Outdoor teaching and learning -
on Swedish school grounds and in the Australian bush

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Space and Place. Perspectives on outdoor teaching and learning

A joint PhD between two universities 2012:

Linköping University, Sweden

Macquarie University, Sydney, Australia
Swedish school grounds

One junior high school in Sweden

Students: year 7-9

the Australian bush

13 environmental education centres in Sydney

Students: year K-12
A longitudinal outdoor intervention project in Sweden

- All teachers (n=40) at a Swedish high school participated in an outdoor education course (7.5 ECTS points)
- 3 days, 5 half days, 6 seminars
- Intervention: August-June (2009-2010)
- Goal: 3-4 outdoor lessons a week (class level)
An exploratory study

- Few previous studies on regular school based outdoor learning (Jordet, 2007; Mygind, 2005; Rickinson et al. 2004; Thorburn & Allison, 2010).

- There is a current discussion concerning children’s possibly decreased contact with nature in Westerns urban societies (Tranter & Malone, 2007; Sandberg, 2012; Lisberg Jensen, 2011)

- but not many studies on how children experience nature
Research questions

1) What are teachers’ experience of outdoor teaching based on a one year intervention?

2) Are there any influences on students’ academic performance in biology and mathematics?

3) What are teachers’ observations and perceptions of how urban children experience nature?

4) How can the outdoor teaching practice be understood in terms of place and space?
Four studies

• Study 1: Children and young people’s experience of the natural world: teachers’ perceptions and observations

• Study 2: Learning biology and mathematics outdoors: effects and attitudes in a Swedish high school context

• Study 3: High school teachers’ experiences of the educational potential of outdoor teaching and learning

• Study 4: Learning arithmetic outdoors in junior high school – influence on performance and self-regulating skills
Mixed methods research
(Creswell & Plano Clark, 2011)

• Interviews with students and teachers – thematic analyses (Boyatzis, 1998; Braun & Clarke, 2005)

• Quasi-experimental studies - SOLO taxonomy (Biggs & Collins, 1992), non parametric statistical analyses
Theoretical perspective - dimensions of place

- Space – socio-cultural (Massey, 2005) and physical/spatial space

- Place – insideness and belonging to a particular place (Relph, 1976)
Place as insideness and belonging

- *Space* is transformed into *place* by human experience and the bonds that people establish and the meaning they attribute to a place (Relph, 1976, Tuan, 1997)

- Attachment, identity and dependence are frequently used concepts in attempts to understand human-place relationships (Lewicka, 2011)
On the other hand – Place as ”our stretched relationships with a globalised world” (Massey, 2005, p. 185)

- Place is socio-cultural and relational
- There is a multitude of place-identities and senses of place
- Place is open and an ever-evolving
A theoretical frame:
Place (in/about/for) and Space (physical and social)
Three dimensions of learning
(Illeris, 2007a, 2007b; Jarvis, 2006)
Percent of lessons taught outdoors
(2 of 4 teams of teachers)
Mean: 4.5% - one/week
Teachers’ general experiences after the intervention (3)

Teaching mainly on the school grounds – worked well

Journeys away from school rare due to e.g. lack of time, inflexible time schedules

Less concern about disciplinary problems than before the intervention

but a rather long transition period before students adjusted to the new learning environment
Teachers’ experiences of the educational potential of outdoor teaching (3)

Content/academic
- Expand and confirm school knowledge
- Shared episodic memories
- On-task communication (math/language)

Interaction/social
- Participation
- Communication/collaboration
- Altered relations – good climate in class

Incentive
- Engagement
- Enjoyment
Learning biology outdoors (2)

- Two year 7 and two year 8 classes
- Same teacher

- Year 7: Introduction to classification and evolution
- Year 8: ecology

- Outdoor classes: 6 lessons outdoors
- Indoor classes: 2 lessons outdoors
- Pre- and post questions
- Interviews 6 months later
Differences in content knowledge?

Year 7:

*Describe how we try to bring order to the diversity of life to make it easier to understand*

Year 8:

*There are many different plants and animals living in a lake or in a meadow. Try to explain/describe factors that affect their interrelations*

No differences in scores in the SOLO taxonomy

Year 7 outdoor class included examples to their classification system more often than the indoor class

“there are different kingdoms, for example plants, animals and mushrooms” “there are vertebrates and invertebrates”
Can you tell me about the course...
Differences in students’ narratives 6 months later

<table>
<thead>
<tr>
<th>Outdoor classes</th>
<th>Indoor classes</th>
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</thead>
<tbody>
<tr>
<td>• Clear episodic memories</td>
<td>• Vague memories</td>
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<tr>
<td>• Narratives including course-related words and concepts in a coherent way</td>
<td>• Course-related words and concepts expressed more randomly</td>
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<tr>
<td>• Active participants in a scientific practice</td>
<td>• Teacher-centered practice</td>
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Learning arithemtics outdoor (4)

• Year 7: 10 week course in arithemtics

• Outdoor group (2 classes): 1 of 4 lessons outdoors entire year 7

• Indoor group (three classes): traditional classroom work

• Pre-test: performance in math + motivation, self-concept, anxiety
• Post-test: same after completion of the course (questionnaire also at the end of year 7)
Learning arithmetics outdoors (4)

Initial differences but the outdoor group increased their test scores more than the indoor group.

Outdoor group: Initially lower scores on self-concept and higher on anxiety. No difference in motivation.
Change in intrinsic motivation

Mean test score in intrinsic motivation
Interesting results but difficult to interpret

Initial differences and development potential?

Teacher effect?

but

Despite less self-concept, lower test scores and higher anxiety, the outdoor group increased their performance more than the indoor group

Outdoor maths: playful small-group learning – a contribution to the results?
Children and young people’s experience of the natural world: teachers’ perceptions and observations (1)

According to the participants could children and young people’s experience of nature be described such as

- **Emotional**: interested and engaged but often uncomfortable and afraid
- **Rare**: school often provides the only opportunity
- **Vicarious**: decontextualized understanding – media provides knowledge rather than one’s own experiences
What were the educational potentials with nature encounters?

- Ecological understanding as a component in developing a place identity
- Place attachment as a component in environmental concern
Space  Place

Content
- On-task communication
- Shared experiences
- Expand and confirm textbook

Social
- Collaboration
- Participation
- Altered relations

Incentive
- Good climate in class
- Engagement
- Enjoyment

Place identity
Place attachment
Conclusions

• Several educational potentials with regular school-based outdoor learning in high school but long transition period

• Social and emotional dimensions of learning rationale rather than academic. Academic performance equally good or enhanced

• Despite initial concern – outdoor learning on the school ground worked generally well

• Nature encounters as a way to implement place attachment and environmental concern contradict with urban children’s experience of nature as unfamiliar and even scary

• ”Space” rather than ”place” rationale behind regular outdoor learning
References


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