. If we experience handling of a situation, we will feel comfortable. In the opposite, if we do not master a situation, we will experience an enlarged level of arousal, which will easily lead us into fear and also anxiety. Another possibility is that our metamotivation makes a reversal over to the opposite state, the *paratelic* state, where a high level of arousal may lead to pleasure because we think it is fun. In that state the situations with low levels of arousal will bring us into boredom. Achievement, seriousness and a feeling of low arousal are connected to positive wellbeing in the *telic* state of mind, while fun, playfulness and a feeling of high arousal are predicting high wellbeing in the *paratelic* state of mind (Apter, 2001). If the child is feeling well in a situation at school, it can, in accordance to Reversal Theory, be caused by the metamotivational pair of *telic* and *paratelic* state in suitable amount of arousal: Either the child is feeling a high degree of mastering, or the child is feeling fun. Both feelings are positive and generate motivation and wellbeing. If the child is not feeling well in the situation, it can, in accordance to the same metamotivational pair, be caused by an unsuitable amount of arousal. To low felt arousal in the *paratelic* state of mind generates the feeling of boredom, and to high felt arousal in the *telic* state of mind generates the feeling of anxiety and a feeling of not mastering the situation.

Contingent events, frustration or satiation are the main factors which might bring us to reversals from one state to another (Apter, 2001). These reversals are not anything we are making by free will; they are being guided by the situation (contingency, frustration and satiation) and our personality (dominance and liability to easily change state) (Apter, 2001). Children are very likely to be playful (Huizinga, 2000) and in the *paratelic* state of mind which indicate that they are *here and now*. Children, who have problems with mastering the academic topics at school, often come into situations where they wished the arousal to be lower so they feel able to handle the situation. When the arousal is experienced as too high, they do not feel comfortable and at the same time they are not able, or it is not a natural contingency, to be in the *paratelic* state of having fun. Then they are likely to feel uncomfortable in the situation or even feel anxiety. Children with learning disabilities may often come into this position. This lack of experiences within mastering and the low wellbeing often connected to this situations, if not a reversal, in accordance with the Reversal Theory (Apter, 2001) happen, can also be seen together with theory of intrinsic and extrinsic motivation and the need of mastering to increase the amount of intrinsic motivation (Deci & Ryan, 1985). For example Harter and Jackson (1992) found that perceived competence and motivation was following the same curve. Connected to Harter's work is also the positive circle of motivation, competence and experiences of mastering (see for example Harter, Whitesell, & Kowalski, 1992), which highlights the need of mastering to get intrinsically motivated to academic subjects, increase their ability, get better skills and as a consequence get more experiences of mastering.

Connected to mastering is also the perceived self-worth: Harter, Whitesell and Junkin (1998) found that learning-disabled children reported themselves as lower within cognitive competence and

peer likability, compared with their normally achieving fellow pupils. Between the eight dimensions within the perceived self-worth; Cognitive Competence, Behavioral Conduct, Physical Appearance, Romantic Appeal, Peer Likability, Close Friendship, Athletic Competence and Job Competence, the children with a high self-worth were able to judge domains where they felt low levels of adequacy/competence as less important, while the children with a low global self-worth were not able to do so (op. cit.). This stresses the importance of striving for a high global self-perception for every child, as well as illuminating that this can be especially helpful for children with learning disabilities. These children's shortcomings in classroom-activities are easily revealed both for themselves and others: Another possibility to help the children with learning disabilities into a pattern of mastery, competence and motivation and not the other way around, is to increase their possibilities to develop a positive self-worth. The global self-worth is a result of the self-perception in the eight underlying dimension. Consequently, increasing self-perception in some of the other dimensions would increase self-worth (Harter *et al.*, 1998).

These possibilities of lack in perceived self-worth may bring the children with learning disabilities at risk. At risk behavior can be both internalizing and externalizing problem behavior. Internalizing problem behavior is connected with withdrawnness, somatic complaints, anxious and depression, while externalizing problem behavior is connected with delinquent and aggressive behavior (Achenbach, 1991). Several studies have detected relationships between internalizing problem behavior and learning disabilities (Arnold *et al.*, 2005; Moilanen, Shaw, & Maxwell, 2010; Yu, Buka, McCormick, Fitzmaurice, & Indurkha, 2006) and externalizing problem behavior has also been related to learning disabilities (Heiervang, Stevenson, Lund, & Hugdahl, 2001; Moilanen *et al.*, 2010). In addition, studies have examined different aspects of self-worth among children and youth with learning disability: When interviewing Swedish youths and grown-ups with dyslexia concerning their time in school, Ingesson (2007) found that a majority of the participants had experienced the first six years in schools with feelings of being different, inferior or stupid. Studies have also shown children with learning disabilities at risk for social maladjustments (Bauminger & Kimhi-Kind, 2008), having problems with their regulation of emotion (op. cit.) and scoring lower in emotional intelligence (Mavroveli & Sanchez-Ruiz, 2011).

In a theoretical article Elksnin and Elksnin (2004) concluded that there are too few validations on interventions for social-emotional interventions for children with learning disabilities, and more research will be needed to understand the causes of their social-emotional problems. Considering the Reversal theory and the studies mentioned above, children with learning disability may be likely to show other patterns in their reporting of wellbeing in school situation compared with their normally achieving peers. These children may also have a different behavioral pattern across indoor education and outdoor education, as well maybe having other feelings and experiences from their days at school.

In this study we therefore set out to explore the following research questions:

*Do the children with reading disabilities possess different patterns in their reporting of wellbeing in different school situations?*

*What are the visible and experienced characteristics for children with reading disabilities in indoor education and outdoor education?*

## **2. Method**

### **2.1. Study 1**

#### *2.1.1. Participants*

31 children from grade 5 at one school agreed to participate in the study (mean age 122.6 months, Std. Deviation 3.8 months). There were 14 girls and 17 boys in this group. They were together as

one group during outdoor education, and divided into two different classes during classroom teaching. Those children were used to a outdoor education practice; in grade 1 to 4 they attended outdoor education once a week, and in grade 5, they attended outdoor education once every second week. Their days with outdoor education started with one lesson inside the classroom in the morning, and thereafter they take the walk to a nearby environment where they had some shelters, a fireplace, a primitive toilet, eventually some playing equipment and some self-made huts. This school had four places adapted for outdoor education. When attending those places, they usually first had some time for free activities, time for eating their lunch and time for participating in a program with different academic topics, for example making huge geometrical figures in the snow, guessing and measuring distances, and count the difference between their guess and their measurement.

Six (three girls and three boys) of these children were given a special education offer in a few lessons each week, because of various degrees of reading and writing disabilities. These six children did not necessarily have a diagnose in dyslexia; the criteria for giving this offer was that they were weaker readers than their mates, and their teachers had found them to profit with this kind of special education offer. They were in their classes in the rest of the week.

When interviews started, one of the boys did not want to be interviewed. He was not among the children joining the special education group. The other 30 children were interviewed 1-3 times: 22 of the children were interviewed twice, which was the intention with the study. Unfortunately, two of them could not be interviewed twice, either because they were not at school the day they were supposed to be interviewed, or because they did not return the permission to participate in the study in time to participate in the first round of interviews. To be able to get as many children as possible to comment upon different situations at schools, the time schedule for interviews was filled with interviewing children from the classes, even if they were interviewed twice before. As a consequence six children are interviewed three times. It is total randomly which children who participate in the third round of interviews.

### *2.1.2. Interview-Procedures*

The interviews were performed at the end of the school days. Situations from close past were discussed with the child. The aim was to discuss every situation during the day, which means every situation mark able enough to be remembered within their wellbeing. Before the interviews started all the events were stated together with the child. Examples of situations where: Inside (during one lesson and one break); 1: English; when they were listening to a CD-player and were supposed to spell together after the voice on the CD-player, 2: English; reading their homework together like a role-play, 3: English; a practical activity involving a little contest. 4: Break; playing football, 5: Break; playing with Pokemon Cards. Outside (from the beginning and until half of the academic subjects); 1: When they walked to the outdoor education area, 2: Lunchtime; sitting together with two friends and a teacher, 3: Time for free activities; swinging in the equipment, 4: Teaching activities; waiting, 5: Teaching activities; working with English Christmas words, 6: Teaching activities; Finding nouns in the forest and using their grammar skills on them, 7: Teaching activities; dictate-relay in groups.

69 interviews were performed. The average time for each interview were around 20 minutes including the time used on explaining the procedures to the child. The interviews were structured; for each activity, the children were asked to choose a face listed among other faces on a piece of paper. There were five faces and they had a big smile, a smaller smile, a neutral mouth, a small sad mouth or a big sad mouth. If the child pointed at the face with a big smile for one given situation, the interviewer asked further why the child feels a high degree of wellbeing during this situation.

The categories were widely explained for the child at the beginning of the interview. The categories of mastering/not mastering were also explained as relaxing and not being afraid of failing

in the situation/afraid of not mastering, or the situation was unpleasant for some reason. For every situation the child answered with pointing at a face which did not implicate the highest level (big smile) or the lowest level (big sad face) of wellbeing, the child was to explain high and reduces wellbeing from two scales; one for high wellbeing and one for reduces wellbeing.

**High wellbeing:** Was it because of a feeling of fun, or was it because of a feeling of them being capable of handling the situation or a feeling of stress relief/abilities to relax. While asking the questions, the interviewer pointed at some boxes drawn on a piece of paper. The child was then supposed to point at one of five boxes; a box with only FUN, a box with mostly FUN, a box with the same amount of FUN and MASTERING, a box with mostly MASTERING or a box with only MASTERING. To avoid that the child was just choosing a box uncritical, the child was explained that it was allowed not to answer every question. If the child was not sure, it was okay to say so.

**Reduced wellbeing:** If the child had chosen another face than the big smile, the interviewer also asked further about the cause of the reduction in wellbeing. Then the child was asked to choose among five boxes; a box only because of BOREDOM, a box mostly because of BOREDOM, a box with the same amount of BOREDOM and NOT MASTERING, a box mostly because of NOT MASTERING and a box only because of NOT MASTERING.

### *2.1.3. Statistics*

In considering the variables of wellbeing, fun versus mastering and difficult versus boring, all the situations where the children in the interviews have pointed to faces and boxes were quantified. To explore differences and similarities in wellbeing, mean and standard deviation was measured for each subgroup. The lowest level was 1 and the highest degree of wellbeing was 5.

To explore differences and similarities between the groups in their explanation of high or reduced wellbeing, mean and standard deviation was measured for both variables. For high wellbeing; value 1; wellbeing caused by the feeling of mastering, value 2; wellbeing explain by mostly because of mastering, value 3; wellbeing explain by the same level of both mastering and fun, value 4; wellbeing explain by mostly fun, 5; wellbeing explain by fun. For reduced wellbeing; value 1; reduced wellbeing explain by not mastering/difficult, value 2; reduced wellbeing explained by mostly because of not mastering/difficult, value 3; reduced wellbeing explain by the same amount of not mastering and boredom, value 4; reduced wellbeing explain by mostly caused by boredom, 5; reduced wellbeing explain by boredom.

## **2.2. Study 2**

### *2.2.1. Participants*

From the sample in study 1, data from six children attending the special education group where analyzed more deeply. This group involved three boys and three girls. All six participants are interviewed, while three of them, two boys and one girl, belonging to the same classroom group, are observed. The other three, which were not observed, belonged to the other classroom group. Since the observatory had the possibility to stay in only one classroom at time, the three focus children had to belong to the same classroom group. One of the two classroom groups were randomly selected.

### *2.2.2. Observation*

The three observed children are also participants in other studies (Fiskum & Jacobsen, 2012a, 2012c) where the observations are being quantified. In this study, the qualitative comments are the main focus. Observation was conducted for seven days. Each day 11, or approximately 11 sections of observations were made. For each section the child was observed for three minutes, and two minutes were provided for writing qualitative notes about the situation and the child's behavior. The

main focus in the observations were degrees of physical activity, mood expression, motor and verbal agitation and positive and negative communication.

### *2.2.3. Interpretation of Data from Observations into the Table*

First a description of the whole situation is written for each section for each child. In this process, the focus areas like mood expression, physical activity, agitation and communication were seen together with each other and together with the situation and what was happening in the situation. The next step for the table was to go through all this searching for situations which could be interpreted as activating in a positive way or deactivating and connected to negative behavior. An example of observation from outdoor education placed in the category of positive reversal of behavior is when a boy is participating in a role-play. He is eager and is smiling, and his level of physical activity also increases. An example of a situation placed in the category of negative reversal of behavior, externalizing behavior with low intensity is when a boy works eagerly with a task in a group, and he get angry to a girl in the group, because he think she is not doing the task well. Not every situation leading to either positive or negative behavior is placed in the table. Examples of situations not given a place in the table are situation which are contending both negative and positive behavior.

The division between high and low intensity is mainly based on the amount of energy the pupil is showing in the situation. To a lesser degree this division is also based on the length of the situation, for example a situation where the girl has stopped doing her tasks and at the same time performs negative comments to another girls, is a situation with both low and high energy levels. The time when she hurt another person is very short, and therefore this situation as a whole is placed at the category of low intensity.

Whether the negative behavior is being either internalizing or externalizing or both, is more self-evident. The withdrawn behavior such as creating some kind of distance from the others, being restless or absent minded considering the topic, is placed into the category of internalizing behavior, while externalizing behavior also involves others, for example if the pupil is gesticulating to make others laugh, or if the pupil is disturbing or hurting others with his/her motor or verbal agitation. Often an externalizing situation starts with a period of internalizing. Sometimes this period is short, and then the behavior is seen as only externalizing.

Since interview-data is divided into girls and boys, this would also have been idealistic in the observation study. With only three participants, the data become more individualistic than gender-based. The two boys were quite similar in their behavior, and as a consequence the observations of them were seen together as one case.

### *2.2.4. Data Based on Interview*

The interviews are the same as in study 1. In study 2, the different situations which lead to different levels of wellbeing are taken into account. Comments or explanations, which the authors have interpreted as significant, have also been taken into account.

### *2.2.5. Trustworthiness*

This study is a part of a larger study about outdoor education. The first author has made the observations of these three pupils as well as undertaken all the interviews in study 1 and 2. While doing this data-collection, she has thought several times that outdoor education is doing something special for this group of children, but that was not a preconception before observation and interviews started. Since the valuing process for the interview data was made by which boxes and faces the child has pointed at, an eventually preconception was not able to influence the values. To secure validity further, the valuing of the interviews were done into schemas, and the scoring was checked by another researcher for some of the interviews.

The process of making a table of observations judged as either positive or negative reversals in the behavior, were first done in a table with a description of each situation. Then it was judge by another researcher, to discuss whether it looked reasonable or not.

The authors have no personal experience about outdoor education or pupils with learning disabilities in outdoor education.

### 3. Results

#### 3.1. Study 1

Table 1 shows a high degree of wellbeing, around 4.5, for all groups during both school conditions. There are only minor differences between outdoor and indoor education, but there is a trend of a little higher wellbeing during the indoor condition. Standard Deviation is below 1, except for some groups during outdoor education. There is more than 1 in Standard Deviation for both girls and boys without special education offer and for the girls given special education offer.

Table 2 shows the exploration of the reasons behind high wellbeing and the reasons for reduced wellbeing. It shows a pattern of reduced wellbeing during outdoor education, mainly caused by boredom for everyone. In the explanations of reduced wellbeing outside, the boys within the special education group divided from the rest because they were more likely to give answers using difficultness to explain reduction in wellbeing. This group also differed from the rest when they were supposed to explain high wellbeing outside. Then they more frequently answered that the feeling of mastering had caused their wellbeing. In the children’s explanations of reduced wellbeing during indoor education, the answers from the group of children giving the special education offer differed from the rest. They more frequently explained their reduced wellbeing with feelings of difficultness in the situation. High wellbeing during indoor education, are by the special education group, explained by a slightly more evident feeling of fun, compared with the rest of the classes.

**Table 1.** The children’s experience of well-being during different school settings

<b>Outdoor education</b>											
<b>Special education group</b>						<b>No special education group</b>					
All		Girls		Boys		All		Girls		Boys	
Mean/ N	SD	Mean/ N	SD	Mean/ N	SD	Mean/ N	SD	Mean/ N	SD	Mean/ N	SD
4.34/44	.94	4.24/25	1.05	4.47/19	.77	4.38/303	1.08	4.31/141	1.11	4.44/162	1.05
<b>Indoor education</b>											
<b>Special education group</b>						<b>No Special education group</b>					
All		Girls		Boys		All		Girls		Boys	
Mean/ N	SD	Mean/ N	SD	Mean/ N	SD	Mean/ N	SD	Mean/ N	SD	Mean/ N	SD
4.46/67	.86	4.29/38	.87	4.69/29	.81	4.51/284	.89	4.50/129	.80	4.51/155	.96

**Note:** Table 1 shows the mean of well-being (5 is the highest level of well-being, and 1 is the lowest), and the number of situations being commented upon.

**Table 2.** The explanation of high and reduced well-being

Group	Outdoor education						Indoor education					
	Explanation of reduced wellbeing			Explanation of high wellbeing			Explanation of reduced wellbeing			Explanation of high wellbeing		
	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
Special education group												
All	18	3.50	1.82	42	3.60	1.81	21	2.19	1.66	60	3.97	1.65
Girls	12	3.83	1.80	23	3.83	1.72	17	2.18	1.74	33	3.85	1.70
Boys	6	2.83	1.83	19	3.32	1.92	4	2.25	1.50	27	4.11	1.60
No Special education group												
All	96	3.51	1.65	282	4.01	1.45	71	3.82	1.60	269	3.77	1.53
Girls	49	3.67	1.56	131	3.82	1.48	34	4.09	1.29	122	3.60	1.54
Boys	47	3.34	1.75	151	4.18	1.41	37	3.57	1.82	147	3.90	1.51

**Note:** Table 2 shows the explanation of high well-being and of reduced well-being. Explanation of reduced wellbeing uses the difficult/boring scale: value 1; reduced well-being caused by not mastering/difficult, value 2; reduced well-being caused mostly because of not mastering/difficult, value 3; reduced well-being caused by the same amounts of not mastering and boredom, value 4; reduced well-being caused mostly by boredom, 5; reduced well-being caused by boredom. Explanation of high wellbeing uses the difficult/boringscale: value 1; well-being caused by a feeling of mastering, value 2; well-being explained mostly because of mastering, value 3; well-being caused by the same levels of both mastering and fun, value 4; well-being caused mostly by fun, 5; well-being caused by fun.

## 3.2. Study 2

### 3.2.1. The Information behind Wellbeing and Reduced Wellbeing for the Boys

The boys mostly report a high degree of wellbeing both indoor and outdoor. The high degree of wellbeing is mostly caused by the boys' feelings of fun and joy in the situation. Inside the lessons with special education is different from the rest of the situations. During these lessons, these pupils are likely to use mastering as an explanation of high wellbeing. The explanation for reduced wellbeing is both boredom and feeling that the situation/task is too difficult. For example one of the boys reports a reduction in wellbeing during a special education class when they are working through their extra homework. He experiences that as difficult, because he responds with negative emotions to extra homework. It is too much for him to manage. Outside the boys explain most of their wellbeing with fun and joy. Situations which they explain as easy to manage (low arousal, mastering) are for example when they are making geometrical figures in the snow, when they are discussing Christmas-words in English, when they are preparing the bonfire or when they are walking a longer distance. Those situations are felt easy, but also a bit boring, and as a consequence these situations are not giving the highest outcome in wellbeing.

### 3.2.2. The Information behind Wellbeing and Reduced Wellbeing for the Girls

The girls also often report a high degree of wellbeing, but they are more likely to report reductions in wellbeing, compared with the boys. The feeling of not mastering the tasks is the most frequent explanation of reduced wellbeing during the traditional condition.

Examples of situations the girls report as difficult are: In mathematics one of the girls is afraid of missing messages. In music one of the girls thinks it is difficult to hear the messages because it is noisy in the classroom. In English one of the girls is afraid of not managing the task when they are supposed to write English words in their books, and the same girl is afraid of writing the wrong answer in English when they are supposed to listen and write in English. When they are reading loudly in Norwegian one of the girls is afraid of not knowing where to start when she is going to be the next one to read. In English lessons one of the girls thought it was difficult to listen to CD since she was disturbed by the noise the boys were making as well as that it was difficult to understand the text. In the test in mathematics one of the girls is afraid of not mastering the task because she knows that she cannot manage it. Wellbeing is mostly explained by fun or joy. Examples of situations where wellbeing is explained by mastering is: One girl feels mastering when doing the test of the academic subjects during the last period. One girl feels a little mastering during a test in mathematics and when performing exercises in mathematics. One girl reports a feeling of mastering during a task in the special education lesson and one girl reports mastering during a little writing task about outdoor education.

Outside most of the reductions in wellbeing are being caused by boredom. Examples of situations which are a bit boring are when they have lunch time, while they are throwing paper airplanes, while they are throwing cones, while they are counting points and when they are looking for nouns in the environment outside. Situations which are mentioned as difficult are when one of the girls did not manage to climb up on the swing, when one of the girls stumbled and got hurt and when the group was supposed to count points. An activity where a dictation is combined with a relay is also mentioned as difficult, but this does not matter, since the task is very funny and wellbeing is therefore at the highest level anyway.

### 3.2.3. Positive and Negative Reversals

The positive and negative reversals from the observations are placed in table 3. The table shows a higher number of positive reversals during outdoor education; more high intensity reversals for the boys and low intensity reversals for the girl. For the negative reversals there is, except for a relatively high number of low intensity reversals among the boys, a reduced frequency in both internalizing and externalizing behavior for the boys and for the girl. A t-test for independent sample shows significant differences between the two school conditions, in favor of the outdoor education condition. The significance for the whole group is 0.000, for the boys the significance is 0.005, while the difference in favor of the outdoor condition is not significant for the girl.

**Table 3.** The number of positive and negative reversals of behavior for the boys and girl during outdoor and indoor education

	Positive reversals of behavior		Negative reversals of behavior			
	High intensity Count (%)	Low intensity Count (%)	High intensity (Count (%))	Low intensity Count (%)	Internalizing Count (%)	Externalizing Count (%)
Outdoor education						
Boys	23 (52%)	14 (33%)	1 (4%)	10 (40%)	7 (23%)	4 (15%)
Girl	5 (11 %)	10 (23%)	3 (11%)	4 (16%)	3 (10%)	4 (15%)
Indoor education						
Boys	10 (23%)	16 (37%)	14 (52%)	2 (8%)	11 (35%)	6 (22%)
Girl	6 (14%)	3 (7%)	9 (33%)	9 (36%)	10 (32%)	13 (48%)
Total	44 (100%)	43 (100%)	27 (100%)	25 (100%)	31 (100%)	27 (100%)

**Note:** Table 3 shows the positive and negative reversals of behavior for boys and girls during outdoor and indoor education. Positive reversals are divided into the qualities high and low intensity, while the negative reversals also are divided into internalizing and externalizing behavior. The sum of Internalizing and Externalizing behavior is higher than the sum of High and Low Intensity, because some of the situations were interpreted as both internalizing and externalizing.

## 4. Discussion

### 4.1. Study 1

All groups report a high degree of wellbeing during both school conditions. For all groups, the wellbeing is a little higher during the indoor conditions, but mean of wellbeing is between 4.24 and 4.69 in both conditions in every group. There is a pattern of higher standard deviations during outdoor education. This might indicate a high variability of experiences either between different situations or between different individual. The main difference in pattern of experiences between the special education group and the ordinary pupils are the difference boys in explanation of high feelings of wellbeing at outdoor education and in girls and boys explanation of reduced wellbeing at indoor education. The special education group more frequently reports mastering (or low arousal) as an explanation for well-being in outside education, even though both groups more often report fun as the main explanation. This difference is mainly in the boys explanations, and it can be a result of a lot of striving and stress during indoor education (high arousal). The difference in the explanation of reduced well-being during indoor education is more obvious. While the special education group has a mean of 2.25 to explain reduced well-being, which indicates more weight on the 'not mastering' side. The result from the rest of the class are 3.57, which indicate more weight to the side of boredom. This could mean that the children with reading disabilities are spending more time in the telic state of mind (Apter, 2001), and are using a lot of energy on their shortcoming in reading and writing, especially when they are at the traditional schooldays. These findings are in accordance with the Reversal Theory (Apter, 2001), indicating the situational condition as something which influences the reversal process of state of mind. The children with reading disabilities seem to feel higher arousal in the learning situations in school.

Limits of this study are the structuring of the interviews. When children are told to choose either one side or another, or point at one figure instead of some others, they are able to do so without reflecting upon their choices. This type of interviewing is not as reliable as open interviews with open-ended questions (Aldridge & Wood, 1998; Krahenbuhl & Blades, 2006; Lamb & Brown, 2006). Nevertheless, this method has benefits with the possibilities to ask many questions in a relatively short time (Patton, 2002, chapter 7), and to explain pattern in answers, this method is suitable. The process where they had to explain their degree of wellbeing may have made them stop thinking before they pointed at one of the five faces. When the children got the possibility to choose among two degrees of for example MASTERING, as well as a neutral category, they did not only choose among two sides, which increase the trustworthiness of the study. The results in Study 1 is reduces to compared two different school situations; outdoor education and indoor education, and it is not differentiated in different tasks and activities within these two school settings. The pattern of answers from the children with reading disabilities revealed in study 1 therefor highlights the importance of study 2.

### 4.2. Study 2

The reasons for reporting reductions in wellbeing is often 'not mastering' during traditional academic work. The boys report more mastering during the special education offer and during the work with academic topics outside. During outdoor education, they are also likely to report wellbeing because of fun, and as a consequence, the focus on failing is reduced. For the girls, the

most frequently reports of reductions in wellbeing during the traditional condition is 'not mastering.' They are often afraid of not mastering the task, or of missing important messages, which make them fail in the academic setting. Outside, the most frequent reason for reduced wellbeing is boredom.

Considering the positive and negative reversals in behavior, a typical characterization is hard to make. Nevertheless, there is a trend showing fewer negative reversals during outdoor education. There is also a small difference in the number of positive reversals, but this is hardly visible. Both genders give themselves some extra breaks. While the boys yawn and make more legal and silent breaks, the girls are often agitated. The boys' breaks can often be seen as internalizing behavior, while the breaks made by the girl in this study are often seen as externalizing behavior. The boys have a higher amount of internalizing problem behavior, compared with the amount of externalizing behavior. This negative behavior reduces both in prevalence and in intensity when going to the outdoor condition. For the girl the prevalence of externalizing behavior is somehow higher during both conditions, but prevalence and intensity reduces when going outdoors. Both the boys and the girls report that they appreciate outdoor education. There they participate together with the others, and their shortcomings in reading and writing do not matter. Outdoor education makes the pupils feel that their competences are assessed less, even though one of the girls is aware of the assessment outside, as well as her shortcoming in these topics.

The fear of failing on the task seems to increase the levels of arousal during the indoor school condition for this group of children. The only times they report boredom during this school condition is when they are telling about the special education classes. During the special education, the levels of arousal are probably reduced, and as a consequence a feeling of boredom can be the result. This is in accordance to the Reversal Theory (Apter, 2001), and indicates that the situational contingency is making pupils change from the telic to the paratelic state of mind. This provides a benefit for pupils who often find the tasks too difficult: When tasks are perceived as fun, they usually do not report unpleasantness, even if they do not master the task. This could mean that if the children are getting into a paratelic state of mind, and as a consequence of that, their shortcomings in academic subjects do not stress them to the same degree. Since a reversal from one metamotivational state to another (Apter, 2001), for example from telic to paratelic, can be induced by the situation, outdoor education may affect the amount of time spent in paratelic state of mind.

The children's behavioral changes and changes in reports of wellbeing during outdoor education show evidence for outdoor education as an arena for giving the possibility for a positive contribution to the children's self-worth whether by social activity, athletic competence or even the scholastic competence when working with academic topics in more practical ways. A strengthening of self-worth can make the children less vulnerable even though they have a low self-perception in the scholastic domain (Harter *et al.*, 1998).

A limitation of study 2 is the small number of children participating. Only three boys and three girls, whereas all of them have been interviewed, but only three; two boys and one girl have been observed. The two boys had quite similar behavior, while the girl had a different way of responding to the demands of school. Regardless of gender, we should be aware of both these ways of responding when pupils are poor readers. Surely, there are other ways to respond. Anyway, the cases outlined in this article can make a contribution to understanding children with reading disabilities and their days at school.

### **4.3. General Discussion**

The results in these studies showing that there is a trend for the children with reading difficulties to experience more boredom inside (low arousal) and difficulty/shortcomings in the situations (high arousal) inside, and their tendency to experience more mastering outside, shows that outdoor education is less likely to give the children with reading disabilities feelings of their shortcoming in

the situation. The situations may be difficult and demand academic potential, but the situation can bring them into a state of mind where they experience fun, and therefore do not feel inadequate. If this kind of teaching method gives the children some feelings of mastering in the situations, it can generate even more motivation for the topics (see for example Harter, 1981).

The studies also show the children's ability to demonstrate competences in different areas during outdoor education, which probably will be more important for the group of children who are striving with their readings indoors. This might open up for an increased self-perception in another dimension than reading/learning of academic topics in the classroom, which can increase global self-worth, and thereby reduce the negative effect of their shortcoming in for example reading (Harter, Waters, & Whitesell, 1998). When they have the possibilities to show competences in other areas, they also are given some positive feedback from their classmates, which will affect their view of the self (see for example the theory from Mead, 1934).

The results in study 1 and study 2 also indicate that the children with different degrees of reading disabilities are more likely be brought into in the paratelic state of mind (Apter, 2001) during outdoor education, compared with the time they are at the indoor education condition. The paratelic state of mind is a part of being a child, and is a state where they more easily deal with a high degree of arousal, and therefore outdoor education can be a healthy alternative and complementary method for this group of children.

## 5. Conclusion

Data from this study indicates that children in general are calmer, have more fun and more easily become positive spirits in outdoor education than in education indoors. Children with reading difficulties seem to relax more outdoors because the framework from traditional learning is removed. Perhaps outdoor education, in addition to contributing to children's learning, also contributes to a relief from stress built up during indoor education. If this is so, it might be an argument for varying between indoor and outdoor education. The stress relief from outdoor education may then also contribute to increased learning quality and self-concepts in indoor education.

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