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## Motivational factors and barriers concerning outdoor teaching at primary schools in the Netherlands



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## Abstract

Outdoor education at the school ground, the practice of teaching in the outside school environment, has been associated with physical, cognitive, personal and social benefits. In order to implement outdoor education teachers will need to overcome barriers and have sufficient motivational factors for teaching outdoors. The current study examines the motivational factors and barriers for outdoor education and takes into account the influence of a green school ground on these. The barriers and motivational factors are split up in three categories: environment, school and teacher. It is hypothesized that teachers who do practice outdoor education will experience stronger motivational factors and weaker barriers than teacher who do not practice outdoor education. It is also hypothesized that a green school ground weakens the barriers and strengthens the motivational factors. In order to test this, a questionnaire was conducted among 141 primary school teachers. Information on the outdoor teaching practice and the school ground was gathered and the barriers and motivational factors were measured. It was found that barriers and motivational factors related to the teacher had the strongest influence, but significant influences of the barriers and motivational factors related to the school and the environment were found as well. Correlations between a green school ground and several motivational factors were found. A direct effect of greenness of the school ground on whether or not outdoor education is practiced could not be found, but the data indicated than an indirect effect of greenness of the school on the practice of outdoor education might be occurring.

Key words: outdoor education, green school ground, benefits, motivational factors, barriers, primary school

## Dutch summary

Buiten op het schoolplein les geven wordt geassocieerd met verbeterde fysieke, cognitieve, persoonlijke en sociale ontwikkeling van de kinderen. Om naast de reguliere klassikale lessen buiten les te geven, moet een leerkracht bepaalde barrières overwinnen en voldoende motiverende factoren ervaren. In deze studie is onderzocht waarom leerkrachten wel of niet buiten les geven. Met dit doel zijn de barrières en motivaties waar leerkrachten tegenaan lopen met buiten les geven onderzocht en is er gekeken naar de invloed van een groen schoolplein op deze barrières en motiverende factoren. De barrières en motiverende factoren zijn opgesplitst in drie categorieën: omgeving, school en docent. De factoren gerelateerd aan de omgeving betreffen zowel de sociale omgeving als de fysieke omgeving; waarbij de sociale omgeving de druk van de maatschappij om wel of niet buiten les te geven is en de fysieke omgeving de geschiktheid van het schoolplein voor het gebruik voor leerdoeleinden omvat. Factoren gerelateerd aan de school gaan voornamelijk over het beleid van de school omtrent buiten les geven, de focus op efficiëntie en het beschikbaar stellen van de benodigheden om buiten les te geven. De factoren gerelateerd aan de docent omvatten natuurbeeld, zelfvertrouwen en bereidheid om buiten les te kunnen geven en ook in welke mate de docenten positieve effecten voor de kinderen, werktevredenheid en mogelijke nadelen zoals chaos, tijd en overlast voor andere klassen verwachten.

De hypothese was dat leerkrachten die al buiten les geven zwakkere barrières en sterkere motiverende factoren ervaren dan leerkrachten die niet met de klas naar buiten gaan voor leerdoeleinden. Het werd daarnaast verondersteld dat een groen schoolplein ertoe zou leiden dat de barrières zwakker werden en de motiverende factoren sterker.

Om dit te onderzoeken is een enquête gehouden onder 141 basisschoolleerkrachten. In deze enquête werd informatie verzameld over de achtergrond, zoals geslacht, leeftijd en school, van de leerkracht en of deze wel of niet buiten les gaf alsmede hoe deze het schoolplein beoordeelde op "groenheid". Vervolgens werden de barrières en motiverende factoren voor het buiten les geven gemeten.

Uit de resultaten blijkt dat factoren gerelateerd aan de omgeving, school en docent alle drie van significante invloed waren op het wel of niet buiten les geven. Opvallend was dat het natuurbeeld geen significante factor was voor het wel of niet buiten les geven. Groenheid van het schoolplein correleerde met beleid van de school, geschiktheid van het schoolplein, praktische problemen (negatief) en verwachte voordelen voor de kinderen werd gevonden. Een directe invloed van groenheid van het schoolplein op het wel of niet gebruiken van het schoolplein voor lesdoeleinden werd niet gevonden.. Er kan geconcludeerd worden dat leerkrachten die buiten les geven sterkere motiverende factoren en zwakkere barrières ervaren om buiten les te geven dan leerkrachten die dat

niet doen. Groenheid van het schoolplein had hier geen directe invloed op, maar een indirecte invloed via de andere factoren is wel gevonden.

## Table of Contents

|       |  |    |
|-------|--|----|
| 1.    | Introduction   | 2  |
| 1.1   | Background   | 2  |
| 1.2   | Research objective and problem statement   | 3  |
| 1.3   | Research questions   | 4  |
| 2.    | Conceptual framework   | 5  |
| 2.1   | Outdoor teaching vs. indoor teaching   | 5  |
| 2.2   | Barriers and motivational factors for outdoor teaching   | 7  |
| 2.2.1 | Environmental barriers and motivational factors  | 7  |
| 2.2.2 | Barriers and motivational factors related to the school (system)   | 9  |
| 2.2.3 | Barriers and motivational factors related to the teacher   | 9  |
| 2.3   | Overview of concepts and hypothesized relations  | 11 |
| 3.    | Methodology  | 13 |
| 3.1   | Respondent selection   | 13 |
| 3.2   | Questionnaire design   | 14 |
| 3.2.1 | Motivational factors and barriers related to the environment   | 14 |
| 3.2.2 | Motivational factors and barriers related to the school  | 14 |
| 3.2.3 | Motivational factors and barriers related to the teacher   | 14 |
| 3.2.4 | Level of green of the school ground  | 15 |
| 3.3   | Procedure  | 17 |
| 3.4   | Analysis   | 17 |
| 4.    | Results  | 18 |
| 4.1   | General findings   | 18 |
| 4.1.1 | Correlations between scales  | 20 |
| 4.2   | Hypothesis 1: teachers who do practice outdoor education will experience weaker barriers and stronger motivational factors barriers for outdoor education than teachers who do not | 21 |
| 4.2.1 | Barriers and motivational factors related to the environment   | 21 |
| 4.2.2 | Barriers and motivational factors related to the school  | 22 |
| 4.2.3 | Barriers and motivational factors related to the teacher   | 22 |
| 4.3   | Hypothesis 2: teachers of schools with greener school grounds will experience weaker barriers and higher motivations for practicing outdoor education                              | 24 |
| 4.4   | The complete model   | 24 |
| 4.5   | Additional analyses  | 26 |
| 5.    | Discussion & Conclusions   | 27 |
| 5.1   | General discussion   | 27 |

|       |   |    |
|-------|---|----|
| 5.2   | Implications  | 29 |
| 5.2.1 | Theoretical implications  | 29 |
| 5.2.2 | Practical implications  | 30 |
| 5.3   | Limitations & strengths   | 30 |
| 5.4   | Future research   | 31 |
| 5.5   | Conclusion  | 31 |
|       | References  | 33 |
|       | Appendix  | 35 |
| I.    | Emails  | 35 |
|       | Email to the coordinators   | 35 |
|       | Email to the schools  | 35 |
|       | Email to the teachers   | 36 |
| II.   | Questionnaire   | 37 |
| III.  | Table with general descriptives of scores to all separate questions | 42 |

# 1. Introduction

## 1.1 Background

Outdoor teaching, as an extension of indoor teaching, is often associated with effective and successful absorption of knowledge. However, the benefits of outdoor learning next to indoor learning are thought to go beyond cognitive benefits. Outdoor learning is associated with cognitive, physical (e.g. Dymont & Bell, 2008a), personal (e.g. Zink & Boyes, 2006) and social benefits (e.g. Dymont & Bell, 2008b) for the children. It is therefore not surprising that in some countries outdoor teaching is a common part of the overall education. Outdoor teaching is even described in the national curriculum in New Zealand and therefore commonly practiced (Zink & Boyes, 2006). Scandinavian countries are also known for the practice of outdoor teaching throughout the entire year, in some parts even a “weekly outdoor school day” exists (Rea & Waite, 2009). Currently, outdoor teaching is an internationally discussed topic (Rea & Waite, 2009). In several countries, for example the United Kingdom (Dillon et al., 2006) and the United States (Ernst, 2009), outdoor teaching is still developing and not yet widely applied.

It is argued by several researchers that the underlying reason for the benefits for the children is that engaging the environment requires usage of all the five senses due to increased stimulation of all the senses outside, and therefore leads to better learning results (Dymont, 2008; Wagner, 1999; Waite, 2007). Natural aspects of the outdoor environment are also argued to contribute to the general benefits of outdoor teaching (Maynard & Waters, 2007; Malone & Tranter, 2003). It is suggested that this is due to the natural environment constantly changing, whereas the urban environment remains the same and therefore challenges the thinking and exploring behavior of the children less. Many children, especially in urban areas, are not exposed to nature in the outdoor environment at home and are therefore not exposed to the benefits of the natural environment. Since a large part of the childhood is spent at schools, the school environment could contribute to the development of children by functioning as a natural outdoor environment where learning can occur (Malone & Tranter, 2003).

This additional contribution of schools is becoming more common, which can be found in the widespread trend of greening school grounds in the past few years (e.g. De Vries et al., 2012; Dymont, 2008; Mygind, 2007; Wagner, 1999). For example, in deprived neighborhoods of Rotterdam the greening of several school grounds has taken place. Research on the effects of the greening of these school grounds is still ongoing. Previous research indicates a positive relation between appreciating the school ground and concentration during indoor activities (De Vries et al., 2011). In this research the school grounds were hardly used for educational purposes right after renewing the

school grounds (De Vries et al., 2012). Whether this usage has increased over the past year is currently being researched.

It would not be too surprising if this has not been the case, for some quite common barriers to outdoor teaching exist. Often mentioned in the existing literature on outdoor teaching as barriers for the practice of this are: safety consideration, lack of teachers' confidence or self-efficacy in teaching outside, lack of sufficient training of the teacher for outdoor teaching, other requirements of school curriculum, time pressure to meet set targets, not sufficient funding and support for outdoor teaching, and general properties of the current education system (e.g. large classes, strict regulations) (e.g. Dymont, 2008; Hanna, 1992; Simmons, 2010).

However, not only barriers exist, motivational factors for outdoor teaching are also found in the literature. Mosely et al. (2003) mention that a sustainability worldview and a high self-efficacy are motivational factors for practicing outdoor teaching. Ernst (2009) mentions that having been exposed to the method, even if it was only for extra credits, in the education of the teacher, is an important motivational factor, as well as the awareness of the benefits for the students.

For the purpose of this research the influence of the school ground on motivational factors and barriers will also be taken into account; since it might be the case that a green school ground will lead to higher motivational factors and fewer perceived barriers than a grey school ground. This will be elaborated upon in the conceptual framework.

Thus, implementing outdoor teaching in the regular teaching program requires effort of teachers to overcome existing barriers related to outdoor teaching. At the same time, several motivational factors for bringing up this effort exist. It is therefore interesting to examine what motivates and what constrains teachers with regard to practicing outdoor teaching as a replacement of part of the otherwise practiced traditional indoor teaching in order to achieve at least the same learning goals. Especially since no literature on this precise topic is available.

## **1.2 Research objective and problem statement**

The aim of this research is to identify why teachers have or have not implemented outdoor teaching in their regular teaching program considering the motivational factors and barriers that teachers are encountering and how the type of school ground (e.g. green or grey) influences this. The differences among teachers who practice and teachers who do not practice outdoor teaching will be explored, as well as the differences between teachers on a grey and a green school ground, in an attempt to understand which factors have a role in whether or not a teacher practices outdoor teaching.

### 1.3 Research questions

In order to meet the research objective, namely discovering what the motivations and barriers for practicing outdoor teaching are and how the level of green on school grounds influence the perceived motivations and perceived barriers to practice outdoor teaching, two main research questions have been constructed:

- 1 Why do or do not teachers practice outdoor teaching?
  - a. What are the motivational factors for outdoor teaching of these teachers?
  - b. What are the barriers that teachers run into?
  - c. What are the differences in barriers and motivational factors of teachers who do and do not practice outdoor teaching?
- 2 How does the “greenness” of the school ground influence the perceived motivations and perceived barriers of teachers to practice outdoor teaching?

## 2. Conceptual framework

### 2.1 Outdoor teaching vs. indoor teaching

The relation of indoor and outdoor teaching has been defined as a knowledge gap (Rickinson et al., 2004). Outdoor teaching is defined by Zink & Boyes as “the use of the natural environment for the purposes of teaching and learning in the outdoors” (2006, p12). Outdoor teaching often puts into practice what is educated with indoor teaching (Rea & Waite, 2009), where indoor teaching captures the traditional learning inside the classroom. The current implementation of outdoor teaching is often limited to topics that can directly be linked to the outdoor environment, such as environmental topics or physical education lessons (Waite, 2011). Next to these current applications, outdoor teaching can also provide opportunities for other classes by functioning as an outdoor classroom, for example language, mathematics, art and geography can also be taught outside (Wagner, 1999; Dymont, 2008). This results in a broader spectrum of outdoor teaching than the mere putting into practice what is taught indoors.

The advantages for children of more outdoor teaching next to indoor teaching are well represented and mentioned in the current literature, and can roughly be divided into physical, cognitive, personal and social benefits. The physical benefits relate to the increased physical activity associated with outdoor teaching (Zink & Boyes, 2006; Dymont & Bell, 2008b; Dymont & Bell, 2008a; Rea, 2008a; Mygind, 2007), as well as increased skills in safely operating within the natural environment (Zink & Boyes, 2006).

The cognitive benefits are associated with better absorption of knowledge and increased performance during the indoor teaching just after the the outdoor teaching (Dymont, 2008; Wagner, 1999; Waite, 2007), better development of (critical) thinking skills (Zink & Boyes, 2006; Fabian, 2005; Dymont, 2008) and improved academic performance (De Vries et al., 2011; Dillon et al., 2006, Dymont, 2008; Dymont & Bell, 2008b; Rea, 2008a). These cognitive benefits are explained by Wagner (1999). He argues that involving all the five senses in the learning process leads to better results.

Benefits related to the personal development are improved self-esteem (Zink & Boyes, 2006), increased self-responsibility (Zink & Boyes, 2006), challenge to explore and examine (Fabian, 2009) and motivation to learn (Rea & Waite, 2009) and the development of a positive environmental attitude and sustainable worldviews (Zink & Boyes, 2006; Cachelin et al., 2011; Skelly & Zajicek, 1998; Wagner, 1999; Dymont & Bell, 2008b; Lugg, 2007). Brookes (2003a) makes an interesting notion questioning the mentioned emotional / personal benefits. He disagrees that personality development during outdoor learning occurs. He argues that outdoor learning cannot influence personal aspects (2003b), but that rather behavior is temporarily changed due to the different environment, which is understood with the current research methods as a permanent emotional or personality change.

The mentioned social advantages of outdoor teaching in the current literature include development of interpersonal skills (Zink & Boyes, 2006), cooperation skills (Zink & Boyes, 2006; Fabian, 2009), consideration of others and increased sharing (Zink & Boyes, 2006; Fabian, 2009), improved social and communication skills (Zink & Boyes, 2006; Wagner, 1999) higher social inclusion (Dyment & Bell, 2008b) and a reduction of problems with the social atmosphere in the classroom (Dyment & Bell, 2008b), such as less conflicts between the children due to having been exposed to the outdoor environment.

Several explanations for the benefits of outdoor teaching next to indoor teaching can be found in the literature. Three of these will be mentioned here. The first one is by Rea (2008a), he argues that the advantages of outdoor teaching can be explained by the informal and spontaneous setting of outdoor teaching, and not being an actual part of school and formal learning. The author refers to the playful, often unscheduled and without set learning goals and surprising character of outdoor teaching with the terms informal and spontaneous. This means that when one would plan outdoor education in a similar way as indoor education, the advantages might fade due to the disappearance of the informality and spontaneity of the outdoor teaching. The importance of not treating outdoor teaching as indoor teaching is emphasized by Waite (2011) as well. Waite mentions another difference between indoor and outdoor teaching, namely the importance of the informal learning during outdoor teaching for memory (2007). That outdoor teaching is currently being treated as indoor teaching becomes evident when looking at the research methodologies applied to study the effects of outdoor teaching (Rea, 2008b). The recent control, requirements and standards for the content and shape of outdoor teaching of the government in many countries reduces the informality and decreases the positive outcomes of outdoor teaching (Rea, 2008a). Since several of the additional learning achievements with outdoor teaching are hard to measure and are not as well represented in set targets and requirements for education, it would not be correct to measure the effects of outdoor teaching in the same way as indoor teaching. Rea (2008a) argues for another reason to not apply the same measures on outdoor teaching as on indoor teaching, he claims that it is important to maintain the informality that leads to the results of outdoor teaching by not having to meeting set targets and requirements with outdoor teaching.

The second common explanation for the benefits of outdoor teaching in the current literature is that engaging the environment in the education fuels all the five senses, which increases the learning outcomes (Dyment, 2008; Wagner, 1999; Waite, 2007). The usage of the five senses would lead to a better ability to recall the information. As a third explanation the natural aspects of the outdoor environment are thought to have a role in the overall benefits of outdoor teaching (Maynard & Waters, 2007; Malone & Tranter, 2003). The idea is that the natural environment is always dynamic

and changing and therefore invites the children to explore and contemplate nature in order to develop and learn by their selves.

Thus, different opinions on the advantages of outdoor teaching next to indoor teaching are represented in the literature, but often the role of outdoor teaching in the overall education has not been well defined. However, most articles report benefits of some kind associated with outdoor teaching, suggesting that the overall belief is that outdoor teaching next to indoor teaching is beneficial for the children.

## **2.2 Barriers and motivational factors for outdoor teaching**

So, the advantages of outdoor teaching next to indoor teaching are commonly mentioned in the literature, yet the practice of outdoor teaching is not as prominent as one would expect based on only this. It is therefore interesting to explore the barriers to outdoor teaching. In the current literature many barriers to outdoor teaching in general are mentioned, these apply to some extent also to outdoor teaching at school grounds, which is the focus of the current research.

Since outdoor teaching is currently applied it can be expected that teachers have positive motivational factors for applying outdoor teaching as well. Several suggestions in order to overcome the barriers and reasons for bringing up the effort have been made by various researchers already. Many of the potential barriers are potential motivational factors as well, when they are on a certain end of the spectrum of the concept. For example, a supportive and positive school policy towards outdoor teaching might be a motivational factor, whereas a negative school policy towards outdoor teaching with a focus on efficiency might be a barrier. For the purpose of this research the barriers and motivational factors are split up in three categories, namely related to the environment, to the school and to the teacher.

### **2.2.1 Environmental barriers and motivational factors**

#### ***Physical environment***

The physical environment is important for outdoor teaching, since it shapes the opportunities and limitations of the space in which the teaching takes place. The direct school environment is often not suitable for an educational purpose, either due to safety issues or to lack of educational elements that can be used for a learning goal (for example chairs, insects, or water) (Hanna, 1992). Many of the experienced barriers are related to safety concerns in general (Dillon et al., 2006; Hanna, 1992; Simmons, 1998; Zink & Boyes, 2006). The close by urban nature settings (e.g. green school grounds) are considered less appropriate for outdoor teaching by teachers than other more natural settings,

since the urban environmental settings are always the same for multiple educational purposes and often small or without sufficient variation. An advantage of urban nature settings is that these are considered safer and therefore provide fewer barriers for outdoor teaching at the same time, since very often trips to urban natural settings require less organization (Simmons, 1998). Even though school grounds are not the best outdoor option to meet the educational target, in New Zealand most of the outdoor education occurs at the own school grounds, because it is highly convenient (Zink & Boyes, 2006). A suitable school ground could function as a motivational factor for outdoor teaching.

Green school grounds increase the suitability of the school ground for outdoor teaching (Hanna, 1992; Dymont, 2008). Green school grounds include green elements, such as plants, flowers and trees, as well as green loose elements, such as wood, water, sand, et cetera. Not only is the presence of these elements important; the composition and design of the school ground with the green elements as a whole defines the “greenness” of a school ground. This way, well-designed green school grounds can stimulate outdoor teaching (Dymont, 2008). However, a downside of outdoor teaching on the same school ground every time is that it might be less suitable for the educational purpose than a natural area selected specifically for a particular learning goal (Simmons, 1998).

From the physical environment the suitability of the school ground will be treated as a potential barrier or motivational factor in this study. Practical issues to outdoor teaching due to the environmental nature of outdoor teaching are considered barriers. The role of the greenness of the school ground will be elaborated upon in section 2.3.

### *Social environment*

The social environment can function as a barrier or motivational factor that influences the practice of outdoor teaching. A common problem is that the teacher experiences pressure due to the current discourse of education in society that results in expectations of teachers to exert control and maintain order in a classroom (Ernst, 2009). The concept of outdoor teaching seems to be clashing with this discourse, which could be a reason for teachers to not broaden the traditional teaching with the opportunities outside the classroom.

Another barrier that possibly arises from the previous one is that teachers are not educated well during their training to implement outdoor teaching methods (Simmons, 1998). This results in lack of the necessary skills for outdoor teaching in teachers and possibly also teachers who might not even consider outdoor teaching as part of the normal teaching practices due to unfamiliarity with the practice and the connected benefits for the children.

The social discourse will be considered a barrier for the purpose of this research. The problem with education and training will come back in section 2.2.3.

### **2.2.2 Barriers and motivational factors related to the school (system)**

A supportive school climate is necessary for the successful integration of outdoor teaching in the teaching program and can function as a motivational factor; however, this is often not the case. The school itself often prohibits the teacher to teach freely. Therefore the school climate often functions as a barrier (Ernst, 2009).

Another barrier related to the school system consists of rules and regulations of the government and decisions upon the school curriculum by the school or the government (Ernst, 2009; Zink & Boyes, 2006) and funding of educational activities of the school (Hanna, 1992; Zink & Boyes, 2006; Dillon et al., 2006). These all relate to pressure to focus on managing to pass tests and to meet standards. Budget is therefore often spent on necessities for passing tests and meeting these standards in a traditional way rather than for organizing outdoor teaching.

Next to the nationally determined targets that have to be met, the school also has a curriculum that decides for a large part what the content of the lessons will be (Dillon et al., 2006; Maynard & Waters, 2007). The school often also has certain high standards on the quality and effectiveness of education, that are easier to accomplish in the familiar classroom setting than in the often unfamiliar outdoor environment (Waite, 2011). This is partly due to the way the quality and effectiveness are defined and measured, since the assumptions are made with the idea of the traditional indoor teaching and the common benefits of this type of education. This results in a lack of time for outdoor teaching, and the relevance of outdoor teaching is often not very directly linked to the content of the curriculum (Ernst, 2009; Zink & Boyes, 2006). Another issue is the lack of materials for the outdoor educational purposes (Zink and Boyes, 2006). Lack of scheduled time to plan outdoor education (since it costs more time than planning indoor education, especially in the beginning), funding via the school, negative reactions from parents and having to meet standards are all barriers schools face while implementing outdoor teaching (Dillon et al., 2006; Ernst, 2009; Hanna, 1992; Zink & Boyes, 2006).

Of these barriers and motivational factors related to the school, school and governmental policy will be considered a potential barrier and a potential motivational factor for the purpose of this research. The above mentioned concepts related to funding, curriculum and focus on efficiency and meeting standards will be taken into account for measuring the supportiveness of the school policy.

### **2.2.3 Barriers and motivational factors related to the teacher**

Next to the barriers of the environment and the school itself, teachers themselves often experiences internal barriers as well. The notion of self-efficacy is important, for this case it can be defined as “an attitude measure that judges a teacher’s perception that he or she can teach

environmental education effectively” (Mosely et al., 2003), for the purpose of this current research this definition will be extended to teaching outdoor in general. Mosely et al. (2003) found evidence that self-efficacy is not only the perception of the teacher on the quality of teaching, but also a good indicator of the actual quality of teaching. Therefore, it is important that self-efficacy in outdoor teaching is high. Unfortunately, this is often not the case. Teachers frequently lack confidence in successful outdoor teaching (Dillon et al., 2006; Simmons, 1998). This is often due to a lack of training (Ernst, 2009). Teachers experience other barriers as well, for example with regard to risk management for overcoming safety and liability issues (Hanna, 1992). Barriers related to the self-efficacy or confidence in outdoor teaching can be reduced by training, either via team teaching or personal education. Proper training, that addresses the knowledge and pedagogical skills necessary for successful outdoor teaching and increasing self-efficacy, will help to overcome the barriers related to confidence and self-efficacy (Hanna, 1992; Zink & Boyes, 2006). Ernst (2009) mentions that having been exposed to outdoor teaching in the training to become a teacher works as a motivational factor as well. The familiarity with the practice can therefore be considered a motivational factor, as well as knowledge, experience and awareness with the benefits of this method for the students.

Another relevant concept that needs to be mentioned is commitment; in order to start implementing outdoor teaching, teachers need commitment. This means that they will need to be convinced of the positive learning outcomes in order to invest time and effort in preparing for the outdoor teaching. This commitment usually rises after accidental exposure to the outside learning practices and its benefits (Ernst, 2009; Zink & Boyes, 2006). Starting to implement outdoor teaching well requires dedication of the teacher, due to a temporarily increased workload (Hanna, 1992) and a sustainability worldview, which includes a positive environmental attitude, environmental sensitivity and the environmental literacy knowledge and skills (knowledge and pedagogic) necessary (Ernst, 2009). Lack of all these properties can function as a barrier to outdoor teaching.

A not well established possible motivational factor in the literature is an increased job satisfaction due to the outdoor teaching. It is hardly mentioned and no empirical research reports on this variable. However, it is not unthinkable that teachers will enjoy the outdoor teaching due to more variety in their daily practices. Another way that could lead to higher job satisfaction due to outdoor teaching is that teachers enjoy the joy of the children during outdoor teaching, and could therefore be motivated to implement outdoor teaching in their educational program. Therefore, increased job satisfaction will be treated as a possible motivation for the purpose of the current research.

The level of confidence, self-efficacy and willingness and expected benefits for the children of the teacher are considered a potential barrier and potential motivational factor for the purpose of

this research. The environmental attitude is considered a potential motivation, as well as job satisfaction.

### **2.3 Overview of concepts and hypothesized relations**

In Figure 1 the above mentioned concepts and their hypothesized relations are summarized. It is thought that the greenness of the school ground has an influence on the strength of the concept in the second column, with an exception of social discourse regarding teaching. All these concepts contribute to the overall perceived barriers and motivational factors, that eventually influence whether or not outdoor teaching is practiced.

It is hypothesized (hypothesis 1) that teachers who do practice outdoor education will experience weaker barriers and stronger motivational factors for outdoor education than teachers who do not practice outdoor education. This is in line with the notion of Ernst (2009) that, especially environmental and school related, barriers are perceived differently by teachers. Teachers who are practicing outdoor teaching already perceive similar barriers as less limiting than teachers who are not practicing outdoor teaching. She argues that “[w]hether or not a teacher is successful in overcoming barriers (constraints) to implementing environmental education depends on the relative strength of the barriers (constraints), as well as one’s motivation for implementing environmental...” (p76).

Greenness of the school ground is treated differently, because it is expected to have an influence on the barriers or motivational factors and not directly influences whether or not outdoor teaching is practiced. Since a green school ground has been reported to be more suitable for outdoor teaching the greenness will influence the suitability of the school ground. Also safety will be less of an issue on the own familiar school ground. On top of that several administrative issues, such as arranging and financing transport, planning time, travel time and needing additional support are not relevant for outdoor teaching on the own school ground (Dyment, 2008). It is hypothesized (hypothesis 2) that teachers of schools with green school grounds will practice outdoor education more often than teachers at schools with grey school grounds, since teachers at greener school grounds will experience higher motivational factors and weaker barriers concerning outdoor teaching.

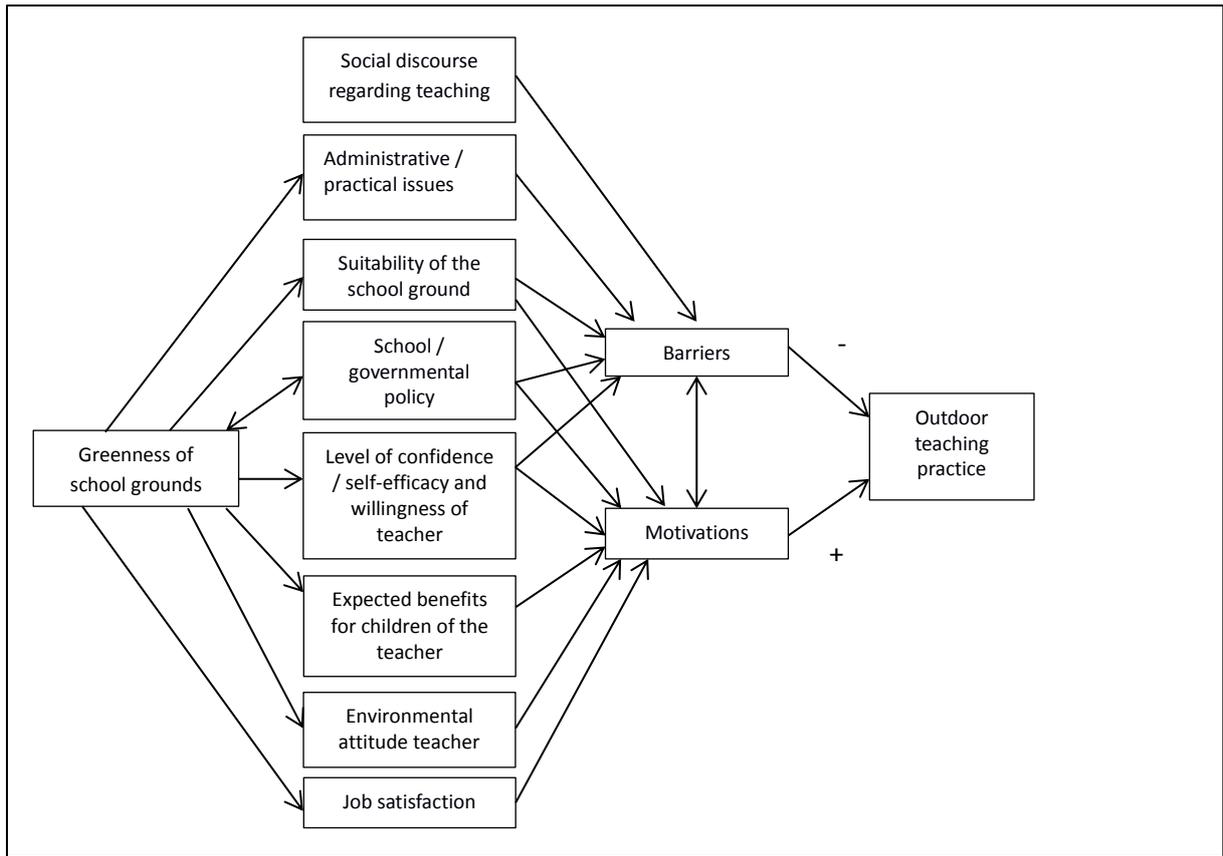


Figure 1 Overview of concepts related to the practice of outdoor teaching

### 3. Methodology

#### 3.1 Respondent selection

In order to analyze which factors function as a motivation or barrier for practicing outdoor teaching at primary schools in the Netherlands, a questionnaire was conducted among teachers of primary schools in the Netherlands (This means that the teachers are teaching approximately 4-12 year old children.) The questionnaire was designed according to the conceptual framework as developed in chapter 2; besides two questions were added based on an interview with key informant, Kees Both.

Six regional coordinators of an organization involved in green schools and play grounds (Springzaad) were approached via email (Appendix I) in order to get in touch with schools with green school grounds. These regional coordinators referred to the website for the green school grounds. The principals of 11 schools that were on the website were approached and invited to ask their teachers to participate. Also the 5 schools that participate in a new Dutch program (“biologie plus scholen”) in order to have extra environmental education and a green school ground were invited to participate. After that a list of DUO was used in order to other find schools that did not yet have summer holiday, an additional 431 schools were emailed. Mostly the principals of the schools were approached; in case the email addresses of the teachers could be found on the website of the school, the teachers were approached directly (around 250 teachers were emailed directly, see Appendix I for the email). In order to tempt the teachers to participate, a prize, twice a €20 voucher of bol.com, was raffled among the participants. In order to tempt the principals to forward the questionnaire to the teacher, a book was promised when at least five teachers of their school participated.

A convenience sample of 144 teachers of 71 different primary schools participated in the questionnaire. An estimated 1500-2500 teachers have received the request to fill out the questionnaire (assuming around 100-150 schools forwarded the message to 10-15 teachers and 250 who had received a direct email, at least 60 schools had forwarded the e-mail considering the number of different schools that participated in the questionnaire). This would result in a response rate of around 5-10%, which is in line with the overall low response rates reported for similar online questionnaires among teachers by others (Ernst, 2009; Zink & Boyes, 2006; Waite, 2011).

The mean age of the participants was 40.4 ( $SD = 12.2$ ). 20.8 per cent of the participants was male, 79.2 per cent of the participants was female. This is similar to the percentage of female teachers at primary schools in the Netherlands, namely around 85 per cent in 2012 (Statistieken Arbeidsmarkt Onderwijssectoren (STAMOS), 2013). The questionnaire was filled out by teachers who practice (92 teachers) and teachers who do not practice (52 teachers) outdoor teaching (in general) on schools with different types of school grounds. Both groups received the same questionnaire,

except for two additional questions for the teachers that did practice outdoor education; these additional questions were related to the frequency and topics of outdoor teaching. For the purpose of this research teachers that practice education are considered teachers that do at least once a year use the outside environment for educational purposes, teachers that do not practice outdoor education are the teachers that never use the outside environment. The aim of the questionnaire was to investigate whether there are differences in experiences barriers and motivational factors for outdoor teaching for both groups of teachers.

## **3.2 Questionnaire design**

### **3.2.1 Motivational factors and barriers related to the environment**

The environment related factors were measured by asking to rate statements on a 1 to 7 Likert scale (1=completely disagree, 7=completely agree). The internal consistency of all the environment related factors together was sufficient ( $\alpha=0.61$ ). Statements were divided in several groups of statements; each of these groups was combined into a scale, the precise questions asked to measure all the items of each group can be found in Table 1 (p. 15). The different groups were: suitability of the school ground ( $\alpha=0.83$ ), practical issues ( $\alpha=0.72$ ) and social discourse ( $\alpha=0.60$ ). A high score on suitability influences outdoor teaching positively, whereas a high score on practical issues and social discourse influences outdoor teaching negatively. The Dutch version of the questionnaire can be found in appendix II.

### **3.2.2 Motivational factors and barriers related to the school**

The factors related to the school were measured by asking to rate statements on a 1 to 7 Likert scale (1=completely disagree, 7=completely agree). The internal consistency of all the factors related to the school together was sufficient ( $\alpha=0.66$ ). The questions that were used to measure the school policy can be found in Table 2 (p. 15). A high score on the school policy items influences outdoor teaching positively.

### **3.2.3 Motivational factors and barriers related to the teacher**

The factors related to the teacher were measured by asking to rate statements on a 1 to 7 Likert scale (1=completely disagree, 7=completely agree). The internal consistency of all the factors related to the teacher was good ( $\alpha=0.79$ ). The covered variables were: environmental attitude of the teacher (NEP scale) ( $\alpha=0.78$ ), job satisfaction (only one question), benefits for the children ( $\alpha=0.74$ )

and confidence, self-efficacy and willingness of the teacher ( $\alpha=0.82$ ). The precise questions to measure all these factors can be found in Table 3 (p. 16). A high score on environmental attitude, job satisfaction, benefits for the children and confidence, self-efficacy and willingness influences outdoor teaching positively.

### 3.2.4 Level of green of the school ground

The greenness of the school ground was measured with only two questions ( $\alpha=0.88$ ), separate from the suitability of the school ground. The exact items can be found Table 4 (p. 16). A high score on the greenness of the school ground influences outdoor teaching positively.

Table 1 Questions to measure the different concepts of the environment related factors

| Variable   | Measured by questions   |
|--|---|
| <b>Suitability of the school ground</b><br>$\alpha=0.83$ | The school ground is spacious and gives the children all the opportunities to play      |
|  | The children like the school ground   |
|  | The school ground makes various type of play possible                                   |
|  | The natural elements of the school ground are fragile (recoded)                         |
|  | The school ground is suitable for achieving learning goals                              |
|  | The school ground is safe for the children  |
| <b>Practical issues</b><br>$\alpha=0.72$                 | It is harder to keep control of the group of children outdoors than indoors (recoded)   |
|  | Teaching outdoors consumes more time than teaching indoors (recoded)                    |
|  | Usage of the school ground for teaching leads to disturbance of other classes (recoded) |
| <b>Social discourse</b><br>$\alpha=0.60$                 | It feels like it is expected that I (just) teach indoors                                |
|  | During outdoor teaching I (would) feel like I'm being watched                           |

Table 2 Questions to measure the different concepts of the school related factors

|  |   |  |
|--|---|--|
| <b>School policy regarding outdoor learning</b><br>$\alpha=0.66$ | <b>Attitude towards outdoor education</b> | <b>The school stimulates outdoor teaching</b>      |
|  |   | The school provides equipment for outdoor teaching |
|  | Attitude towards curriculum               | The school focuses on passing tests (recoded)      |
|  |   | The school focuses on efficiency (recoded)         |

Table 3 Questions to measure the different concepts of the factors related to the teacher

| Variable   | Aspect  | Measured by questions   |
|--|---|---|
| <b>Environmental attitude of the teacher</b><br><br>$\alpha=0.78$                                |   | We are approaching the limit of the number of people the earth can support                            |
|  |   | Humans have the right to modify the natural environment to suit their needs (recoded)                 |
|  |   | When humans interfere with nature it often produces disastrous consequences                           |
|  |   | Human ingenuity will insure that we do not make the earth unlivable (recoded)                         |
|  |   | Humans are severely abusing the environment   |
|  |   | The earth has plenty of natural resources if we just learn how to develop them (recoded)              |
|  |   | Plants and animals have as much right as humans to exist  |
|  |   | The balance of nature is strong enough to cope with the impacts of modern industries (recoded)        |
|  |   | Despite our special abilities humans are still subject to the laws of nature                          |
|  |   | The so-called "ecological crisis" facing humankind has been greatly exaggerated (recoded)             |
|  |   | The earth is like a spaceship with very limited room and resources                                    |
|  |   | Humans were meant to rule over the rest of nature (recoded)   |
|  |   | The balance of nature is very delicate and easily upset   |
|  |   | Humans will eventually learn enough about how nature works to be able to control it (recoded)         |
|  | If things continue on their present course, we will soon experience a major ecological catastrophe. |   |
| <b>Job satisfaction</b>  |   | Outdoor teaching contributes (would contribute) to the satisfaction I get from my job                 |
| <b>Benefits for the children</b><br><br>$\alpha=0.74$  | Cognitive benefit   | The children learn better when next to indoor learning also outdoor learning is implemented           |
|  | Emotional / personal benefit  | The children develop better emotionally when outdoor teaching is practiced next to indoor teaching    |
|  | Emotional / personal benefit  | The children enjoy outdoor teaching   |
|  | Physical benefit  | Outdoor learning is healthy for the children  |
|  | Cognitive / emotional / personal benefit  | Outdoor teaching next to indoor teaching provides more possibilities for achieving the learning goals |
| <b>Confidence, self-efficacy and willingness regarding outdoor teaching</b><br><br>$\alpha=0.82$ | Self-efficacy   | I have sufficient skills for outdoor teaching   |
|  |   | I have had sufficient training for outdoor teaching   |
|  |   | I have sufficient knowledge for outdoor teaching  |
|  | Confidence  | I feel more comfortable with my class indoors than outdoors (recoded)                                 |
|  |   | Teaching at the school ground fits with my teaching method  |
|  | Willingness   | I am willing to use the school ground for teaching (more often)                                       |
|  |   | I am willing to invest (more) time in the usage of the school ground for achieving learning goals     |

Table 4 Questions to measure the different concepts of the greenness of the school ground

| Variable   | Measured by questions  |
|--|--|
| <b>Greenness of the school ground</b><br><br>$\alpha=0.88$ | The school ground is green   |
|  | The school ground contains a lot of loose green element with which the children can play |

### 3.3 Procedure

At the start of the questionnaire, the topic was introduced. In order to avoid a possible bias, this was done very briefly. General information was asked first, namely age, general teaching experience (years, which classes, which educational methods), what school(s) they are teaching, experience with outdoor teaching, opinion on the school ground and environmental worldview (NEP scale designed by Dunlap et al. (2000)).

Subsequently the teachers were asked to answer statements on a 1 to 7 Likert scale about common motivational factors concerning outdoor teaching, namely about the perceived benefits for the children (cognitive, personal, social and physical), and about the perceived benefits for the teacher (satisfaction, enjoyment, variation in teaching). Then similar statements on the motivational factors and experienced barriers in outdoor teaching were rated. These existed of statements on the school policy regarding outdoor teaching, perceived available time for outdoor teaching, perceived effectiveness / efficiency of outdoor teaching, suitability of the school ground, self-efficacy and confidence in outdoor teaching versus indoor teaching, willingness to apply outdoor teaching, willingness to invest extra time, relevance for the curriculum and relevance for the teaching method.

Finally, an open question about overall comments related to outdoor teaching was posed. After completion more detailed information on the research was provided, as well as the opportunity to leave the email address in order to have a chance to win a voucher or to receive information on the results.

### 3.4 Analysis

In order to analyze the above mentioned concepts, several statistical analyses will be conducted. A reliability test has already been conducted first in order to test the internal validity of the scales (results can be found in section 3.2 above). An acceptable alpha value for a weak scale is 0.60; a good alpha is 0.80 and higher. After this the results will be analyzed globally to get a summary of the data. Then independent t-tests will be conducted in order to compare the group of teachers that do and the group of teachers that do not practice outdoor education. In addition a hierarchical regression analysis will be conducted in order to test the influence of the greenness of the school ground. In addition, several analyses will be conducted in order to test for other possible interesting results with the gathered data than the hypothesized relations, to explore potential possibilities for future research.

## 4. Results

### 4.1 General findings

In general it was found that 92 of the 144 participating teachers practiced outdoor education at least once a year and that 52 teachers did not practice outdoor teaching at all. The distribution of the frequencies of practicing outdoor teaching of the 92 teachers can be

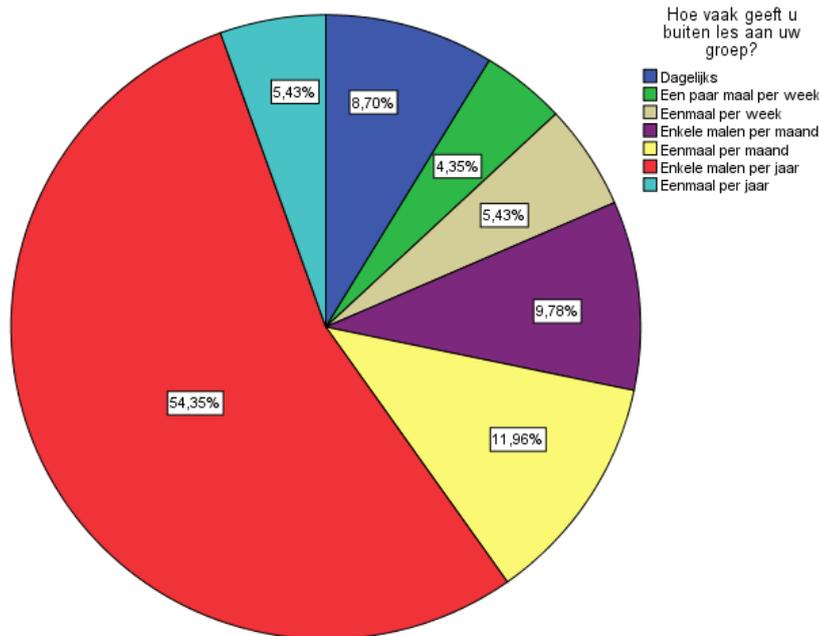


Figure 2 Frequency of outdoor teaching

found in Figure 2. As can be seen the most (54.4%) practice outdoor teaching only several times a year. The percentage of teachers that practice outdoor education on a daily base is 8.7%.

The teachers that practiced outdoor teaching most were not found to have a specific teaching method or teach in a particular city. In Table 6 the mean, standard deviation, minimum and maximum for each of the concepts is displayed for all the 144 participants. In appendix III a similar table can be found for all the items asked in the questionnaire. The mean age of the participants was 40 with an average experience of 15.4 years. However, the standard deviation of both these variables was high, indicating there was a lot of variation for these variables. This can also be seen in the large differences between the minimum and the maximum value.

Benefits for the children is found to be relatively high with a low standard deviation, this means that overall the teachers expect high benefits for the children and that all values were relatively close to the mean for the total group of teachers who do and who do not practice outdoor education, which could be considered remarkable. A similar remark can be made about environmental attitude, confidence, self-efficacy and willingness and job satisfaction.

Social discourse scores rather average with a high standard deviation, indicating that the scores of the teachers are not centered around the mean but vary mostly from rather low to rather high. The greenness of the school ground has a low mean, but a high standard deviation, suggesting that many schools have relatively grey school grounds and few a very green school ground.

**Table 5** General descriptives of results

| Concept  | Mean | Standard deviation | Minimum | Maximum |
|--|------|--------------------|---------|---------|
| <b>Year of birth</b>                             | 1973 | 12.2               | 1949    | 1991    |
| <b>Years of experience</b>                       | 15.4 | 11.1               | 1       | 40      |
| <b>Environmental attitude</b>                    | 4.6  | 0.7                | 3.2     | 6.4     |
| <b>Job satisfaction</b>                          | 5.4  | 1.1                | 2.0     | 7.0     |
| <b>Benefits for the children</b>                 | 5.7  | 0.7                | 4.0     | 7.0     |
| <b>Confidence, self-efficacy and willingness</b> | 4.8  | 0.7                | 2.6     | 6.7     |
| <b>School policy</b>                             | 3.2  | 0.9                | 1.4     | 6.4     |
| <b>Suitability of the school ground</b>          | 4.7  | 1.4                | 1.0     | 7.0     |
| <b>Practical issues</b>                          | 3.9  | 1.1                | 1.3     | 7.0     |
| <b>Social discourse</b>                          | 3.5  | 1.4                | 1.0     | 7.0     |
| <b>Greenness of the school ground</b>            | 3.1  | 1.8                | 1.0     | 7.0     |

In table 6 the relations of all the scales with the practice of outdoor teaching can be found. The strongest correlation, namely confidence, self-efficacy and willingness regarding outdoor teaching, is still rather weak. However, considering this research is measuring a social situation, this correlation can be thought of as substantially present. Only suitability of the school ground, environmental attitude and greenness of the school ground were not correlated with the practice of outdoor teaching.

Table 6 Correlations between outdoor teaching yes/no and scales (\* =  $p < 0.05$ , \*\* =  $p < 0.01$ )

|  | Outdoor teaching |
|--|------------------|
| Suitability of the school ground                                     | 0.16             |
| Practical issues   | 0.22**           |
| Social discourse   | -0.17*           |
| School policy  | 0.30**           |
| Environmental attitude   | 0.07             |
| Job satisfaction   | 0.32**           |
| Benefits for the children  | 0.26**           |
| Confidence, self-efficacy and willingness regarding outdoor teaching | 0.39**           |
| Greenness of the school ground                                       | 0.07             |

#### 4.1.1 Correlations between scales

Table 5 shows the correlations between the scales. The environmental attitude of the teacher was not included in the table, since it did not correlate with any of the other variables. It can be seen that there are many significant correlations between the scales; this has consequences for interpreting the results. Most of the correlations are not very strong; the two moderately strong correlations are between confidence, self-efficacy and willingness regarding outdoor teaching with expected benefits for the children and between expected benefits for the children and job satisfaction. The scale “practical issues” (low score means high practical issues) has weak correlations with all the other scales. These correlations will be taken into account and referred to when interpreting the results in the next chapter.

Table 7 Correlations between scales (\* =  $p < 0.05$ , \*\* =  $p < 0.01$ )

|  | Suitability of the school ground | Practical issues | Social discourse | School policy | Job satisfaction | Benefits for the children | Confidence, self-efficacy and willingness regarding outdoor teaching |
|--|----------------------------------|------------------|------------------|---------------|------------------|---------------------------|--|
| Suitability of the school ground                                     | X                                | 0.22**           | -0.14            | 0.29**        | 0.09             | 0.19*                     | 0.12   |
| Practical issues   | 0.22**                           | X                | -0.26**          | 0.34**        | 0.35**           | 0.31**                    | 0.39**   |
| Social discourse   | -0.14                            | -0.26**          | X                | -0.40**       | -0.03            | -0.06                     | -0.08  |
| School policy  | 0.29**                           | 0.34**           | -0.40**          | X             | 0.12             | 0.16                      | 0.21*  |
| Job satisfaction   | 0.09                             | 0.35**           | -0.03            | 0.12          | X                | 0.62**                    | 0.45**   |
| Benefits for the children  | 0.19**                           | 0.31**           | -0.06            | 0.16          | 0.62**           | X                         | 0.51**   |
| Confidence, self-efficacy and willingness regarding outdoor teaching | 0.12                             | 0.39**           | -0.08            | 0.21*         | 0.45**           | 0.51**                    | X  |

## 4.2 Hypothesis 1: teachers who do practice outdoor education will experience weaker barriers and stronger motivational factors barriers for outdoor education than teachers who do not

### 4.2.1 Barriers and motivational factors related to the environment

#### *Suitability of the school ground*

Overall the suitability of school grounds was rated positively ( $M = 4.66$ ,  $SD = 1.40$ , scale of 1 to 7, 1 = low appreciation, 7 = high appreciation). The teachers who did practice outdoor education rated the school ground higher ( $M = 4.83$ ,  $SD = 1.48$ ) than the teachers who did not ( $M = 4.37$ ,  $SD = 1.20$ ). However, this effect was only marginally significant ( $t(142) = 1.91$ ,  $p < 0.10$ ). It can be said that these results slightly support hypothesis 1.

#### *Practical issues*

The score of practical issues indicated that the teachers experience practical issues as moderately low. The teachers that practiced outdoor education rated the practical issues higher ( $M = 4.12$ ,  $SD = 1.11$ , scale of 1 to 7, 1 = high issues, 7 = low issues) than the teachers that did not practice outdoor education ( $M = 3.63$ ,  $SD = 0.92$ ), this outcome was significant ( $t(142) = 2.67$ ,  $p < 0.01$ ). Thus, hypothesis 1 was supported for the practical issues.

#### *Social discourse*

Social discourse was rated neutral on a scale of 1 to 7 (1 = low experienced social discourse to practice indoor education, 7 = high experienced social discourse). Teachers who practiced outdoor education experienced a less prominent social discourse ( $M = 3.34$ ,  $SD = 0.15$ ) than teachers who did not practice outdoor education ( $M = 3.84$ ,  $SD = 0.20$ ). This difference was found to be significant with an independent t-test ( $t(142) = -2.03$ ,  $p < 0.05$ ). Therefore it can be said that these results support hypothesis 1 for social discourse.

**Table 8 Mean values of barriers and motivational factors related to the environment for teachers who do and who do not practice outdoor teaching**

| <b>Concept</b>                          | <b>Outdoor teaching</b> | <b>Total mean</b> | <b>Mean</b> | <b>SD</b> | <b>Independent sample t-test</b> |
|---|-------------------------|-------------------|-------------|-----------|----------------------------------|
| <b>Suitability of the school ground</b> | Yes                     | 4.66              | 4.83        | 1.48      | $t(142) = 1.91, p < 0.10$        |
|   | No                      |                   | 4.37        | 1.20      |                                  |
| <b>Practical issues</b>                 | Yes                     | 3.95              | 4.12        | 1.11      | $t(142) = 2.67, p < 0.01$        |
|   | No                      |                   | 3.63        | 0.92      |                                  |
| <b>Social discourse</b>                 | Yes                     | 3.52              | 3.34        | 0.15      | $t(142) = -2.03, p < 0.05$       |
|   | No                      |                   | 3.84        | 0.20      |                                  |

#### 4.2.2 Barriers and motivational factors related to the school

##### *School policy*

The mean of school policy was indicated that the overall policy was not supporting outdoor education ( $M = 3.16, SD = 0.95$ , scale of 1 to 7, 1 = outdoor teaching unfriendly, 7 = outdoor teaching friendly). A significant difference ( $t(142) = 3.76, p < 0.001$ ) was found between the scores of teachers who do practice outdoor education ( $M = 3.37, SD = 0.96$ ) and teachers who do not ( $M = 2.78, SD = 0.79$ ). So hypothesis 1 was supported for school policy.

**Table 9 Mean values of barriers and motivational factors related to the school for teachers who do and who do not practice outdoor teaching**

| <b>Concept</b>       | <b>Outdoor teaching</b> | <b>Total mean</b> | <b>Mean</b> | <b>SD</b> | <b>Independent sample t-test</b> |
|----------------------|-------------------------|-------------------|-------------|-----------|----------------------------------|
| <b>School policy</b> | Yes                     | 3.16              | 3.37        | 0.96      | $t(142) = 3.76, p < 0.001$       |
|                      | No                      |                   | 2.78        | 0.79      |                                  |

#### 4.2.3 Barriers and motivational factors related to the teacher

##### *Environmental attitude*

The average score on the NEP scale was moderately positive (scale of 1 to 7, 1 = low environmental worldview, 7 = high environmental worldview) ( $M = 4.64, SD = 0.66$ ). No significant difference could be found between the scores of teachers who did and who did not practice outdoor education ( $t(142) = 0.80, ns$ ). Hypothesis 1 could not be established for environmental attitude based on these results.

### Job satisfaction

Teachers rated the question on job satisfaction on average quite positive (scale of 1 to 7, 1 = no job satisfaction due to outdoor education, 7 = higher job satisfaction due to outdoor education) ( $M = 5.39$ ,  $SD = 1.14$ ). The experienced job satisfaction of practicing outdoor education was rated significantly ( $t(142) = 4.03$ ,  $p < 0.001$ ) higher by teachers who did practice outdoor education ( $M = 5.66$ ,  $SD = 1.02$ ) than teachers who did not ( $M = 4.90$ ,  $SD = 1.19$ ). Thus, these results support hypothesis 1.

### Benefits for the children

Teachers scored positive on the experienced benefits for the children (scale of 1 to 7, 1 = low benefits for children, 7 = high benefits for children), ( $M = 5.67$ ,  $SD = 0.73$ ). Teachers who did not practice outdoor education rated the benefits for children lower ( $M = 5.42$ ,  $SD = 0.72$ ) than teachers who did practice outdoor education ( $M = 5.82$ ,  $SD = 0.70$ ). This result was found to be significant with an independent t-test ( $t(142) = 3.24$ ,  $p < 0.001$ ), which supports hypothesis 1.

### Confidence, self-efficacy and willingness

An independent t-test indicated a significant difference ( $t(142) = 5.07$ ,  $p < 0.001$ , scale of 1 to 7, 1 = low confidence, self-efficacy and willingness, 7 = high confidence, self-efficacy and willingness) between teacher who do ( $M = 5.00$ ,  $SD = 0.63$ ) and who do not ( $M = 4.42$ ,  $SD = 0.70$ ) practice outdoor education. These results support hypothesis 1 for confidence, self-efficacy and willingness.

Table 10 Mean values of barriers and motivational factors related to the teacher for teachers who do and who do not practice outdoor teaching

| Concept                                   | Outdoor teaching | Total mean | Mean | SD   | Independent sample t-test     |
|---|------------------|------------|------|------|-------------------------------|
| Environmental attitude                    | Yes              | 4.64       | 4.68 | 0.68 | $t(142) = 0.80$ , ns          |
|   | No               |            | 4.59 | 0.63 |                               |
| Job satisfaction                          | Yes              | 5.39       | 5.66 | 1.02 | $t(142) = 4.03$ , $p < 0.001$ |
|   | No               |            | 4.90 | 1.19 |                               |
| Benefits for the children                 | Yes              | 5.67       | 5.82 | 0.70 | $t(142) = 3.24$ , $p < 0.001$ |
|   | No               |            | 5.42 | 0.72 |                               |
| Confidence, self-efficacy and willingness | Yes              | 4.79       | 5.00 | 0.63 | $t(142) = 5.07$ , $p < 0.001$ |
|   | No               |            | 4.42 | 0.70 |                               |

### 4.3 Hypothesis 2: teachers of schools with greener school grounds will experience weaker barriers and higher motivations for practicing outdoor education

Greenness of the school ground was tested for correlation with all the other variables in the model. A significant correlation ( $p < 0.01$ ) was found for school policy and suitability of the school ground. Schools with a relatively green school ground had more outdoor teaching friendly school policies and were found to score higher on suitability. A significant correlation ( $p < 0.05$ ) was also found for practical issues and benefits for the children. Green school grounds were related to less practical issues and higher expected benefits for the children.

This means that hypothesis 2 is supported regarding school policy, suitability of the school ground, practical issues and expected benefits for the children. The other variables were not found to be related to the greenness of the school grounds, which means that hypothesis 2 is not supported for these variables, based on these results. An overview of the outcomes can be found in Table 11.

Table 11 Correlation of greenness of the school ground with other variables (\* =  $p < 0.05$ , \*\* =  $p < 0.01$ )

|                                | Suitability of the school ground | Practical issues | Social discourse | Environmental attitude | School policy | Job satisfaction | Benefits for the children | Confidence, self-efficacy and willingness |
|--------------------------------|----------------------------------|------------------|------------------|------------------------|---------------|------------------|---------------------------|---|
| Greenness of the school ground | 0.70**                           | 0.18*            | -0.15            | -0.15                  | 0.38**        | 0.09             | 0.19*                     | 0.11                                      |

### 4.4 The complete model

In order to test the model as pictured in section 2.4, a logistic regression analysis was conducted. The procedure was that the yes (1) or no (0) of practicing outdoor education was entered as the dependent variable. All the motivational factors and barriers were added in block 1 using the enter method, in block 2 the greenness of the school ground was added. In Table 11 the result of the regression analysis can be found. The analysis showed that 'school policy', 'confidence, self-efficacy and willingness' and 'job satisfaction' have a significant effect on whether or not the teacher will practice outdoor teaching. Suitability of the school ground was only found to be marginally significant when greenness of the school ground was included (block 2) and it can therefore not be concluded that the hypothesized influence of suitability of the school ground on whether or not a teacher will practice outdoor teaching was found.

Table 12 Regression analysis testing effect of motivational factors and barriers on yes(1)/no(0) outdoor teaching and influence of school ground on this effect (\* =  $p < 0.05$ , \*\* =  $p < 0.01$ )

| Model  | B     | Sig    | Exp(B) | Nagelkerke<br>R Square |
|--|-------|--------|--------|------------------------|
| Block 1 - Step 1                                 |       |        |        | 0.341                  |
| <b>Environmental attitude</b>                    | 0.28  | 0.390  | 1.32   |                        |
| <b>School policy</b>                             | 0.71  | 0.011  | 2.03   |                        |
| <b>Confidence, self-efficacy and willingness</b> | 1.17  | 0.003* | 3.22   |                        |
| <b>Social discourse</b>                          | -0.13 | 0.399  | 0.88   |                        |
| <b>Benefits children</b>                         | -0.19 | 0.604  | 0.82   |                        |
| <b>Practical issues</b>                          | -0.14 | 0.576  | 0.87   |                        |
| <b>Job satisfaction</b>                          | 0.51  | 0.032  | 1.67   |                        |
| <b>Suitability of the school ground</b>          | 0.15  | 0.357  | 1.16   |                        |
| Block 2 - Step 1                                 |       |        |        | 0.357                  |
| <b>Environmental attitude</b>                    | 0.27  | 0.418  | 1.31   |                        |
| <b>School policy</b>                             | 0.84  | 0.005* | 2.32   |                        |
| <b>Confidence, self-efficacy and willingness</b> | 1.19  | 0.003* | 3.28   |                        |
| <b>Social discourse</b>                          | -0.13 | 0.413  | 0.88   |                        |
| <b>Benefits children</b>                         | -0.20 | 0.605  | 0.82   |                        |
| <b>Practical issues</b>                          | -0.18 | 0.477  | 0.83   |                        |
| <b>Job satisfaction</b>                          | 0.52  | 0.034  | 1.67   |                        |
| <b>Suitability of the school ground</b>          | 0.36  | 0.094  | 1.44   |                        |
| <b>Greenness of the school ground</b>            | -0.26 | 0.131  | 0.77   |                        |

In first instance it seems remarkable that no significant contribution of social discourse, practical issues and benefits for the children was found, since a correlation between outdoor teaching and these variables was found. This could be explained by the correlation between the scales. Especially the scale 'confidence, self-efficacy and willingness of the teacher' correlates with these variables, and this is also the best predictor in this model. This could be possibly due to this variable explaining the effect of the other variables as well. It is possible that a small indirect effect of greenness of the school ground occurs via school policy, because these two are correlated. This

cannot be directly shown with this logistic regression, and it is also possible that the effect is the other way around, that a supportive school policy leads to a greener school ground. The hypothesized effect would be a small effect, since no bivariate relation between greenness of the school ground and outdoor teaching could be detected.

#### 4.5 Additional analyses

No relation between gender and any of the variables was found. A regression analysis showed a significant effect of age on the practical issues teachers experienced,  $\beta = -0.29$ ,  $t = -3.56$ ,  $p < 0.001$ . The effect was that older teachers experienced less practical issues than younger teachers. This is in line with a relation found between experience and practical issues; years of experience in primary school education had an effect on practical issues experienced by the teacher,  $\beta = -0.30$ ,  $t = 3.76$ ,  $p < 0.001$ . The teachers with more experience scored higher on practical issues (meaning they experienced fewer issues). Experience was also found to correlate with experienced benefits for the children ( $r = 0.36$ ,  $p < 0.001$ ). Teachers that had more experience scored higher than teachers with less experience. A weak correlation between environmental attitude and experience was also found ( $r = 0.21$ ,  $p < 0.05$ ). The more experienced teachers scored higher than the less experienced teachers. A weak correlation between experience and confidence, self-efficacy and willingness was also found ( $r = 0.17$ ,  $p < 0.05$ ). More experience with teaching was associated with higher confidence, self-efficacy and willingness.

## 5. Discussion & Conclusions

### 5.1 General discussion

The aim of this research was to explore why teachers do or do not implement outdoor teaching, looking at the motivational factors and barriers that the teachers experience and how the type of school ground influences this. The motivational factors and barriers were split up in three categories: factors related to the environment, to the school and to the teacher. In order to measure the effects of barriers and motivational factors in these categories on the practice of outdoor education, a questionnaire was carried out. In the questionnaire the several barriers and motivational factors, the perception of the school ground and perception of greenness of the school ground were measured. Some general background questions were added to the questionnaire; this way the teachers that did and did not practice outdoor teaching could be compared.

Most of the findings supported hypothesis 1, teachers who do practice outdoor teaching experience higher motivational factors and weaker barriers regarding outdoor teaching than teachers who do not. The experienced barriers and motivational factors related to the environment were found to differ significantly between teachers who do and teachers who do not practice outdoor teaching. Teachers that practice outdoor teaching experienced the school ground as more suitable for outdoor teaching, this relation was only marginally significant. The practical issues (regarding time, management of the group and inconvenience for other groups) that are generally associated with outdoor teaching are experienced less as a barrier for outdoor teaching by teachers who do practice outdoor teaching. Social discourse was more a barrier for teachers who do not practice outdoor teaching than for teachers who do. The school policy was found to differ for the two groups of teachers as well. Teachers that did not practice outdoor education were more likely to rate the school policy negatively for outdoor teaching than teachers who did not. It cannot be said that the school policy was actually more supportive for teachers who practiced outdoor teaching, since the research relied on interpretation and ratings of the teacher. In this case it can be argued that the interpretation is more important for the behavior, since teachers who perceive the school policy in a certain way will feel either motivated or held back to perform outdoor teaching. Barriers and motivational factors related to the teacher were found to significantly differ between teachers who do and teachers who do not practice outdoor education. Environmental attitude was not found to differ between the two groups, which is not in line with previous research that found an effect of environmental attitude on outdoor education practice (Zink & Boyes, 2006; Cachelin et al., 2011; Skelly & Zajicek, 1998; Wagner, 1999; Dymont & Bell, 2008b; Lugg, 2007). Job satisfaction was perceived as stronger a motivational factor for outdoor teaching by teachers that practiced outdoor education. Teachers that practiced outdoor education also perceived the benefits for the children from outdoor education as higher than

teachers who did not practice outdoor education. Lastly, confidence, self-efficacy and willingness related to outdoor teaching were found to be stronger for teachers who practiced outdoor education and that way function as a stronger motivational factor. Overall it can be said that the above outcomes confirm hypothesis 1, that motivational factors are stronger and barriers are weaker for teachers who practice outdoor education.

Looking at the complete model, careful statements can be made about which of the above factors are most important. The barriers and motivational factors related to the teacher were found to have the strongest relation with whether or not outdoor teaching was practiced, the barriers and motivational factor related to the school was the second strongest influence. The influence of barriers and motivational factors related to the environment were found to have the least influence on whether or not outdoor teaching was practiced. The stronger effect of factors related to the teacher can be almost completely explained by the influence of confidence, self-efficacy and willingness that was in this category. Since the scales used correlate with each other, these conclusions need to be treated with care. Especially since the confidence, self-efficacy and willingness of the teacher correlated moderately strong with expected benefits for the children and given the moderately strong correlation between job satisfaction and expected benefits for the children. It is likely that the effect of benefits for the children on outdoor teaching practice is captured in these other variables and therefore not found to be significant by the model.

The influence of the greenness of the school ground was thought to be different from the barriers and motivational factors mentioned above. It was theorized in hypothesis 2 that greenness of the school ground would have an effect on whether or not outdoor education as practiced by influencing the barriers and motivational factors. An influence of greenness of the school ground was found on school policy, suitability of the school ground, practical issues and benefits for the children. A greener school ground is associated with a more supportive school policy for outdoor education and a more suitable school ground, less practical issues and higher benefits for the children. An effect of the greenness on the school ground on environmental attitude of the teacher, job satisfaction and confidence, self-efficacy and willingness could not be established. When the complete model was tested with greenness of the school ground included, it was found that no direct effect of greenness of the school ground was found. However, when looking at the relations between greenness of the school ground and the other concepts, correlations were found. This suggests that a possible indirect effect might be occurring. Since it might have an indirect effect via the other variables it cannot be argued that greenness of the school ground did not influence the barriers and motivational factors that can partly explain whether teachers do or do not practice outdoor teaching. The suggested indirect effect of greenness of the school ground was found to be not very strong, since no correlation between greenness of the school ground and the practice of outdoor teaching existed. It

could be that the causality of the relation with the barriers and motivational factors and greenness of the school ground could be the other way. This way perhaps school policy influences the greenness of the school ground, which would not be unlikely. For suitability of the school ground this reversed causality would mean that a school ground perceived as suitable is commonly perceived greener as well, which makes less sense using common sense. It could be that teachers that experience less practical issues perceive the school ground as greener, however, the other way around would be again more logical in this case, namely that a green school ground reduces the practical issues. A similar statement can be made about the found relation perceived benefits for the children and greenness of the school ground. It could be that teachers who perceive higher benefits for the children experience the school ground greener, but it is more likely that a greener school ground results in higher perceived benefits for the children. Unfortunately, all these directions can only be speculated over and cannot be established based on with the data of this research.

## 5.2 Implications

### 5.2.1 Theoretical implications

The most important theoretical outcome of this research is that barriers and motivational factors related to the teacher predict whether a teacher implements outdoor education for most of the measured scales. The importance of the school policy is also confirmed with this research (in line with several other researchers, for example Ernst (2009) and Hanna (1992)). The environmental barriers and motivational factors were not found to be of great importance, which is not in line with the literature (e.g. Dillon et al., 2006; Ernst, 2009; Hanna, 1992; Simmons, 1998; Zink & Boyes, 2006). However, it is not unlikely that the influence of the variables is incorporated in the variables that were found to have the largest influence in the regression analysis due to the correlations between the scales. Remarkable is that especially the environmental attitude of the teacher was not found to have a significant influence and no correlations with the other variables, which conflicts with findings of the above mentioned researchers. This might be due to the different way of measuring environmental attitude, this research used the NEP scale in order to measure environmental attitude, whereas the other research used more directly linked questions in order to measure environmental attitude in the context of outdoor education.

The influence of self-efficacy for explaining the practice of whether or not outdoor education is practiced is to some extent in line with the research of Mosely et al. (2003). This research of Mosely et al. (2003) also did not find a relation between experience and self-efficacy. They also found that there was no increase in self-efficacy when more training for a specific outdoor education program

was provided and concluded that the focus of increasing self-efficacy should be on content knowledge and beliefs of the teacher. A similar conclusion cannot be made in this study, since the concept of sufficient training was subjectively measured.

Not in line with literature (Hanna, 1992; Dymont, 2008), it cannot be said that greenness of the school ground was found to be related to the practice of outdoor education. This is not necessarily surprising, since most school grounds are likely to be designed as a playground and not with a focus on educational activities on the school ground (Malone & Tranter, 2003; Maynard & Waters, 2007). However, a greener school ground was experienced as more suitable for outdoor education, associated with less practical issues in practicing outdoor education and a supportive school policy. This is in line with the findings and suggestions of other researchers (e.g. Dymont, 2008; Hanna, 1992; Zink & Boyes, 2006).

### **5.2.2 Practical implications**

This research suggests that confidence, self-efficacy and willingness of the teacher and a positive school climate are most important for practicing outdoor teaching. If the aim would be to increase outdoor education, these would be the most relevant focus based on this research. This is in accordance with several other researches (e.g. Dymont, 2008; Ernst, 2009; Mosely et al., 2003). However, increasing these is not straightforward, since self-efficacy appears a complex concept with regard to the topic of outdoor education (Ernst, 2009; Mosely et al., 2003). Another important target for increasing the practice of outdoor education would be school policy, since a school policy that is experienced as supportive is related to a higher occurrence of outdoor education.

## **5.3 Limitations & strengths**

A strength of this research was the comprehensive covering of all the topics found in the current literature, as well as the framework prior to it. Unfortunately, this study also had some issues that can be avoided in future research. The first one being that this research due to time limitations of the study had to rely on a subjective interpretation on the concepts regarding the school policy and the school ground. When more time is available these could be rated in a more objective manner by the researcher. Another issue is that an essential question, namely whether or not the teachers that do practice outdoor teaching use the school ground for this, has not been asked due to a regrettable mistake in the online survey flow. An issue that is common for research among teachers is the low response rate, this weakens the statistical power of the research in general. A final limitation that comes from this is that therefore hypothesis 3 focuses on the relation of greenness of the school

ground and outdoor education in general, and not on outdoor education on the school ground specifically. This means that when education at the school ground specifically could be taken into account, a relation between greenness of the school ground and outdoor teaching at the school ground could be found.

#### **5.4 Future research**

Future research could focus on examining the role of greenness of the school ground for practicing outdoor education. This can be done by analyzing the school grounds objectively and combining it with a questionnaire regarding the intentions, motivational factors and barriers of teachers for practicing outdoor education at the school ground. A similar approach to school policy would be interesting. By analyzing the school policy in a more objective way to find a score for how supportive it is for outdoor education it can be tested whether teachers that practice outdoor education only rate the school policy as more supportive, or whether a positive school policy is actually really a motivational factor for practicing outdoor education.

Further research on examining the exact role of self-efficacy and how this exactly works and what the influence of training is (and how this precisely works) also interesting, as has been proposed by other researchers as well, but then in order to design training programs that increase self-efficacy in order to stimulate the practice of outdoor education (Mosely et al., 2003).

Lastly, almost all the literature and studies used for this research was from outside the Netherlands. A need for more research on how the outcomes of this study can be extended to the Netherlands is necessary in order to draw conclusions regarding the relevance of the barriers and motivational factors for the practice of outdoor education.

#### **5.5 Conclusion**

This research has explored the experienced barriers and motivational factors for outdoor teaching of teachers who do and who do not practice outdoor education. It can be concluded that teachers who do practice outdoor education experience stronger motivational factors and weaker barriers than teachers who do not. Motivational factors and barriers related to the teacher and the school were found to have most influence on whether or not a teacher practices outdoor education; in particular high confidence, self-efficacy and willingness of the teacher and a supportive school policy were of importance for practicing outdoor education. Motivational factors and barriers related to the physical and social environment also had a role; when the school ground was more suitable, the social discourse less prominent and the practical issues experienced as weaker, teachers were

more likely to practice outdoor education. A direct influence of greenness of the school ground could not be established with this research, but evidence for an indirect influence was found. Future research should especially focus on indirect the role of the greenness of the school ground by objectively measuring greenness.

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## Appendix

### I. Emails

#### Email to the coordinators

Beste ...,

Ik heb uw contactgegevens gevonden op de website van Springzaad. Voor mijn master thesis doe ik onderzoek naar motivaties van basisschooldocenten om het schoolplein te gebruiken voor lesdoeleinden en barrières die zij ten aanzien hiervan ervaren. Hierbij wil ik ook kijken naar de invloed van de aanwezigheid van natuurlijke elementen op de motivaties en barrières om op het schoolplein les te geven.

Dit wil ik doen door een enquête te houden onder basisschooldocenten. Ik zoek basisschooldocenten van verschillende scholen met verschillende soorten schoolpleinen, onder andere van scholen met een overwegend groen plein. Ik heb begrepen dat u beschikt over een lijst van scholen in uw regio die een natuurlijk of groen schoolplein hebben. Zou het mogelijk zijn dat ik via u een lijst krijg van de scholen (inclusief adres) of eventueel van de contactpersonen van deze scholen in uw regio?

Mocht u uitgebreidere informatie willen over het onderzoek, dan kunt u contact met mij opnemen.

Met vriendelijke groeten,

Maaïke van Putten

#### Email to the schools

Beste ...,

Ik heb uw school geselecteerd uit een lijst met basisscholen van DUO. Voor mijn master thesis doe ik onderzoek naar motivaties van leerkrachten in het basisschoolonderwijs om het schoolplein te gebruiken voor lesdoeleinden en barrières die zij ten aanzien hiervan ervaren. Ook kijk ik naar hoe het type schoolplein hier een rol bij speelt.

Dit wil ik doen door een enquête te houden onder leerkrachten. Door de vragenlijst in te vullen maken de docenten daarnaast kans op één van de bol.com bonnen van €20. U vindt de vragenlijst hier:

Het invullen van de vragenlijst duurt slechts 10 minuten.

Ik realiseer me dat dit al een erg drukke periode is voor de leerkrachten. Ik zou ontzettend geholpen zijn als u toch mijn vragenlijst zou kunnen verspreiden onder de leerkrachten van uw school, zodat zij zelf kunnen beslissen wel of niet mee te doen (en indien u zelf ook les geeft bent u ook van harte

uitgenodigd om de enquête in te vullen). Als van uw school ten minste vijf docenten meedoen, stuur ik uw school direct een mooi en educatief boek vanuit Wageningen Universiteit toe (zolang de voorraad strekt).

Mocht u uitgebreidere informatie willen over het onderzoek of de wens hebben om op de hoogte gehouden te worden van de resultaten, dan kunt u dit aangeven door contact met mij op te nemen.

Met vriendelijke groeten,  
Maaïke van Putten

### Email to the teachers

Beste leerkrachten van Basisschool ...,

Ik heb de school waarop u werkzaam bent geselecteerd uit een lijst met basisscholen van DUO. Voor mijn master thesis doe ik onderzoek naar motivaties van leerkrachten in het basisonderwijs om het schoolplein te gebruiken voor lesdoeleinden en barrières die zij ten aanzien hiervan ervaren. Ook kijk ik naar hoe het type schoolplein hier een rol bij speelt.

Dit wil ik doen door een enquête te houden onder leerkrachten. Door de vragenlijst in te vullen maakt u kans (van 1 op de 30) op één van de bol.com bonnen van €20. U vindt de vragenlijst hier: [https://wur.qualtrics.com/SE/?SID=SV\\_5bfJLM9UAi2lniB](https://wur.qualtrics.com/SE/?SID=SV_5bfJLM9UAi2lniB). Het invullen van de vragenlijst duurt slechts 10 minuten. Ik realiseer me dat dit al een erg drukke periode is voor u, maar ik zou heel erg geholpen zijn door uw deelname.

Mocht u uitgebreidere informatie willen over het onderzoek of de wens hebben om op de hoogte gehouden te worden van de resultaten, dan kunt u dit aangeven door contact met mij op te nemen.

Met vriendelijke groeten,  
Maaïke van Putten

## II. Questionnaire

Question 29 and 53 were added based on the interview with the key informant, Kees Both.

**Welkom!**

**Deze enquête betreft het gebruik van het schoolplein voor lesdoeleinden en wordt uitgevoerd in het kader van een master thesis aan Wageningen Universiteit. Het invullen van de enquête duurt ongeveer 10 minuten. Eerst wordt een aantal algemene vragen gesteld. Daarna bestaan de vragen uit stellingen waarbij gevraagd wordt in welke mate u het hier mee eens of oneens bent. Uw eerste ingeving is voldoende.**

**Op het eind krijgt u de mogelijkheid om opmerkingen te maken. Ook ontvangt u dan meer informatie over het onderzoek. Als u uw e-mailadres achter laat maakt u bovendien kans op een van de twee bol.com bonnen ter waarde van € 20. De antwoorden zullen vertrouwelijk behandeld worden.**

**Alvast bedankt voor uw medewerking!**

### Algemeen

1. Wat is uw geboortjaar?
2. Wat is uw geslacht?
3. Op welke school geeft u les?
4. Wat is de plaats van deze school?
5. Aan welke groep(en) geeft u les?
6. Hoeveel jaar ervaring heeft u met lesgeven in totaal?
7. Hoeveel jaar ervaring heeft u met lesgeven op uw huidige school?
8. Gebruikt u een speciale onderwijsmethode?
  - a. Zo ja, welke?
9. Geeft u wel eens buiten les aan uw groep?
  - a. Zo ja, hoe vaak?
  - b. Voor welke lessen?

**De eerste stellingen gaan over u en uw kijk op het milieu. Zou u aan kunnen geven in hoeverre u het eens bent met de volgende stellingen:**

10. We naderen het limiet van het aantal mensen dat de aarde in leven kan houden  
Helemaal oneens    1    2    3    4    5    6    7    Helemaal eens

11. Mensen hebben het recht de natuurlijke omgeving te veranderen om in hun behoeften te voorzien  
Helemaal oneens    1    2    3    4    5    6    7    Helemaal eens

12. Wanneer mensen ingrijpen in de natuur heeft dat vaak rampzalige gevolgen

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

13. De menselijke vindingrijkheid zal ervoor zorgen dat we de aarde niet onleefbaar maken

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

14. De mensheid maakt ernstig misbruik van het milieu

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

15. De aarde heeft ruim genoeg natuurlijke hulpbronnen als we maar leren hoe deze te ontwikkelen

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

16. Planten en dieren hebben evenveel recht als mensen om te bestaan

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

17. Het natuurlijke evenwicht is sterk genoeg om de impact van moderne industrieën op te vangen

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

18. Ondanks onze speciale kwaliteiten zijn wij als mensen nog steeds onderhevig aan de natuurwetten

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

19. De zogenoemde ecologische crisis die de mensheid te wachten staat wordt heel erg overdreven

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

20. De aarde is vergelijkbaar met een ruimteschip met zeer beperkte ruimte en bronnen

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

21. Mensen zijn geschapen om over de rest van de natuur te heersen

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

22. Het natuurlijke evenwicht is gevoelig en gemakkelijk te verstoren

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

23. Mensen zullen uiteindelijk genoeg kennis hebben over hoe de natuur werkt om haar te kunnen beheersen

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

24. Als de dingen doorgaan zoals ze nu gaan, dan zullen we snel een grote ecologische ramp meemaken

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

**De tweede set van stellingen gaan over het schoolplein van uw school. Zou u aan kunnen geven in hoeverre u het eens bent met de volgende stellingen:**

25. Het schoolplein biedt de kinderen alle ruimte om te spelen

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

26. De kinderen vinden het schoolplein leuk

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

27. Het schoolplein biedt veel variatie qua speelmogelijkheden

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

28. Het schoolplein is groen

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

29. De natuurlijke delen van het schoolplein zijn kwetsbaar

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

30. Het schoolplein kan goed gebruikt worden voor lesdoeleinden

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

31. Het schoolplein is veilig voor de kinderen

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

32. Het schoolplein bevat veel natuurlijke elementen waar kinderen iets mee kunnen

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

**De volgende stellingen gaan over de mogelijke gevolgen van het gebruik van het schoolplein voor lesdoeleinden. Zou u aan kunnen geven in hoeverre u denkt dat de volgende stellingen waar zijn:**

33. De kinderen leren beter wanneer er naast les in het klaslokaal ook buiten les gegeven wordt

Helemaal niet waar      1      2      3      4      5      6      7      Helemaal waar

34. Buiten les geven draagt bij (zou bijdragen) aan het plezier dat ik heb in mijn werk

Helemaal niet waar      1      2      3      4      5      6      7      Helemaal waar

35. De kinderen ontwikkelen zich beter op emotioneel gebied wanneer er ook buiten les wordt gegeven

Helemaal niet waar      1      2      3      4      5      6      7      Helemaal waar

36. Buiten les geven naast in het klaslokaal les geven biedt meer en/of betere mogelijkheden om mijn lesdoelen te behalen

Helemaal niet waar      1      2      3      4      5      6      7      Helemaal waar

37. Het is moeilijker om de kinderen buiten in toom te houden dan binnen.

Helemaal niet waar    1       2       3       4       5       6       7       Helemaal waar

38. Buiten les geven kost meer tijd dan binnen lesgeven

Helemaal niet waar    1       2       3       4       5       6       7       Helemaal waar

39. De kinderen vinden buiten les krijgen leuk

Helemaal niet waar    1       2       3       4       5       6       7       Helemaal waar

40. Buiten leren is gezond voor de kinderen

Helemaal niet waar    1       2       3       4       5       6       7       Helemaal waar

41. Het gebruik van het schoolplein voor lesdoeleinden zorgt voor overlast voor andere klassen

Helemaal niet waar    1       2       3       4       5       6       7       Helemaal waar

**De volgende stellingen gaan over het beleid van de school. Zou u aan kunnen geven in hoeverre de volgende stellingen waar zijn voor uw school:**

42. De school stimuleert buiten les geven

Helemaal niet waar    1       2       3       4       5       6       7       Helemaal waar

43. De school focust op efficiëntie in lesgeven

Helemaal niet waar    1       2       3       4       5       6       7       Helemaal waar

44. De school focust op het halen van toetsen

Helemaal niet waar    1       2       3       4       5       6       7       Helemaal waar

45. De school biedt materiaal om buiten les te geven

Helemaal niet waar    1       2       3       4       5       6       7       Helemaal waar

**De laatste stellingen gaan over uzelf en het lesgeven in de open lucht:**

46. Ik heb voldoende vaardigheden om buiten les te geven

Helemaal oneens       1       2       3       4       5       6       7       Helemaal eens

47. Ik heb voldoende training gehad om buiten les te geven

Helemaal oneens       1       2       3       4       5       6       7       Helemaal eens

48. Ik heb voldoende inhoudelijke kennis om ieder vak buiten les te geven

Helemaal oneens       1       2       3       4       5       6       7       Helemaal eens

49. Ik voel me als leraar meer op mijn gemak in mijn eigen lokaal dan op het schoolplein

Helemaal oneens       1       2       3       4       5       6       7       Helemaal eens

50. Ik ben bereid om (vaker) het schoolplein te gebruiken voor lesdoeleinden

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

51. Ik ben bereid om (meer) tijd te investeren in het gebruik van het schoolplein voor lesdoeleinden

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

52. Het voelt alsof er van mij verwacht wordt dat ik (gewoon) binnen les geef

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

53. Tijdens het buiten les geven voel ik mij bekeken (of zou ik mij bekeken voelen)

Helemaal niet waar      1      2      3      4      5      6      7      Helemaal waar

54. Met buiten lesgeven kan ik minstens even goed lesdoelen behalen

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

55. Les geven op het schoolplein draagt bij aan de eisen van het curriculum

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

56. Les geven op het schoolplein past bij mijn onderwijsmethode

Helemaal oneens      1      2      3      4      5      6      7      Helemaal eens

57. Heeft u nog opmerkingen over buiten les geven (op het schoolplein) die mogelijk relevant zijn voor deze vragenlijst?

U kunt hier uw e-mailadres achterlaten om kans te maken op de prijs (bol.com bon t.w.v. 20 Euro).

**Bedankt voor uw deelname aan dit onderzoek. Het preciezere doel van het onderzoek is het verkennen van motivaties en belemmeringen bij het gebruik van het schoolplein voor lesdoeleinden. Om dit te onderzoeken wordt gekeken naar het verschil tussen docenten die wel en niet buiten les geven. Mocht u meer informatie willen over dit onderzoek, dan kunt u contact opnemen via [maaike.vanputten@wur.nl](mailto:maaike.vanputten@wur.nl)**

### III. Table with general descriptives of scores to all separate questions

| Variable  | Measured by questions  | Mean | Standard deviation | Minimum value | Maximum value |
|---|--|------|--------------------|---------------|---------------|
| <b>Suitability of the school ground</b>         | The school ground is spacious and gives the children all the opportunities to play             | 4.6  | 2.0                | 1             | 7             |
|   | The children like the school ground  | 4.9  | 1.7                | 1             | 7             |
|   | The school ground makes various type of play possible  | 4.0  | 2.0                | 1             | 7             |
|   | The natural elements of the school ground are fragile (recoded)                                | 3.3  | 1.6                | 1             | 7             |
|   | The school ground is suitable for achieving learning goals                                     | 4.2  | 1.8                | 1             | 7             |
|   | The school ground is safe for the children   | 5.6  | 1.3                | 1             | 7             |
| <b>Practical issues</b>                         | It is harder to keep control of the group of children outdoors than indoors (recoded)          | 3.7  | 1.8                | 1             | 7             |
|   | Teaching outdoors consumes more time than teaching indoors (recoded)                           | 3.5  | 1.6                | 1             | 7             |
|   | Usage of the school ground for teaching leads to disturbance of other classes (recoded)        | 3.4  | 1.5                | 1             | 7             |
| <b>Social discourse</b>                         | It feels like it is expected that I (just) teach indoors                                       | 4.1  | 1.7                | 1             | 7             |
|   | During outdoor teaching I (would) feel like I'm being watched                                  | 2.9  | 1.7                | 1             | 7             |
| <b>School policy regarding outdoor learning</b> | The school stimulates outdoor teaching   | 3.2  | 1.5                | 1             | 7             |
|   | The school provides equipment for outdoor teaching   | 3.1  | 1.6                | 1             | 7             |
|   | The school focuses on passing tests (recoded)  | 2.6  | 1.5                | 1             | 7             |
|   | The school focuses on efficiency (recoded)   | 2.4  | 1.2                | 1             | 7             |
| <b>Environmental attitude of the teacher</b>    | We are approaching the limit of the number of people the earth can support                     | 4.4  | 1.5                | 1             | 7             |
|   | Humans have the right to modify the natural environment to suit their needs (recoded)          | 3.9  | 1.3                | 1             | 7             |
|   | When humans interfere with nature it often produces disastrous consequences                    | 4.9  | 1.3                | 1             | 7             |
|   | Human ingenuity will insure that we do not make the earth unlivable (recoded)                  | 3.6  | 1.3                | 1             | 7             |
|   | Humans are severely abusing the environment  | 5.5  | 1.2                | 2             | 7             |
|   | The earth has plenty of natural resources if we just learn how to develop them (recoded)       | 3.1  | 1.4                | 1             | 6             |
|   | Plants and animals have as much right as humans to exist                                       | 5.8  | 1.4                | 1             | 7             |
|   | The balance of nature is strong enough to cope with the impacts of modern industries (recoded) | 5.3  | 1.2                | 2             | 7             |
|   | Despite our special abilities humans are still subject to the laws of nature                   | 5.8  | 1.2                | 1             | 7             |
|   | The so-called "ecological crisis" facing humankind has been greatly exaggerated                | 4.5  | 1.4                | 2             | 7             |

|   |   |     |     |   |   |
|---|---|-----|-----|---|---|
| <b>Environmental attitude of the teacher (continued)</b>                    | (recoded)   |     |     |   |   |
|   | The earth is like a spaceship with very limited room and resources                                    | 3.9 | 1.4 | 1 | 7 |
|   | Humans were meant to rule over the rest of nature (recoded)   | 4.9 | 1.7 | 1 | 7 |
|   | The balance of nature is very delicate and easily upset   | 5.7 | 0.9 | 3 | 7 |
|   | Humans will eventually learn enough about how nature works to be able to control it (recoded)         | 4.1 | 1.5 | 1 | 7 |
|   | If things continue on their present course, we will soon experience a major ecological catastrophe.   | 4.5 | 1.3 | 2 | 7 |
| <b>Job satisfaction</b>   | Outdoor teaching contributes (would contribute) to the satisfaction I get from my job                 | 5.4 | 1.1 | 2 | 7 |
| <b>Benefits for the children</b>  | The children learn better when next to indoor learning also outdoor learning is implemented           | 5.7 | 1.0 | 2 | 7 |
|   | The children develop better emotionally when outdoor teaching is practiced next to indoor teaching    | 5.2 | 1.2 | 1 | 7 |
|   | The children enjoy outdoor teaching   | 6.2 | 0.9 | 2 | 7 |
|   | Outdoor learning is healthy for the children  | 6.0 | 1.0 | 1 | 7 |
|   | Outdoor teaching next to indoor teaching provides more possibilities for achieving the learning goals | 5.2 | 1.2 | 1 | 7 |
| <b>Confidence, self-efficacy and willingness regarding outdoor teaching</b> | I have sufficient skills for outdoor teaching   | 5.3 | 1.2 | 1 | 7 |
|   | I have had sufficient training for outdoor teaching   | 4.0 | 1.7 | 1 | 7 |
|   | I have sufficient knowledge for outdoor teaching  | 4.2 | 1.6 | 1 | 7 |
|   | I feel more comfortable with my class indoors than outdoors (recoded)                                 | 4.0 | 1.7 | 1 | 7 |
|   | Teaching at the school ground fits with my teaching method  | 4.4 | 1.5 | 1 | 7 |
|   | I am willing to use the school ground for teaching (more often)                                       | 5.2 | 1.0 | 1 | 7 |
|   | I am willing to invest (more) time in the usage of the school ground for achieving learning goals     | 5.1 | 1.1 | 1 | 7 |
| <b>Greenness of the school ground</b>                                       | The school ground is green  | 3.3 | 2.0 | 1 | 7 |
|   | The school ground contains a lot of loose green element with which the children can play              | 2.9 | 1.9 | 7 | 7 |