

10th annual EOE Conference

Encountering, Experiencing and Exploring Nature in Education

**European Institute for Outdoor Adventure Education
and Experiential Learning (EOE)**

in partnership with the

Centre for School and Outdoor Education Slovenia

Collection of conference's papers

22nd- 25th September 2010

Olympic Sports Centre Planica, Rateče 167, SI-4283 Rateče-Planica, Slovenia

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**Encountering, Experiencing and
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Introduction

Enclosed you'll find the Collection of Papers of the 10th International Conference "Encountering, Experiencing and Exploring Nature in Education" organized by European Institute for Outdoor Adventure Education and Experiential Learning in partnership with the Centre for School and Outdoor Education.

The aim of this conference was to bring together practitioners and academics from around Europe, interested in outdoor and experiential education linked to formal education and non-formal youth work. The conference will examine different ways and purposes of approaching and using nature in outdoor education. It will also try to build up networks of practical cooperation and knowledge transfer.

The theme is based on the generally accepted educational philosophy of outdoor pedagogies that a stay in natural landscapes and confrontation with and exploration of natural phenomena can provide a positive stimulus to the educational processes of individuals.

The conference is organized around three main topics:

Concepts of Nature in Outdoor Study Programmes of Universities and Colleges of Higher Education

Since many professionals use outdoor practices in their everyday work, the conference represents papers addressing the different ways in which nature is approached in universities and higher educational study programmes. Comparing different understandings of and ways of approaching nature may not only make understandable what common ground the different approaches might share or where they are special. By looking at concepts of nature it might be helpful to sharpen own profiles and extend ranges of possibilities.

Examples of Successful Practice, Principles of Successful Practice

This topic addresses how to assure quality in pedagogical outdoor educational work: Is there a need to set cornerstones for educational processes taking place in and with nature? What can be learned from practices and experiences developed in specific pedagogical situations and contexts? Questions on what best practices might mean and how knowledge, ideas and practices can be disseminated from one context to another will be illuminated.

Outdoor educational practices in school

This section will raise discussions on whether outdoor practices should be aimed for establishing and legitimizing educational goals of curriculum, or be serving different, more holistic means of education. Other issues will be addressed, e.g.: Does nature serve as backdrop, as an extended fitness centre or gymnasium, in which activities such as mountain biking, canoeing or climbing can be carried out? Is nature seen as a counter-world that offers activities that allow people to forget the pressures of everyday life? Or: Is nature seen as a part of us, as the outside extension of our inner state?

This Collection of Papers is actually a little treasure of knowledge and reflections of the participants of the Conference. It offers theoretical starting-points, ideas and practice in outdoor teaching so that one can get the whole picture.

We sincerely thank all the authors for their contribution to this Conference.

Encountering, Experiencing and Exploring Nature in Education

Dr Peter Becker

University of Marburg, Institute for Sports Science and Motology, Germany

2010 will see the conference of the EOE "**Encountering, Experiencing and Exploring Nature**" in Slovenia, which will be organised together with the CSOD. CSOD means Center for School and Outdoor Education. It is an integrated part of the Slovenian Education Ministry. As such it organises outdoor activities with emphasis on natural sciences and sport as part of the extended curriculum of the nine-year elementary education, which every elementary school has to offer in addition to the compulsory curriculum. Although participation is voluntary, up to 60% of elementary school pupils take part in these activities every year, which the CSOD offers in 23 outdoor centres. It may well happen that children take advantage of this one-week opportunity every year during their time at elementary school. CSOD works in close cooperation with the university departments of pedagogics and sports.

The theme of the conference of "**Encountering, Experiencing and Exploring Nature**", which is meant as reference to the different ways and purposes of approaching and using nature, was chosen by the EOE and the CSOD together and is based on the following considerations.

The generally accepted educational philosophy of outdoor pedagogics is that a stay in natural landscapes and the confrontation with natural phenomena can provide a positive stimulus to the educational process of individuals. Why else would practitioners of this pedagogical approach in almost all European countries take innumerable groups out to walk over high mountains, gently sloping hills, sparsely wooded forests and through the purple heather of the moors, go canoeing on gentle or white-water streams, temporarily live the simple life of camping on beaches and in forest clearings, go on expeditions? Why else would one expose oneself to fog, snowfall and stormy winds, collect plants, stones and leaves, study water samples, build terrariums, aquariums or lay out a garden to plant flowers or vegetables, tend them, pick and harvest, or why else would practitioners take people on (day) trips, for example, to a lake in order to splash about or swim, take them to climb through a damp ravine up to a mountain hut to get a view of a glacier or take them on country paths to greet the bursting flowers of spring and on forest paths to enjoy the colours of autumn?

Although many stories are told about the activities people participate in, it is rather rare that one learns anything about the exact natural setting these described activities take place in.¹

This is the more surprising since encounters with nature are not only a constitutive element of these practices, but also a determining factor for the kind of experiences that can be gained in these encounters.

¹ This statement is not true for those outdoor activities that aim to put across explicitly how worthy of protection nature is. In this context, the human competence to interfere in natural processes and ecological units, such as forests, streams, lakes, etc., as well as the competence to exploit natural resources against the setting of zivilisationskritik, is rated as low. Therefore practices are carried out to develop appropriate patterns of awareness and action. The German biologist and teacher Gerhard Trommer, for example, tries with his concept of "gentle walking" to leave as few traces as possible in the areas visited. A heightened cause for alarm is created by the perceived self-endangering due to environmental destruction, which is practically added to the threat to natural resources.

Does nature perhaps serve as backdrop, as an extended fitness centre or gymnasium, in which activities such as mountain biking, canoeing or climbing can be carried out? Is it a counter-world that offers activities that allow people to forget the pressures of everyday life, which is, in fact, where real life takes place? Is it a part of us, as the outside extension of our inner state, that we should treat cooperatively and like a friend? Is it a series of open and unknown situations that pose obstacles individuals need to overcome on their way to achieving their goals? Is it an accumulation of riddles, which - as with Francis Bacon - reveal their wisdom only in response to force and manipulation or does it take - as with Goethe - patient seeking and observation and total absorption with all one's senses to uncover their secrets? Or does it maybe present itself as a configuration of atmospheres, where burbling streams, passing thunderstorms, fir trees covered in new snow, campfires at night, billowing cloud formations, deeply red sunsets, imposing rock faces, etc., create the kind of aura that will remain engraved forever in our emotional memory?

All these various natural scenarios are connected with different spheres of experience, which themselves make different demands on the individuals. Each individual situation requires not only different knowledge and physical routines but also different equipment, appropriate self-interpretation and motivation.

However, what is demand on the one hand, is opportunity on the other hand. The demands of natural situations that need to be tackled open up opportunities to gain experience in a ludic way and to acquire different ensembles of physical practices, habit and knowledge, which support the appropriate way to handle the natural situation. Depending on the disposition of the individual the following types of logic can be perceived: the aesthetic, modest logic of observation, the caring logic of preservation, the logic of discovery and of adventurous travel that is open to the future, the pedagogical logic of using it as an instrument, the sober logic of unravelling, the inconsiderate, narcissistic logic of seeking self-awareness, the engineering logic of interference and manipulation or the ascetic logic of the simple life.

In consideration of the fact that meanwhile many professionals (teachers, social and youth workers, therapists, counsellors) use outdoor practices in their everyday work, we think that it is a worthwhile project to initiate a European discourse about the different ways of gaining access to nature in outdoor practice approaches, about how they are taught at university and about their consequences by means of the planned conference on "**Encountering, Experiencing and Exploring Nature**".

1. Concepts of nature in outdoor study programmes of universities and technical colleges of higher education

As mentioned before, outdoor activities are increasingly being integrated into the work of professionals who, in their capacity of aiding helpful intervention, strive to give people support to get the most out of their lives. Our partner in this cooperation, CSOD, is an excellent example of how the content of school curricula is processed didactically by means of outdoor practices. In Sweden there is a university department that is exclusively concerned with how to combine natural processes and natural phenomena with the teaching of school subjects. Scandinavia has also been the origin of forest kindergartens, which have become wide-spread and which conduct their daily preschool activities preferably in different natural spheres. More in the Anglo-Saxon language area therapeutic concepts have been developed that make purposeful use of nature as medium for their intervention. Even rather peculiar developments which see therapy - independent of any kind of existing psychological stress - as a technique of self-enhancement and narcissistic self-fulfilment refer to natural spheres. Outdoor activities are as much part of the method inventory in the field of social work, especially in youth

work, as in the area of further education provided by consultancy agencies that train highly qualified executives, for example, in leadership and communication competence.

All these approaches with their different ideas of nature are taught in study programmes and further education courses that are offered at universities and technical colleges of higher education but also in the market place. Comparing their understanding of nature may not only make plain what common ground these individual approaches share or where they are special; through looking at concepts of other European universities it might also help to sharpen our own profiles and especially extend our own range of possibilities.

Considering the limited time available for the conference, it will surely not be possible to compare the approaches of all the professions mentioned above. It does, therefore, make sense to focus on those occupational fields that are represented by the two organisations that are staging the event, without absolutely excluding others from making presentations.

2. Outdoor practices at school and vocational training

2.1 School-related aspects: As not only Slovenian and Scandinavian but also historical examples of (German) reformpädagogik show, there have been many recurring attempts to dissolve the logic of regular schools with their traditional architectural conditions of the roof-covered right angle, in order to discover opportunities for learning and education in seemingly chaotic nature. This is apt to lead to the conflict of whether this (temporary) change is to be subordinate to the established and legitimized educational goals of the curriculum or whether a quite different, more holistic means of education is to be aimed for. The conference should take up these developments and the debates and discourses that go along with them and should set up relevant presentation and discussion forums.

2.2 Aspects related to vocational training: An important step in everyone's life is the transition from the educational system into the labour market. For some time now, this step, which had always been a critical one, has been even more problematic, due to the crisis in the working community, which has led, among other things, to a steady loss of job opportunities, especially for unskilled workers. In particular for young people finishing secondary education with only the most basic leaving certificate it is becoming increasingly difficult to find appropriate employment that will secure their livelihood in a satisfactory manner. Losing work at the same time seriously injures people's psychosomatic integrity, which in turn entails various forms of humiliation. This is made even worse by the fact that people looking for jobs often do not have the qualifications that would allow them to react adequately in a deregulated market. For this constantly growing group of young people the EU has coined the label of "Youth at Risk".²

Given the powerlessness of politics it seems that the market will not change its conditions for quite some time to come, meaning that individuals will be forced to adapt to the conditions of the market. If one wants to prevent or mitigate this threatened state of exclusion of specific groups, one will have to provide opportunities for them to catch up on their inadequate socialisation. It has been shown that outdoor activities and confrontation with natural situations can constitute suitable media to impart the competences that these individuals failed to acquire earlier more easily later. (BECKER, et al. 2005; BSJ MARBURG/ THRESHOLD CONSULTING 2008)

² In the face of unemployment due to structural causes the question of appropriate levels of qualification would become superfluous if the forced connection between work performance and secure livelihood was decoupled, as proposed in the various models of unconditional basic subsistence cover.

This is a rough description of the double topic of the second focus of the conference. Specifically, the issues to be discussed here will not only have to cover the conditions necessary for effective implementation, the reach of specific activities or the forms of their implementation and dissemination, but also the issue of forward-looking cooperation between school and youth work with regard to the confrontation of natural situations.

3. Examples of successful practice, principles of successful practice

The third thematic focus should be on a problem that the European education discussion has been concerned with for some time. What is meant is the issue of quality assurance of pedagogical work. Even though the business vocabulary normally used in this discussion, such as standardization, output-orientation, best practice, benchmark, workload, etc., is regarded as fundamentally inappropriate, the question remains of how conditions can be created that will, if not guarantee the successful outcome of educational processes, make success more probable. That educational processes, given their critical nature, can fail is on the cards. If they could not, they would not exist, they would just be an endless repetition of the same. Something new can only evolve if the possibility of failure is implicit in educational endeavour.

This is not the place to enter at any length into the problems and consequences resulting from imposing economic principles on educational processes at school and in youth work. The place for such discussions and the presentation of nature-related practices might be the events with this focus. There, on the basis of problems arising from practice past and present, one might discuss and demonstrate what cornerstones should be set for educational process taking place in and with nature and according to which principles open educational work should be planned and carried out.

Literature

BECKER, P. et al.: The Next Step. Adventure and Outdoor Activities for Youth at risk in the Transition from School to Work, Marburg 2005

BSJ MARBURG/ THRESHOLD CONSULTING: Learning Out Doors. Support for Young People in Risky Transitions, Marburg 2008

Concepts of Nature in Outdoor Education

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Ideas of Nature in Outdoor Education

The generally accepted educational philosophy of outdoor pedagogies is that dwelling and journeying in natural landscapes and the encounter with and first hand experiences of natural phenomena and the surrounding 'natural worlds' can provide positive stimulus to the educational process of individuals. Peter Becker (2009), chair, vice-chair and board-member of the EOE since its beginning, has described the pedagogical perspectives underpinning both this conference and the work of the European Institute, as if our work is not linked to affirmative and convincing ideas:

“Why else would practitioners in almost all European countries take innumerable groups out to walk over high mountains, gently sloping hills, sparsely wooded forests and through the purple heather of the moors, go canoeing on gentle or white-water streams, temporarily live the simple life of camping on beaches and in forest clearings? Why else would one expose oneself to fog, snowfall and stormy winds, collect plants, stones and leaves, study water samples, build terrariums, aquariums or lay out a garden to plant flowers and vegetables, tend them, pick and harvest, or why else would practitioners take people on expeditions and on day trips, for example, to a lake in order to splash or swim, take them to climb through a damp ravine up to a mountain hut to get a view of a glacier or take them on country paths to greet the bursting flowers of spring and on forest paths to enjoy the colors of autumn?”

Many stories are told and can be told about the outdoor activities people participate in and about the encounters with nature that teachers, social and youth workers, therapists and counselors share with children and youth. However, it is rather rare that outdoor practitioners and professionals explicitly question and describe what is actually explored and experience, or learned, about the natural processes and the 'natural' landscapes, in which they hike, sleep and sometimes get bodily immersed. In outdoor education practice and literature 'Nature' is frequently referred to just as 'the outdoors'; eventually 'the great outdoors' or finally as something wild or a 'wilderness', without any further explanations. Thus 'Nature' most frequently seems to be a take-for-granted concept, and as such seen to be something obvious which it is not necessary to question or openly reflect about.

Nature – a complex, dynamic and slippery concept

However, in everyday life the concept of nature is regularly used in many-faceted ways (Arler, 2009). A closer look at the interpretation of Triglav, Slovenia's highest peak which is located in the neighborhoods of Planica and towers 2864 meter above sea level, may illuminate how the concept of

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nature is frequently expressing ideas and symbols of meanings. According to the famous Slovene writer, lawyer, mountaineer and explorer of the Julian Alps, Julius Kugy (1858-1944) “Triglav is not a mountain, Triglav is a Kingdom”. Triglav is such a dominant highest peak that the predecessors of today's Slovenes “saw in it the throne of gods”. And this myth is said to be preserved in the soul of every Slovene even to day (Mihelic, 2007: 178). On the other hand, the concept ‘nature’ may well refer to the physical and the material resources which can be seen, smelled, heard, tasted (eaten and drunken), and touched (e.g. climbed). The Slovenian landscape which covers “the green sunny sides of the Alps” is characterized by mountains, forests, hilly terrains of extensive grassland, fruitful valleys and rivers, but not to forget, with the alpine meadows, the ‘planine’, that have been extensively used for centuries by its inhabitants to pasture their herds at a high altitude. Thus the Slovenian landscape illustrates the meaning of nature as material resources; as a world-wide system of objects and living things upon which humanity depends for its survival.

When outdoor pedagogies are linked to socio-cultural research and environmental philosophy more complex and ambiguous concepts of Nature becomes visible. According to for example the British philosophers Raymond Williams (1976) and Kate Soper (1995) or Danish Finn Arler (2009), the concept of ‘Nature’ in Western societies carries layers of multidimensional meanings and thus must be regarded as dynamic, contextual and heavily ideological but also slippery. Several examples can illustrate this. While the concept of ‘Nature’ in Anglo-American literature and everyday language refers to ideas and values (Arler, 2008), this is different in a Norwegian and Nordic context. Then people most frequently talk about “*the nature*” and by this refer to specific locations like a concrete wooden area, a specific mountain range, a river bend, or a lake. Additionally, the Norwegian judicial principle of Free Public Access builds on a division between what is defined as farmed (innmark) versus not-farmed (utmark) land. The divide farmed/unfarmed (innmark/utmark) means that you are allowed to roam freely, to stay over night, e.g. in tents, and to pick berries, fish and hunt with only minor restrictions, on outlying unfarmed but private land. Though, the concept of non-farmed outlying areas (utmark) has little or nothing to do with concepts of the wild or wilderness. Areas called *utmark* have always been well known to people, as these have been extensively used, among other things for pasture and logging. To children and youth or just to somebody ‘embodying an urban eye’ such areas may well be conceptualized as wild or untouched.

Contextualizing Ideas of Nature across time: Nature as the mother of education!

According to the Norwegian philosopher Hjalmar Hegge (1990) the history of how nature is conceptualised in contemporary Norwegian outdoor recreation and education must be traced to the fundamental changes in European civilisation since the late Middle Ages: To how people's relationship to nature all over Europe have changed from mythical consciousness to an attitude of conquest, from being dependent on nature to liberation from it. In Norway these processes happened lately, over a few decades during the mid 19th century and were strengthened because they coincided with the urbanization and industrialization of the country, the international race for the poles, the formation of an independent Norwegian national state and the need to proclaim a national identity which differed from those of the former ruling cultures of Denmark and Sweden.

However, also other changes can be traced. For example, with the breakthrough of the Enlightenment and modern eras, the metaphor of nature as a fertile woman and mother was gradually replaced by the image of a clock or a machine. This change has been interpreted as a sign that with industrialization, the earlier organic-archaic view of nature was replaced by a mechanical view. Changes that were paralleled by a marginalization of women in society, and the advancement of a view that perceived

women as *qualitatively* different from, and subordinate, to men (Merchant, 1980). The basis for the modern polarized gender perception and hierarchy may also be linked to the growth of the at the time new scientific and medical knowledge and to the gendered educational philosophy of Swiss-French philosopher Jean-Jacques Rousseau (1712-1778).

In his novel *Émile: or, on Education*, published in 1762, Rousseau paved the way for a modern understanding of childhood and education. What was revolutionary was the link he established between *self-sufficiency* and *freedom*. By this Rousseau tried to solve this new at the time educational paradox; how to provide an upbringing in freedom with the help of an external authority, by referring to *nature as the mother of all education* (Korsgaard & Løvlie, 2003). Through 'natural' observations, experiments and studies in pastoral landscapes, Rousseau argued, boys would have the freedom to pursue and develop their own inner nature, while the task of the educator was to prepare or convey them. Thus boys could develop their physical strength and their characters be tempered – according to the ideal of 'the noble savage'. Free play in nature was thus perceived to have an ennobling quality: a wise man must first have been a shrieking, jumping and playful young boy. While boys were seen to have a natural right to their own childhood and to be free and authoritative, girls should be trained in maternal pursuits and to serve the needs of man (Martin, 1985). Rousseau's concern was thus with human nature and the nature he wished to 'return to' was thus that which, in an ideal way, may serve self-awareness through an understanding of the outside world (Løvlie, 1990). However, the misunderstanding linked to the slogan 'back to nature', has subsequently been used, amongst others, by progressive and anti-authoritarian outdoor educationalists since the 1970s.

It was later, by Romanticism that the idealizing of the wild, untouched and 'virgin' nature was forced forward, a process that took several centuries and which was strengthened by industrialization. Broadly speaking the further process of transformation can be described thus: whereas the eighteenth century was distinguished by a distant admiration for high mountains, nineteenth-century (male) educational travel ventured into the wildest glacier landscapes and to the top of the highest mountains. During the twentieth century, the world's poles and its highest summits and peaks were conquered. In parallel with this, an enthusiasm for the joys of verticality and fear was expressed to a greater and greater extent; a rationality that in fact follows the record spiral of modern sports achievements (Macfarlane, 2003). It was the Romantic perception of nature that established culture and civilization in earnest as a negative contrast to the world of the untouched or virgin nature. Thus nature was no longer perceived as God's Creation and image but as the location of the development of the *ego*. Several researchers have linked the attractiveness of the sublime; the mastery of (Alpine) nature, aesthetic elevation, individualization and (bourgeois) male identity formation and education to the breakthrough of modernity (Simmel, 1895; Macfarlane, 2003). By projecting oneself into nature, the individual (man) could experience "swelling" confirmation of the self. The British historian Robert Macfarlane (2003: 158-9) claims that the attractiveness of altitude "coincided perfectly with the Romantic glorification of the individual. A summit was somewhere one could stand out – could be outstanding."

The distinction between outdoor pedagogies that find's its model amongst shepherds and other folk dwelling in cultural landscapes, and that which seeks to master and conquer or just experience the wild, untouched mountain tops may still have relevance. It may for example be linked with contemporary gender relations and developments in outdoor education but also to the understanding of why outdoor adventure and environmental pedagogies frequently emphasizes 'wild natures'.

Contextualizing Nature across culture: 'Nature-deficit in children and youth'

Across western societies the interest in outdoor pedagogies are increasing among politicians, teachers, social youth workers, academics, and parents, connected with environmental concerns, a fact that children and youth in today's post-industrialized societies are no longer getting first hand experiences of 'natural phenomena' and the 'natural worlds', and with the growth of health issues like physical inactivity and obesity. A number of factors may be related: more people live in urban areas; the disappearance of green areas in urban neighborhoods; a loss of spaces suited for children and youth's self-managed play and games; stress related to family schedules, and increased rates of unemployment and social inequality.

The seriousness of the environmental problems humanity face is widely discussed, as is the role of education for sustainable living and how (outdoor) education can or should address these issues. In UK and North America, as well as in Norway, much of environmental education theory and practice rests on the assumption that human's disconnection from (wild) nature is a fundamental problem (Takano, 2005). While many environmentalists and educators suggest that indigenous peoples' traditional beliefs and the ways in which they relate to the natural environment have significant implications for sustainable living, many outdoor educators feel inspired by and argue in favor of outdoor education based on indigenous practices and views. Another rational underpinning much environmental outdoor pedagogy seems to be the idea that childhood experiences of intimacy with nature and natural places (more or less automatically) leads towards respect for all forms of life and thus a more sustainable society. These are hypothesis that can be empirically researched. Based on empirical research Swedish Klas Sandell (1999) has made the important point that qualitatively different styles of outdoor practice; both (local) 'simple nature-life' and (global) 'high-tech adventure' are potential 'outcomes', as the human-nature relationship cannot be understood as predictable cause-effect explanations.

The interest in children and youth education in nature does also reflect a growing international concern about what the American environmentalist and journalist Richard Louv (2005) in his 'landmark work' *Last Child in the Woods*, calls 'nature-deficit disorder' which is "fueled by this fundamental idea: (that) the child in nature is an endangered species, and the health of children and the health of the Earth are inseparable". Underpinned by research Louv's point of reference is "a generation so plugged into electronic diversions that it has lost its connection to the natural world". Further his arguments are guided by the hypothesis that "One generation from now most people in the U.S. will have spent more time in the virtual world than in nature".

These are generalizing interpretations representing serious, depressive perspectives and concerns. Concerns that might have a connection also to the critical step everyone is facing in their lives; the transition from the educational system into the labor market. For some time now, this step has become even more problematic, due to crisis in the working opportunities, especially for unskilled workers, in particular for young people leaving or finishing secondary education with only the most basic level of skills. If one wants to prevent or mitigate this threatened state of exclusion of particular groups one will have to provide opportunities to catch up on their inadequate socialization and to develop their ordinary life skills. It has been shown, for example by people attending this conference, that outdoor activities and confrontation with natural situations can constitute suitable media to convey competence so that the individuals are developing new skills and new models of life (e.g. Becker *et. al.*, 2005; Ashworth, 2010).

However, more colorful but socially contextualized pictures of children and youth's relations to nature are also present. For example, in lightly urbanized areas in Sub-Arctic Norway informal transfer of

everyday-life-related nature-based knowledge, skills, values and worldviews related to work in outlying areas was dominant up until the late 20th century, both among the indigenous Sami and Norwegians. As late as the 1990s, formal outdoor education was regarded as strange and totally unnecessary and thus as something needed only by immigrated urban dwellers from farther south (Gurholt, 2008). However, since the 1990s there has also been a tremendous growth in the general interest in outdoor education study programs in Folk High Schools and Higher Education all over Norway; programs that have become so popular that the students must have the highest level of academic standard to be accepted. And the girls are about to become a majority.

About the program of the conference

A Slovenian myth, articulated at the Norwegian web-site www.camingnorge.no, declares that: “God created Slovenia to himself. He wanted an oasis into which he could retreat when he had fulfilled the Creation of the World”.⁴

Located in the middle of Europe, the Slovenian landscape carries natural qualities that can be found across Europe, such as high alpine peaks, mountainous pastures, fertile farmland, rivers, lakes, caves and Mediterranean beaches. While at the same it has been exposed to centuries of struggling European civilizations. Though it offers a richness of insights into multidimensional ways in which ‘Nature’ has been and is experienced, explored and encountered and made meaningful to people.

In consideration of the historical, socio-cultural and environmental contexts the issues put on the conference agenda touches the most profound questions of life. Since many professionals (teachers, social and youth workers, therapists, and counselors), use outdoor practices in their everyday work, the board of the European Institute in collaboration with ČŠOD found it a worthwhile project to initiate a European discourse about the different ways in which nature is approached and understood in universities and higher educational outdoor study programs and in formal and non-formal outdoor education by inviting papers addressing questions like the following:

- What do ‘we’ mean when talking about Nature in Outdoor Education and Experiential Learning?
 - Does nature serve as backdrop, as an extended fitness centre or gymnasium, in which activities such as mountain biking, canoeing or climbing can be carried out?
 - Or: Is nature seen as a counter-world that offers activities that allow people to forget the pressures of everyday life?
 - Or: Is nature seen as a part of us, as the outside extension of our inner state, that we as humans should treat cooperatively and like a friend?
- What is it more precisely that we are encountering, exploring or experiencing when we do take children and youth outdoors?
 - What do these encounters, explorations and experiences mean to young and adult?
 - How do children and youth undertaking various forms of formal and non-formal outdoor education understand, interpret and conceptualize nature?
- What can be learned – or transferred - from outdoor practices and experiences developed in specific pedagogical situations and contexts?

⁴ <http://www.camingnorge.no/artikel/Slovenia-et-Europa-i-miniatyr.html>, downloaded 27.07.2010.

- What are the concepts of nature developed in outdoor study programs of universities, and colleges of higher education?

The anthropological approach underpinning the theoretical reflections of the conference mirrors the mission of the European Institute: Comparing different understandings of and ways of approaching nature may not only make understandable what common ground the different approaches might share but also where they are special. The conference papers are organized in fifteen sessions dealing with topics like (cf. Becker, 2009): aesthetical and sensual approaches, the modest logic of observation, the caring logic of preservation, the logic of discovery and of adventurous travel that is open to the future, the pedagogical logic of Bildung or enculturation but also of using nature as an instrument, the sober logic of unraveling, the inconsiderate, narcissistic logic of seeking self-awareness, the engineering logic of interference and manipulation, and the aesthetic logic of simple life.

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Mountaineering as an Important Part of Outdoor Education

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Introduction

The outdoor education is an important part of the modern education and as such it should be present at all educational levels. It is already recognized in various forms throughout the globe but its starts go back into 50.ies (20th century) when the French started to combine the regular education to skiing lectures. This kind of education was supported by the International congress for physical activities in Brussels and was as such suggested to all the countries with the skiing tradition.

In Slovenia Jože Beslič (the counselor at the Institution for the physical education) in 1962 suggested that the children in the fourth grade should get a 10 days swimming course and the children from the fifth grade should obtain a one week skiing course. It was the very next year that the primary schools children from the Ljubljana Center Municipality attended the swimming course in Savudrija and the skiing course in Gorje as a part of a regular education process.

In 1964 the term “outdoor education” was used by J. Beslič and J. Mesesnel while writing the first manual guide for outdoor education in which there were sports as well as other topics represented. From the very beginning the outdoor education in Slovenia is recognized as an important and integral part of the overall education. From the mid 80.ies the extent of the outdoor education was diminished. S. Kristan wrote that 75% of Slovenian schools in 1985 practiced the summer outdoor education, 62% in 1986 and only 20% in 1991. The main reduction reasons were the outdoor education to became an nonobligatory subject, the unconsolidated financing, the overall misunderstanding of the outdoor education among the deans and teachers, the passiveness of some schools and gym teachers as well as the dropping quality of living of parents etc. (Kristan, 1998).

Today the outdoor education is defined in the “Law on primary school” setting its place in the so called extended program. Therefore the organization of the outdoor education is obligatory for schools but the attendance of pupils is volunteering. Schools are obliged to organize at least 2 outdoor educations per year but the pupils can choose one, two or none.

Financing is arranged by the “Law on organization and financing of the education and uprising” where it is clearly defined that the state budget covers personal expenses of the organizers of the outdoor education programs but all other costs are covered by parents or others. This means that many pupils can not attend the outdoor education and for them the school is obliged to organize a similar program at school. Despite all outdoor education is attractive, useful as well as modern way of education and it is developing as such to also rise the quality of the pedagogical work.

On the state level the establishment of so called Centers for school and side school activities sort of over passed the legal decisions which limited the outdoor education development. These centers are working as a part of the Ministry of Education and Sports which assures the appropriate funding for their development; by them the outdoor education organization and planning in Slovenia is much easier. Relatively accessible prices, good technical equipment and well trained pedagogical staff enable the implementation of qualitative and relatively cheap outdoor education. The work in centers

is organized in the way that mostly three basic programs are overlapping. The sport program (such as skiing course, sport climbing, pedaling, trekking, swimming, biking, orientation course etc.) is highly present either as a form of education or as a free time activity.

THE SIGNIFICANCE AND THE ROLE OF THE OUTDOOR EDUCATION

The qualitative outdoor education needs to be educative, physiologically efficient as well as rich in the experiences, friendly and amusing (Kristan, 1998). The outdoor education aims were defined by various authors and are presented within the outlines of the outdoor education for the 9 year primary school. The ex minister for school, science and sports dr. Gaber in the publication »Z glavo v naravo/using "head" in the nature« (Gros, 2002) wrote, that the main goal of outdoor education is to educate the youth for the active life in nature and with it through various outdoor activities. Parallel the youth should be aware of nature protection and also of nature values which should be incorporated into the individual value system. There is also a great emphasize on socialization. Multiple day socializing, positive interaction in the group, relaxed atmosphere, the focused work etc. are the biggest advantages of the outdoor education which additionally motivate pupils and influence the different attitude to educational fields (Gros, 2002). Additionally the children through outdoor education gain or improve their knowledge in sports, natural and social sciences; living in nature additionally positively influences their physical and psychological development.

The swimming skills, skiing, mountaineering skills, sport climbing as well as all other activities included in the outdoor education program have positive effect on the safety and self protection. Many Slovene and foreign authors (Balazik, 1995; Kristan, 1998; Burnik, 2003) have proven positive effects of outdoor education within an individual personal, moral and social development, health status and the way to use personal free time.

Nature protection and cultural heritage protection are among the most important tasks not only of the outdoor education but of the entire educational system. The environmental education is presented in two publications dealing with summer and winter outdoor education (Kolar and Cankar, 2002; Cankar in Vičar, 2004).

All these important aims are easier to reach through outdoor education because it is the type of work that enable the usage of methods and forms of work which are harder to be used in the regular education programs (i.e. field, group and project work). Therefore outdoor education has to remain a part of the modern school.

Novak (1990) claims that in the concept of the primary education the specific importance have those educational aims that are oriented towards analysis of cultural-historical, social-economic and social-politic orientation and condition in our society. The most important is the formation of personality which is capable to be actively involved into modern development flows as well as to influence the development itself. To create such a personality it is of extreme importance to obtain certain skills already in the primary school. Among them those that are encouraging the self initiative, creativity, the capability to communicate and cooperate with others etc. are very important. Only the overall democratic social climate enables the development of these personal characteristics and the outdoor education is one of its most important variations. It enables a special form of education in which the relation pupil – teacher is usually more free and pristine, the relations among pupils become intensified, the individuals learn to adapt the group and common interests etc. Overall the social links and relations are much more heterogeneous which is not the case within the usual educational programs.

The difficulties recognized within the usual educational process are also present in the outdoor education and it can in this case even intensify and become less controlled. Mostly we can face the lack of interest, over reactions, ignorance and other discipline problems. Beside this the problem of safety and injury risk is becoming more present, sometimes leading to court.

Extremely important is also the experience value of the outdoor education. Through experiences of sport as well as of other natural and social sciences contents in the nature the pupils can easily and in the long run form their positive attitude towards the nature.

Experts mention two minds – an emotional and a rational one. Goleman mentions that such differentiation is clearly found among “simple” people and that a thought, which comes from the heart, follows different rules and is better remembered than a thought, which comes purely from logic (Goleman, 1997).

Sporting content of outdoor education should be pupil – friendly and as little competitive as possible. All competitive contents should enable as many students as possible and give them all a chance to be successful. They should accept sporting activities as a form and option of spending their free time, as an activity, that will allow them to live a healthy and eventful life. That can happen only when children find themselves in those activities and when through enjoyment, they learn to forget the pain.

Children can learn to love a certain sport activity even when they are a bit less motor developed – sport climbing is a typical example of a sport, where children can establish themselves even through successful protection and knowledge of rope techniques, not only by the difficulty of the mastered course. Mountain oriented outdoor education offers (in addition to mountaineering trips) also rope technique lessons, history, geography, botanic, orientation, fun activities, nutrition... recording and photography of these activities is also an opportunity for creating a newsletter and establishing oneself in the group through such means. We can also hold art and literary workshops and many more ...

A night by the camp fire, spending the night in the open, cooking a dinner over the camp fire are new and memorable experiences for most of the children and they enhance the feeling of being connected to nature – such a night can even be carried out for all age groups.

A relaxed atmosphere, however, does not necessarily mean anarchy – all of this can still be carried out with perfect respect of rules, order and discipline, which are by themselves an important element of upbringing and also allow safety in outdoor education. Looking for recognition through allowing the children everything is an inappropriate solution and point to the teacher's inability to establish order.

The work of a teacher, involved in outdoor education is difficult and responsible and is often not appreciated enough by the state or the school administration. Criticism is frequent, few get rewarded and thanked, but we still need to persevere. The positive effect of outdoor education and the glow in the eyes of the children make it worth it and redeem for all the hard work and trouble.

THE NATIONAL IMPORTANCE OF MOUNTAINEERING

The Slovenes have a special attitude towards the mountains. Numerous philosophers, psychologists, sociologists, geographers, historians, experts in sports, etc., tried to find the foundations for this attitude, coexistence, and attachment to this small part of the Alps. As a basis they took fundamental thoughts and philosophy, written and told as myths and legends by the old settlers and the first mountain climbers. The locals even tried to hide their climbing achievements as they were afraid of being accused of poaching. Even though wrapped in mystery, thoughts, feelings and ideals, they were preserved written, painted, expressed by music, or told. Younger generations imitated and rewrote them, added their own experiences, but the essence remained untouched. Even nowadays love for the

homeland, longing to experience romantic, yet wild, beauty and desire to be the first all mix in mountaineering.

Mountains are one of the Slovenes' national symbols. Even though the Slovene part of the Alps is limited mostly to the north-eastern and the central northern part of Slovenia, the alpine landscape is one of the prevailing stereotypes for Slovenia. Other parts of Slovenia also have their own local landscape symbols and stereotypes, but they cannot compete with the alpine mythology, which has, according to Šaver, become the prevailing Slovene collective idea as well as ideology. In the sense of symbolic geography we can in fact introduce a term the Slovene Alpine Culture.

Until recently, the Slovene part of the Alps has been a symbolic geographic point over which the road led to the European Promised Land. The adjective "alpine" represents here a positive footing inside the Slovenian identity space and value orientation of the Slovene self-awareness as it marks the alpine characteristics, which appear also in the neighbour Alpine countries, such as Austria, Italy, Switzerland, Germany and France – which we used to, and sometimes still do, consider an ideal of development and progress. At the same time, the alpine cult in a sense of high mountains is transferred also into the environment of lower mountains, into the environment of hilly and flat world of the pre-Alpine region. The value rich metaphoric of the alpine serve in mostly hilly Slovene environment as an invisible background for the construction of local identities, which find their bases in the context of vineyard hills, as well as local sacred mountains and slopes with churches on their tops, local "patriarchs" and hill ranges.

In the past, mountaineering also contributed to the Slovene national identity. The concept of identity is not easy to define, even though identity seeking is one of the basics of human social living. Among subjective and collective identities we seek our professional, social, religious, class, ethnic and also national identity. For the Slovenes, national identity has always been of utmost importance as we were included in the states of larger neighbouring nations from Austro – Hungarian Empire, SHS Kingdom to Yugoslavia until 1991. The connection between national identity and mountaineering has many reasons. Analyses have shown the importance of the consciousness of common territory, beside common language, ethnic origin, culture and history, for national identity. In the case of Slovenia, common territory is mostly the mountain world. Therefore, mountaineering undoubtedly played an important role in the development of conscience about historic territory or homeland, respectively.

National motive has been the leading force in the Slovene mountaineering. In the Austro – Hungarian Monarchy, Austrian and German nationalism put a tremendous pressure on the Slovenes, which lead to the development of strong awareness of national identity expressing itself also in the mountains. There was not any mountaineering organization in Slovenia which would organize the uprising against German activities in our mountains at the time. This did not happen before 1893, when the Slovenian Mountaineering Society was founded. Its major task was to build Slovene mountain huts, facilitate Slovene mountain paths and introduce Slovene registration books. In fact, it was cultural taking over the mountain world. We do not speak solely about technical facilitation of mountain paths, such as painting signposts and building mountain huts, but also organized political and cultural activity based on national motives. One of the most active was Jakob Aljaž, who was a priest in Mojstrana. He bought the piece of land at the top of Triglav and built a tower on it. His tower is a symbol which means that the top of Triglav belongs to Slovenians.

Triglav and the Slovene mountains are a national symbol and have contributed to the development of common motives and historic memory. Triglav, with the contribution of mountaineers, became a place and symbol of historical Slovenian collective liberation. Triglav is featured in our national flag and coat of arms, not to mention numerous public and private companies, which bear its name.

The cultural dimension of mountaineering is shown in the efforts to preserve the Slovene language and national symbols, national and cultural heritage, formation of mass culture and, last but not least, in the educative work of the Mountaineering Association of Slovenia.

Mountains appear in all artistic fields. Mountains have served as an inspiration to numerous painters, poets, composers and writers in the past centuries as well as nowadays. Considering the small number of Slovenes, the number of written books is quite impressive. Mountains were also the subject of the first two Slovene silent movies *In the Kingdom of the Ibex* (1931) and *The Sheer Slopes of Triglav* (1932). In the process of the production of those movies, the first movie companies in Slovenia were founded. We should not neglect the contribution of printed media, such as *Planinski vestnik*, which has been supporting the Slovene national identity through its articles since 1895.

As a part of civil society, the Mountaineering Association of Slovenia has a high quality system for the education of its experts. Through constant education it contributes a lot to the safety in our mountains.

The Code of Honour of the Slovenian Mountaineers has also played an important role in the formation of common culture. It should not be overlooked that mountaineering is one of the activities that also contribute to sustainable development of mountain regions.

Exceptional achievements of the Slovene alpinists have also supported the development of the national awareness. The French were the first to climb an 8000 meter peak – Anapurna, the English were the first to step on the highest mountain of the World – Sagarmata or Everest, the Germans had their »mountain of death« – Nanga Parbat, and the Slovenes had their Makalu. Thirty-three years ago we succeeded in first ascent climbing of our first 8000 meter peak, which has put us in the place among the alpinist elite, where we still stand today. The Yugoslav Himalayan expeditions (YAHE) have been changed to Slovene, as well as expeditions of single clubs or excellent alpinists. Our alpinists have climbed all 8000 m peaks, many of them first ascent (FA). Davo Karničar performed the first integral skiing from the top of Mt. Everest. Our quality have been recognised by the whole World, even formally, as our alpinists won the Golden Pick Award, which is a special prize awarded for the most important alpinist achievement of the year in the World: in 1991 (Andrej Štremfelj and Marko Prezelj) and 1996 (Tomaž Humar and late Vanja Furlan) and 2007 (Marko Prezelj, Boris Lorenčič and Pavle Kozjek, for the alpinist achievement awarded by the audience).

MOUNTAINEERING IN PHYSICAL EDUCATION CLASSES

Mountain climbing and mountaineering education in various forms, is present at the Faculty of Sport since the beginning of the institution. Initially, as Outdoor activities, then later as Sport tourism and then Mountaineering, which was some years back joined by an elective course called Mountaineering activities in nature. More important than the name of the subject is the content and purpose. Our primary area is physical education. The fundamental purpose of our subjects is to educate and train teachers to safely work in mountaineering education in schools. At the same time, of course, we want to increase their enthusiasm for their work. A key area of interest is also introducing them to competitive sport in mountaineering, such as alpinism, sport climbing, alpinistic skiing and ice climbing. Faculty has organized two Himalayan expeditions (Šišapangma and Gasherbrum), three in the Andes, one on Mount Elbrus, and Peak Lenin, and carried out several researches on those expeditions, yet limitless options remain.

Mountaineering and hiking is an integral part of physical education in elementary and secondary schools in Slovenia. Some differences between different parts of Slovenia, and between individual schools, of course, exist, as there are some specific requirements for the implementation of this sport. The biggest problem is that such activities can not be carried out in the gym, as most other physical education contents (with the exception of sport climbing and rope techniques learning). Mountaineering contents of physical education are therefore carried out during sports days in schools, during outdoor education and as a part of elective courses.

We note a decline of interest in mountaineering in physical education classes – several reasons can be found for this. One of the most important is the emergence of many new, modern sports. Even more important is probably the problem of security. Walking in the mountains, even the low mountain ranges, requires a certain amount of skill from both teachers and pupils, discipline and consistency are important, as well as physical and mental fitness. Failure to observe basic safety rules and laws of movement in the mountains can quickly lead to accidents, with both minor and major injuries. The easiest way to avoid this is of course to avoid organizing events, which would include and trips to the mountains. Lower financial funds also contribute to the decreasing amount of these contents in our schools, while a yearly trip to the same mountain each year can hardly contribute to the popularity of mountaineering.

Despite some of these problems, the fact remains that the mountain climbing in the broadest sense, one of the most popular sporting activities in Slovenia, which includes both walking tours in more or less mountainous region of Slovenian and on the other hand, alpinistic expeditions in high mountains. In terms of education a school sport day or mountaineering oriented outdoor education offers an ideal opportunity for interdisciplinary integration of field and project work. A mountain trip should always go hand in hand with the content of geography, biology, chemistry, physics, history, the Slovenian language, music education and other subjects.

Knowledge of mountaineering is welcome and needed also outside school areas. Many forms of mountaineering (hiking, sport climbing, ski touring, climbing kindergartens etc.) also occur in tourism, as a recreational activity and inhealth rehabilitative preventional activity.

CONTENTS OF A MOUNTAINEERING ORIENTED OUTDOOR EDUCATION

The basic content of a mountain oriented outdoor education is stated in the programme called Ciciban the mountaineer and Young mountaineer. This content is appropriate for children up and in the first grades of elementary school to school. For older categories we have Mountain school and the Guide textbook – the latter is intended mainly for the education of professional mountain guides. Another basis for the preparation of mountaineering and outdoor school sports days with mountaineering content is study literature at the Faculty of Sport.

Both the program and the content must be in line with the concept of outdoor education, which was adopted by the 46th meeting of the Scientific council of Slovenia for general education. The main objectives of the mountaineering oriented outdoor education are: pupils adopt a respectful and emotional relationship with nature and mountains; to inspire them to take walks and tours in the mountains; to teach them how to move safely in the mountain world and teach them basic rope techniques.

Motives

The motives for walking in the mountain have been researched by many Slovenian authors (Burnik, 1976, Gorenje, 2000 Friday, 2000; Zakšek and Zakšek, 2000; King, 2004). Most of the studies

included adult subjects and most results show that the most important motive for mountaineering is the beauty of the mountains. Most mountaineers chose this as their leading motive both in the seventies as well as in 2000. The results therefore confirm the idea that the aesthetic experiencing of nature and an emotional relationship with it is the basis for mountaineering. We can speak of internal, intrinsic motivation, which is frequently the most important factor for persisting in a sporting activity. Important motives were also health and overcoming hardship with one's will. The aesthetic component is less present in children than in adults (Kristan, 1988).

If we are to properly guide the children into mountaineering, we need to know what attracts or averts them. Walking as a physical activity is not very exciting for children, but it serves as a good counterpart for sitting, which is what children do most of the time both in school and at home. Therefore we need to be aware of their motives in order to encourage them to engage in mountaineering as frequently as possible.

Motives for mountain hiking

We wanted to find out what motivates the children for mountain hiking and/or what attracts them to mountaineering.

Our sample group included 115 boys and 118 girls, all in fifth grade of elementary school in Slovenia. The children were divided into two groups according to the place of residence. The first group included 123 children (65 boys and 58 girls) living in Ljubljana, the capital of Slovenia, and its surroundings. Ljubljana lies relatively far away from the mountains. The second group included 110 children (50 boys and 60 girls) living in the NW part of Slovenia, which lies at the foothill of the eastern part of the Julian Alps.

The children participated in our research project voluntarily and anonymously. The average age of the children was $11 \pm 0,8$ years.

The results showed that three most important motives were (as can be seen in Figure 1): *nature and animals, socializing with friends and family* and *the beauty of the mountains, beautiful views*. The motive of the aesthetic experience of nature seems to be important in children as well as in adults (Zakšek & Zakšek, 2000) – it seems that adults pass down their enthusiasm for the mountains to their children, both intentionally and sub - consciously.

The social motive is also important to children – excursions include spending time with friends, making new ones, strengthen old ties, the informal, natural environment is enables everyone to relax. They can learn about their place in the group, play, talk and help each other.

The following motives were also important: *the positive effects of walking on the body, consumption of calories and increasing fitness, sense of adventure, pride of having conquered the top, various historical and war remains along the paths and mountain huts, sleeping in dormitories*.

Even young people are aware of the positive effects of walking on the body and of importance of health – “the health motive” was in the foreground in all our previous studies (Burnik, 2004) and results from high health awareness of all generations.

Both adults and children like to do things that are challenging, that seem interesting and adventurous. This was also confirmed by other authors and found that this motive is closer to the younger and middle generations. In preparing the trip we should thus take into account that children will be more pleased with a hike if it will include some sense of adventure and achieving goals, which is something all school subjects should do - not just physical education.

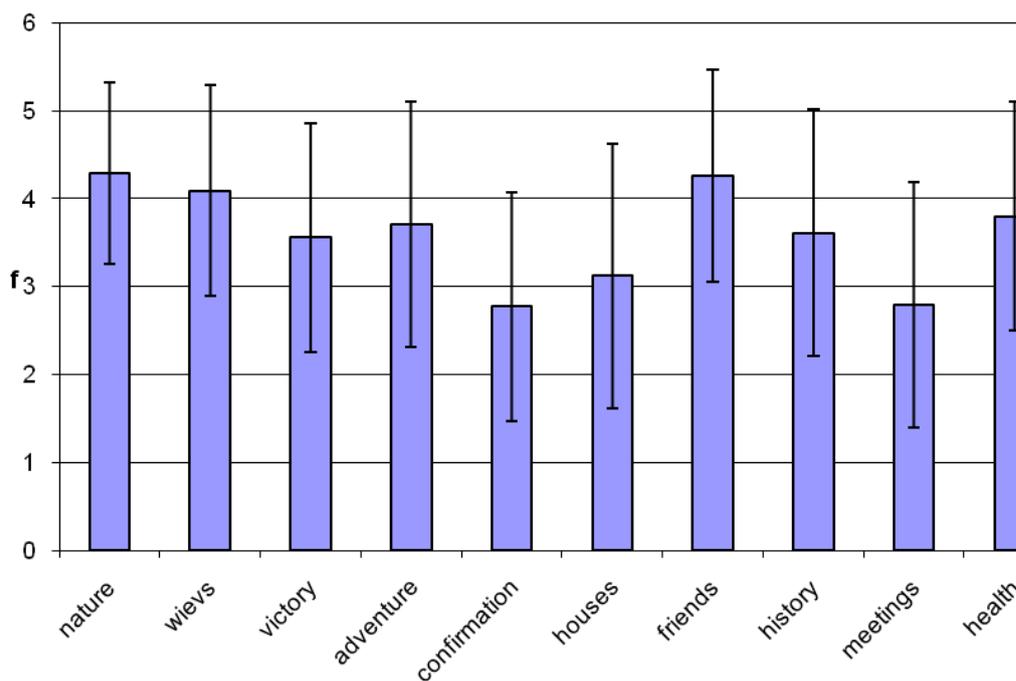


Figure 1: Motives for mountain hiking

History of Slovenes is closely associated with the fighting in our mountains, so it is understandable that the historic and war remains alongside mountain paths serve as an important motivating factor pathways. These are also the topics from other subjects (for example history) which can be upgraded and enriched in mountains and they are another view, that can additionally motivate the children. A special and attractive adventure is also sleeping in dormitories of mountain huts - for most children this is something entirely new and therefore very interesting. Different environment and social contacts attracts them and assist them in accumulating life experiences.

We also asked the children what they dislike about mountain hiking – they were offered ten items: heavy backpack, strenuous walking, fear of the unknown region or high altitude, walking slower than classmates, discomfort in the mountain cottage, inadequate equipment, walking is boring, being pushed to walk, fear of bad weather or getting lost, walking in the mountains is unpopular. The negative factors were evaluated on a scale from one to five and none of the factors ranged very highly, as can be seen from Figure 2.

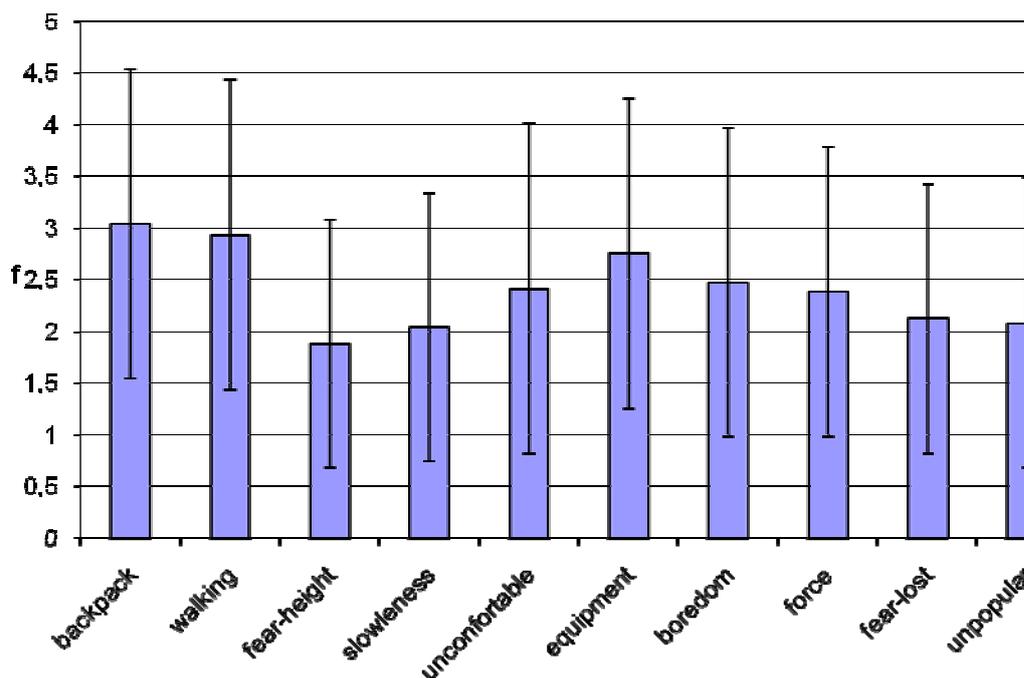


Figure 2: Reasons against mountain hiking

The biggest deterrent in mountain hiking for children is a heavy backpack. This inconvenience can be partly solved by teaching the children about appropriate backpacks, by providing them with a list of what they need and by proper distribution of weight. Most children have too much stuff in the backpack so it is advisable to check the weight of the backpack before leaving and, if necessary, decide which items should stay at home or at school.

The next negative factor is the strenuous walking. Adequate physical and psychological preparation are of vast importance in this case. Children should be gradually prepared for long-lasting physical activity. Moreover, we believe that most children are fit enough, the problem lies in repetitive and uninteresting activity. Lampret (2002) found that most children dislike hiking because of strenuous walking.

A particular problem is the third factor - inadequate equipment. Many children really lack adequate equipment, especially footwear for walking in the mountains. Frequently mountain hiking is chosen by children, who can not afford other sport activities, but they also lack appropriate equipment for safe and enjoyable hiking.

Mountaineering of children within the frame of their families and school activities with regard to their natural environment

Regardless of their natural environment, approximately 10 % of children never go to a mountaineering trip with their family. Nevertheless, the groups show statistically significant difference in the number of mountaineering trips. Twice as much children from Ljubljana than from NW Slovenia answered that they go to a mountaineering trip more than 15 times yearly. Considering that mountaineering is especially popular in the summer and autumn this rate is in reality even higher. For these families mountaineering is a part of their free time activities and their lives in general. Such a great difference between both groups surprised us considerably.

It is true, however, that in the next category of answers a similar difference appears, this time in favour of the group from the mountainous environment. Almost 20 % of children from this environment go to mountaineering trips with their families 8 to 15 times yearly. Undoubtedly, for these children and their families mountaineering is also a part of their free time activity. Smaller, but still considerable differences appear in the category 4 to 8 times yearly. In this group children from Ljubljana are the most active. The results of our research confirmed the statements made by other authors, saying that mountaineering is in Slovenia a popular and mass sport, which can also be considered a family sport.

A different picture is shown when mountaineering as a school activity is considered. Here, children living in mountainous environment show a considerable advantage. Both groups show statistically significant differences, which, of course, can be expected. Schools situated in mountainous environment can easily and often organise mountaineering activity within the frame of sport days, selective contents or mountaineering activities. Apart from the vicinity of the mountains, this can also be assured by physical education teachers, who have special skills in mountaineering. It is surprising that almost 40 % of all children, regardless of their natural environment, doesn't go to a mountaineering trip organised as a school activity even once, which is contradictory even to the recommendations of school authorities as much as common sense. This is especially true for schools that are located in mountainous environment. It is, of course, appreciable that schools have a wide variety of physical education programmes to offer, but it is intolerable that a high degree of children never go to a mountaineering trip organised as a school activity, especially considering all positive impacts of a well organised mountaineering trip.

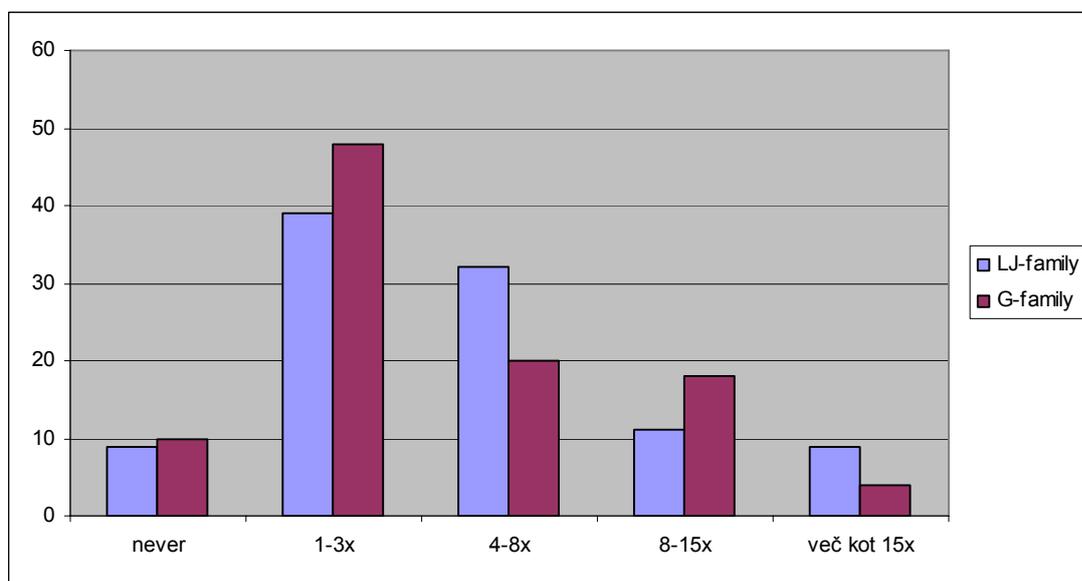


Figure 5: Yearly number of mountain trips (with respect to the family's environment)

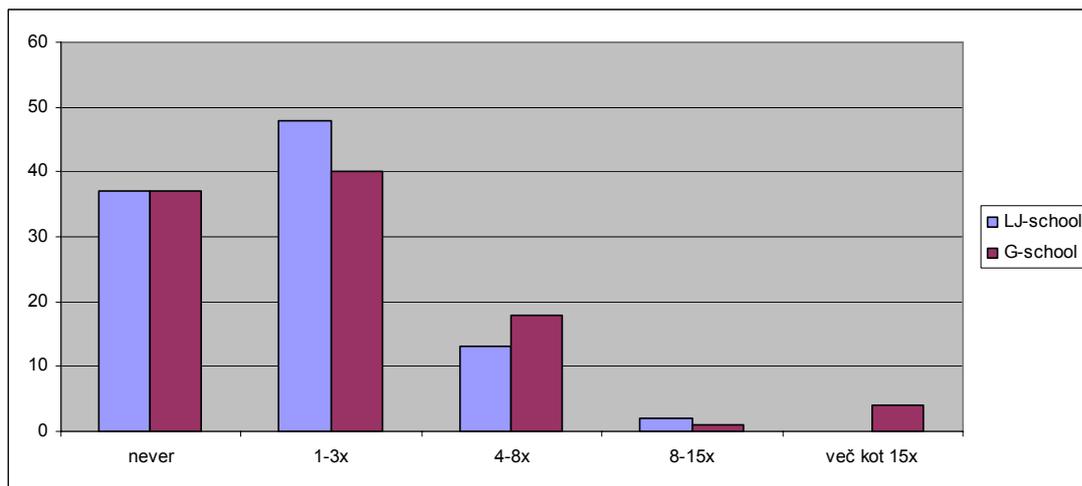


Figure 6: Yearly number of mountain trips (with respect to the school's environment)

Environmental impacts of mountaineering, environmental education and its role in the outdoor education

For mountaineering the natural environment is of crucial importance as being the main attraction factor. The prevailing environmental impacts of mountaineering are negative, the only one positive is the defining of protected areas, which consequently means that the natural environment is gaining a monetary value and therefore it needs to be managed by certain finances. One other thing quite specific for mountaineering is that its environmental impacts spread on relatively large areas.

Among the negative environmental impacts of mountaineering we need to point out the following:

- The construction of infrastructure (i.e. mountain huts, trails etc.) representing an environmental burdening in fragile mountain areas.
- Large(er) amounts of waste.
- Trail erosion on most used mountain trails. Beside that the soil becomes more pressed and losses the organic contents, the porosity is decreased, the water flow is incrsed and therefore it leads to intensified soil erosion.
- Negative effects on the vegetation and overall natural environment (i.e rock climbing can damage the rock faces, cracks, destroy the vegetation etc.). The most common damage on vegetation is made with braking of branches, the diminished ability of the vegetation regeneration, the loss of vegetation cover and the change in plant species.
- The all year presence of mountaineers can influence the breeding habits of wildlife.
- Overall negative impact on fragile mountain ecosystems can also lead to the loss of biodiversity.

The impacts are mostly spatially spread especially in areas where mountaineers are also using the unmarked trails.

Environmental education is strongly connected to environmental ethics which was already present in old civilizations. They were aware of the interrelations and impacts not only among the individuals but also between the nature and the space. The so called "collective memory" is still present in the modern societies but we are less aware of it. The present society is extremely anthropogenically oriented, which means that the natural environment should be totally in control by the humans and in use for them. The latest brought to the ecological crisis which is already well shown in the

environmental pollution, the overuse of natural resources and in climate changes (Curry, 2006). Therefore it is more than ever important to stick to the environmental ethics rules among which the responsible relation towards the environment is one of the most important.

Despite the anthropogenic relation towards the environment the environmental ethics is slowly gaining its importance especially through better understanding of negative environmental impacts of human activities and also through the awareness that the natural resources are limited.

The complexity of environmental ethics is also present in mountaineering. The so called mountaineering ethics is a group of values and beliefs which influence mountaineers and to certain extent their activities are also led by them. With regards to the value system, mountaineers are accepting decisions at all forms of activities including where and how the activities are implemented, what is the relation of mountaineers towards the mountain environment as well as in what way the mountaineering activities should develop (The Mountaineering Council of Scotland, 2008).

One of the most important rules of mountaineering ethics is the rule of the truth, which means that the mountaineers are obliged to report their achievements according to the truth and their activities are ethical only in case they are "doing the right thing". If mountaineering at the beginning was mostly research and discovering of mountain areas it gained a totally different dimension in past 100 years. It mostly became a sport activity which also incorporates a certain level of competitiveness. But never the less it is believed that the mountaineers are aware of their responsibility at mountain environment protection although in some cases the environmental situation is proving the opposite.

The mountaineering environmental ethics rules should be clearly presented on various occasions and here we see a very important role also in the outdoor education. The mountaineers are supposed to maintain the traditional values of mountaineering which comprise also the awareness of negative environmental impacts of various mountaineering activities. Every individual should be aware of their responsibilities as well as of its capabilities towards the companions, the mountain environment as well as towards the mountaineering as a sport activity (Birrer et al., 2007).

The motives as well as the values of the mountaineers are of crucial importance when the mountaineers are active in the mountain environment and as such they highly influence its state. The mountain environment is specific and also the human activities in it are specific therefore the set up core value system and the environmental perception of the mountaineers can highly contribute to the sustainable development of the mountain environment.

The role of outdoor education in this case is immense: the core values of pupils can be upgraded as well as consolidated through the educational program in the nature. The outdoor activities bring pupils closer to the actual natural environment and they are able to develop a primary contact with it. The most positive result of such interaction is the awareness of the vulnerability of the natural environment and of the importance of its preservation.

Let us conclude our discussion with the thought of an author, philosopher and alpinist, Igor Škamperle, who wrote in his book entitled *Swallow's Flight* (1999): »the mountain stood there before we came to it. Its language is not ours, but exists forever just like the universe, nature, reality. When someone comes and catches its voice, when he feels the cutting edge and falls in love with its harmony not being able to explain it, he did not get lost in imagination and imagined something nice and interesting, but discovered things that have always existed. He did not invent them, he found them. A mountain is a symbol, perhaps one of the oldest ever known to man«.

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Social Influence in Outdoor Education

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Physical education teachers are often faced with the question how to prepare pupils to participate in different sporting activities, which are encompassed in the curriculae. Among the problems encountered in physical education are lack of interest, low preference for movement, dislike for movement, poor motor experience... Teachers are often faced with frequent more or less plausible excuses and apologies for not cooperating, various disciplinary problems and many similar problems. The same happens, when children come to outdoor education, where even some additional aspects need to be addressed - such as safety issues, everything is new to the pupils, some of them may not react very well to novelties, some might be afraid of novelties, they might miss their home environment etc... At considering these issues, we come across the teacher's authority and the considerations of means, by which the teacher can influence the pupils and get them to do what he wants to. A professor of physical education, who will be able to correctly influence the pupils, will achieve the objectives of the subject and will be able to teach the pupils a healthy and positive attitude towards movement in general and sport in particular. With using inappropriate (or less appropriate) means of influence, will arouse dislike towards movement and sport - the potential health threat to the student in subsequent years is obvious, since such pupils probably won't exercise enough on their own. The purpose of this article is to show, what different means of influencing the pupils are and how to use them specifically in the case of outdoor education – Slovenia is a country of enthusiasm arousing nature and since we get the opportunity to hold mountaineering oriented outdoor educations, we should influence our children »correctly« in order to teach them love towards the nature.

The concept of social power »gained independence« in social psychology in the first half of the 70-s, when Moscovici and Faucheux pointed out that social influence and social power are two separate phenomena. Previously, social power was believed to be the basis of influence – one could enforce their social power through influence and influence was considered to be exercising of one's social power (Moscovici & Faucheux, 1972, as cited in Bečaj, 1997). These authors differentiated between two types of social pressure: coercion (power) and influence (the normative aspect) - the first one leads to just apparent adaptation, whilst the other leads to genuine acceptance of issues, beliefs etc...(Bečaj, 1997). Rot (1983) defined social power a phenomenon, the formation of social power is something, that he believes to occur in all types of social groups and he believes social power to occur intentionally and always with a certain purpose, since it's supposed to facilitate the functioning of a social group. In our case, we can suppose that the use of social power of a physical education teacher is intended to enable the completion of the task ahead, to safely teach a child to cross a mountain pass, to teach him to efficiently use ropes, to teach him to love nature etc...If a physical education teacher uses appropriate types of social power, he will achieve these objectives with a great certainty.

Social power has been defined by many authors – Cartwright & Zander state that social power is present, when a person can make or cause another person to do something, that is, when the behaviour of a person can cause a change in another person (Bečaj, 1997). Two important components need to be addressed – together they make up for the motivational basis of power: the sources of power held by the first person (e.g. person A) and the different needs of the person, to whom the

influence is directed (e.g. person B). In our situation you can imagine a person A to be the physical education teacher, a person B is a pupil in the physical education class or a pupil participating in outdoor education activities. Traits and characteristics of person A (wealth, physical strength, prestige, knowledge ...) can only affect person B only if they represent something that pleases that person or if they are something that person B needs. According to these authors social power represents the potential influence of person A over person B, which depends on the type of person A's power and its attraction to person B. The impact is always only potential, since the person A might not use his or her power, whilst the person B might be affected just by the awareness of person A's power over him or her. Person B might also show dislike or resistance to person A - that should be taken into account in the amount of impact person A might exhibit. The resistance can also be viewed as a conflict – thus the person with influence (physical education teacher) needs to overcome the opposing force of the pupil (for example his or her excuses, lack of interest...) (Cartwright & Zander, 1968, as cited in Bečaj, 1997).

The basis for acceptance of person A's influence are different types of power - thus person A's power is not determined by his or her resources, but more by B's perception of those resources and of his or her abilities and issues – a pupil will accept his teacher (and all his instructions and directions) better, if the teacher will use correct types of social power, if he will be able to »motivate« the pupil through the use of social power. The motivational basis of social power therefore lies in person B, that is the pupil in our case – it is, after all, up to him or her to carry out the teacher's instructions. Cartwright and Zander talk about six areas, which may trigger the motivation of the person B to take accept person A's influence:

- Wish for reward and punishment avoidance (a pupil wishes to be rewarded with a good grade or by the teacher's praise, and he or she wishes to avoid punishment in the form of additional activities or more work in the class)
- Person B's desire to be similar to the admired person - person B (if the professor of physical education is the pupil's role model, the pupil will follow his / her instructions and carry out duties diligently, because he wants to become just like him, the professor must thus be the pupil's model in the field of sport, physical education, movement ... of course the teacher must also be physically fit enough to properly demonstrate the activities and he or she should give the impression of good physical fitness and be the model for a healthy lifestyle - this is often the main argument why even in the lower grades of primary school physical education should be led by physical education teachers and not primary education teachers.
- Person B might be willing to accept person A's influence simply because of a value, which cause him or her to accept the influence (a pupil for example might be prepared to accept the instructions of the teacher simply because he has been taught to respect and obey authority, which is what a teacher represents)
- Person B might regard person A as the source of good and up-to-date information about a certain topic or about any aspect of reality – authors speak of a person's desire »to be right« - in the eyes of person B, person A is an expert in the field (the pupil will accept the instructions of the teacher simply because he or she is the expert in the field of sport, motion...)
- Motivational basis for B's acceptance of A's influence may also be willingness to adapt and conform to the group – person B might be aware that his or her goals will only be achieved through the cooperation with a group - this is supported by four features of a group: a group can achieve a goal, a group maintains cohesiveness, a group creates its own "social reality"

and helps group members determine their attitudes towards the environment. If person A's impact is guided by one of these functions, person B can be expected to accept that influence and his or her behaviour (in this case, the pupil will accept the teacher's instructions simply because he or she is the leader of the current group and the role of the leader implies determination of activities and guidance of the group)

- The final motivational basis is internal pleasure, experienced by person B (a pupil will obey the teacher because it will make him feel good and because he will be pleased with himself or herself).

This model is similar to the model developed by Thibaut and Kelley (1959, as cited in Bečaj, 1997), who are representatives of social exchange theories. They believe that social interaction is the means by which individuals satisfy their needs or achieve their goals. This is of course possible only through other people, which is why people establish interpersonal relationships, in which we give something, but also gain something in return - social relations could also be referred to as »exchange services«. Each party enters into a relationship with specific needs and with offerings that might be interesting for the other side. Each side will then assess what is the ratio between the bid and obtained, and whether this relationship is worthwhile, whether it is therefore appropriate. Among potential partners, a person will always choose the one that will appear to be the most profitable. According to this model, every relationship is a bargain, in which we all try to maximize the outcome for ourselves.

Two individuals with different behavioural patterns in a social relationship are actually resolving a conflict (and that exact word is extremely important in the educational context, in which the establishing of rules and discipline appears as a conflict rather than anything else). One of the persons usually has a significant impact on the amount of benefits that are relevant to the other person - in this case, one person gains certain power over the other person and that person becomes dependent on the first person (in the school situation it is in fact a teacher who has more power and provides and determines activities and student behaviour). When person B has no other options and is unable to exit from the relationship, he or she is, so to speak, left at the mercy of person A. Thibaut and Kelley say that person A has control over person B's fate and behaviour control also gives A better opportunities to negotiate. That is exactly what the teachers need to be aware of – they must recognize that pupils do not really have a say in the activities and that they have considerable power over them. They should be very careful not to abuse their power and force the pupils into activities, in which they refuse to participate. When we talk about outdoor education, this should be particularly well acknowledged, since negative experience and the feeling of pressure might deter the pupils from future outdoor activities. It is, on the other hand, necessary to explain and demonstrate why the proposed activities are beneficial and good for the students. The theory of Thibaut and Kelley can show us the relationship between teachers and pupils, but the following theory is one that will show what is acceptable and effective teacher behaviour.

One of the most important social researchers of social power are French and Raven (1959, as cited in Bečaj, 1997). The amount of power held by a person A over person B's according to them equal to the difference between person A's power and person B's resistance to that power. Influence should be understood as a kinetic power and social power as potential means of influence. Social power by itself does not mean influence, even though it sometimes happens, that simply the presence of a person with some power will change the behaviour of those present – thus simply the presence of a police officer can change the way people drive. According to them, social influence is the result of

forces which are at a particular time directed on a particular social category. The source of influence is, of course, another social category (it can be an individual, a group, a norm...), but influence also depends on a system in which it takes place – contextual factors should not be ignored. The authors use a holistic approach in which the relationship between two people or two groups represents just a part of a broader social field, with which they recognize the Bertalanffy general system theory - any change in the individual component can lead to a change in all other components of the system. As in the previously described theory of Thibaut and Kelley, also the French and Raven identified potential sources of social power, by which a person can affect the behaviour of another person. The division, which is among the most respected and also among those, who are most applicable to several fields of our functioning, speaks of the following sources of power:

- The power of the reward depends on how person A's ability to reward is perceived by person B. Use of this type of power can increase the attractiveness of the person A, so this can type of power can eventually turn into a reference type of power. If person A fails to fulfil his or her promises and the reward doesn't appear, his or her power will be reduced. Thus a teacher who will first invite the pupils into an activity by promising them reward for participation and will in outdoor education for example promise them an outing of their choice or a fun evening and then fail to fulfil them, will decrease his power of reward, which will also further lower the pupils will to participate. Keeping the promises will on the other hand increase the power of reward and improve the pupils engagement. Since a teacher in every situation (and thus also in outdoor education) has potential to use reward, it is sensible to use it frequently, but sensibly – too much reward also has its negative aspects.
- The power of coercion or punishment power - its use usually maintains and intensifies person B's dependence and reduces person A's attractiveness. It usually causes person B's desire to withdraw from the situation. Punishment can be either removing something person B wants or providing (or enabling) something the person B wishes to avoid. Teachers have frequent opportunities to punish or coerce the pupils into activities, but with the use of this power, his or her attractiveness to the pupils is greatly decreased and large amounts of fear can occur in the pupils (this fear is then easily generalized or changed into dislike for sport, motion and outdoor activities in the case of outdoor education) Teachers, who often use punishment, have few disciplinary problems and pupils follow his directions and participate in the proposed activities, but the effects of this punitive influence are short-termed and do not encourage a positive attitude toward sport and motion. They are far more likely to increase fear and dislike for both the teacher and sport. The use of such power is therefore not desirable, in extreme cases (physical punishment, verbal abuse) it is also prohibited by law, if not merely ethically unacceptable.
- The power of legitimacy – that is the power, which is believed to be the most complex and it means that person A has certain claims or rights in relation to person B. As a motivational basis of this power we can state cultural values and norms that determine who is allowed to do what and what one should or should not do. These categories are internalized and developed and learned through upbringing – person A can activate them simply by referring to them. In these cases, A (teacher) always refers to something what is a person B (the pupil) has internalized, therefore the teacher refers to a society's rule – this power is one of the most frequents explanations to why participants of the Milgram electroshock experiment reacted by causing what seemed to be serious damage to complete strangers (Gross, 2003). The teacher is according to generally accepted criteria and norms a person, who can give orders, directions, who is supposed to lead...Pupils follow his directions because it is »the proper thing to do« - they have learned this from their parents and from the rest of the social environment. The use of only this type of power could lead

to poor discipline in the classroom, making it impossible to make a proper implementation of activities and objectives identified in the curriculum.

- The reference power is the power of good relationship and is based on the identification of person B with person A (person A is attractive to person B, even though person B might not even be aware of this attraction). Cartwright and Zander state the motivational basis for this social power to be imitation or identification. It is a concept from Festinger's concept of social reality - , when an individual finds himself in an ambiguous situation, imitating someone may offer »a map« for behaviour or action, we basically establish a reference point – hence the name of the power. Physical education teacher has to be a role model for sport and for a healthy life style, needs to be able to demonstrate well...Another reason why physical education teachers should be involved in all levels of education, not just only after the first few years.
- The power of expertise - even here, as well as in the case of the power of legitimacy, person B's perception of person A's expert knowledge is important. If for any reason, A is not accepted as an expert, he or she will not be able to use this power. This type can affects person B's cognitive system – it changes his or her thoughts, beliefs...the information is automatically accepted, because it comes from an appropriate source, namely from person A. It sometimes goes even so far, that person B internalizes the information and forgets where it initially came from (French & Raven, 1959, as cited in Bečaj, 1997).
- Raven and Rubin added the sixth type of social power in 1976 and called it information power - this power is used when the person carrying the information is far less important than the information itself – the carrier of information is not necessarily person A – person B is affected by the strength and importance of information itself. This power is more stable and relatively independent of the situation when compared to other types of social power. A major focus is on relativity, but intelligence, motivation and other variables of the person to whom the information is intended, nevertheless play an important role (Rot, 1983). In a situation of physical education this power would be used, when the teacher would tell something so very important, that the value of information would surpass the value of the messenger - such sports teaching situations are relatively few, so that type of social power might play a bit less important of a role than others, but it might come in very handy when addressing safety issues in outdoor education.

Other authors, such as Lewin, Shaw, Blau and Mulder (Bečaj, 1997) also researched and dealt with social power and although the concept of social power and its motivational basis might seem rather vague at moments, we can sum up a few guidelines for physical education teachers and especially teachers, engaged in outdoor education:

- We need to talk with pupils
- We need to give them a lot of information
- Physical education teachers must serve as role models
- We need to reward successful activities and use punishment moderately, preferably not at all
- We must fulfil our promises
- We need to continuously educate ourselves, so that we can be a good source of information
- ...

Simple instructions, which could be applied to all teachers on all levels of education and in every single subject, included in our curriculae.

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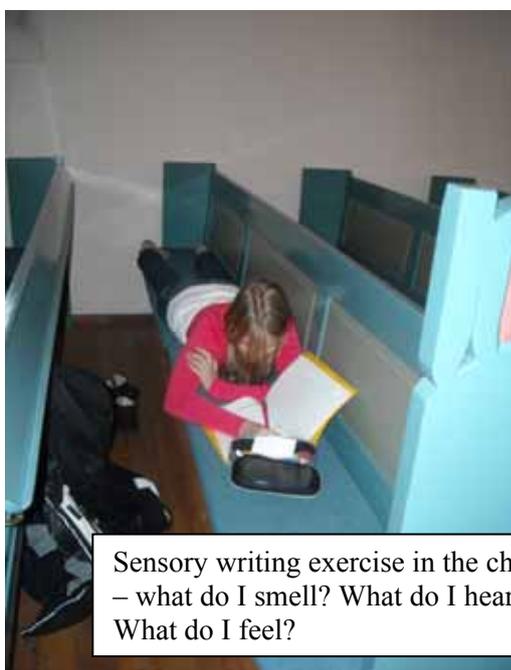
Outdoor Education in Compulsory Education, a European Perspective

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Abstract

I have worked as a mole for years. Digging hidden under the cover of curriculums and tests, I've worked on getting outdoor learning into elementary schools. If you can't beat them – join them – so our work has focused on how we can qualify the subject related work outside the classroom. Playing Quiddich and learning about Harry Potter and English literature, discussing burial habits and implied tombstone messages in the texts at the graveyard in religious education (RE), using a wide range of activities to make the curriculum come alive outside the classroom.



Sensory writing exercise in the church
– what do I smell? What do I hear?
What do I feel?

Using your body, running
grammar into your mind



Outdoor education is widespread as residential experiences, and in school camps and adventure excursions. It occurs in one form or another in almost all countries around the world⁵. In some places connected more to physical education, personal and social development and in other places more so with environmental education⁶. With the rising emphasis on testable academic skills, at least in Scandinavia, “purposeless wandering around” in nature has been restricted during everyday education and schooldays.

With European kids suffering from growing obesity and a life heavily dominated by screens, getting in direct contact with the real world is a defining learning resource. All over Europe the conditions for the kids are more or less the same. A life with less everyday physical exercise, growing obesity, growing demands for academic literacy and testing, hours and hours of lessons sitting down in school and leisure time. We must give the real world back to the children, to provide them with skills and belief that can make them ready for the challenges of our changing world. As we have almost all children in schools, this is a great place to integrate outdoor learning into everyday life, starting the

⁵ New World Encyclopedia

⁶ A.Szczepanski and Lars Owe Dahlgren:” Udendørspædagogik – boglig dannelse og sanselig erfaring”, Børn og Unge 2001

undermining work of the Mole. If we can get just one teacher across the doorstep to use the outdoors as a learning arena, we have already got a whole bunch of kids outside – even those that maybe would not go there by themselves.

Our work concerns the issue of getting curriculum-based outdoor education into teacher education. We want teachers to be able to use the learning landscape outside the classroom during their everyday work getting the subjects related to life. At this moment in Europe, this is, from our point of view, only possible by changing the sedentary nature of the public school – not by making a revolution.

As we know that all teachers – at least outside the private schools⁷ are obliged to meet the demands of the curriculum, we can start here. And we know that the most time consuming subjects are our mother tongue and mathematics.

So this is our work, which has turned out to be successful as a grassroots movement, connecting parents, children and teachers in the belief that the outdoors has something to offer as a learning resource. We have developed and tested courses that introduce curriculum-based outdoor learning in teacher education. Foundation courses with basic knowledge about the theories and the basic ideas behind getting the kids out, and subject courses, reflecting the subjects in the school. We work with the basic ideas of Dr Arne Nikolajsen Jordet⁸, using the nearby environment as a classroom. As there are limited resources in schools, we don't want them to be used in providing transport and accommodation, but we work with opening the classroom door, walking into the schoolyard, the hedgerow around the soccer grounds, the nearby museum and the church.

Main problems

Many teachers search for easy to use, ready made and tested materials to use in the outdoors. As the learning activities outdoors should be in close connection to what is learnt indoors⁹, the teacher often just have to think about which of the activities described in the textbooks could gain something by being used outdoors. We need more material, even if the literature is still growing, on this field. Most of the literature existing today concerns “how to make a bonfire”, and not too many describe how to work with adverbs outside.

Being a well educated subject teacher, you don't need so much more qualification, as the subjects are still the same. But you need the qualities of courage, belief and fantasy¹⁰ to develop the learning activities.

From the viewpoint of the teacher education

Believing that humans learn through a lot of channels, both sensory, physical and cognitive, we developed the courses “learning about outdoor learning by working outside”. Two courses – a foundation course basically working with learning theories and practical examples, e.g. on how to use the senses in the learning process, how to evaluate and follow up and so on. Depending on what level of students we get, we combine the practical exercises with the learning theories of Lev Vygotski, John Dewey, David Kolb and other more recent “hotspots” as Dunn and Dunn and Howard Gardner's theory of multiple intelligences that have had great impact on modern schools. And then we give subject courses, e.g. math in the outdoors. These courses should not be an option, these courses should be compulsory, adding another colour to the palette of the teaching opportunities our teachers walk out into the world with.

⁷ Eg Waldorfschools

⁸ Arne Nikolejsen Jordet: ”Nærmiljøet som klasserom”, Cappelen akademiske 1999

⁹ Arne Nikolejsen Jordet: ”Klasserommet utenfor”, 2010

¹⁰ Inspired from Dr Robbie Nicol, Edinburg University



An experienced teacher just made his own poacher's flute, and is now experiencing the sounds of the grass leaf, the call of the deer, the feeling of having been able to produce something – and in a while, he has to describe what parts of the curriculum in music he just covered



A cubic meter, that is not a cube or a dice – how big is it? How many IQ can be inside this cubic meter?
Learning from practical, problem-based learning processes by working with them.

Student exchange?

Sharing ideas and experiences around Europe should not only be an option for us, the researchers and developers. This must be an option for the students and the in-service teachers. As you experience other habits and discuss matters, other viewpoint on outdoor education will develop and sharpen your own thoughts and practice.

So is this possible in a European perspective? To make a flow of students travelling and working with outdoor learning, building up international competences and collecting ETCS points for their degree? Honestly – no. Even if the Bologna process was to make the European degrees comparable, there's still a long way to go. Teacher training is connected to local educational systems – e.g. some kinds of teachers are trained for preschools in some countries, but for a broader range of children in other countries. Some teacher education focuses a lot on single or dual subjects, others are much broader. Some teacher education is at universities, some at University Colleges with other rules and accreditation. But still there's the Comenius projects and courses, and a lot of students are willing to go somewhere to learn in their spare time, to take another six months. It must be a field for further work, to make the course concession easier. In teacher education we do not all have to be able to do and know the same, as long as we know to whom and where to send the students.

Finally

We must, as educators, still work IN the educations to make it possible for the students to experience outdoor learning during their study time. If we can make courses IN the curriculum – and not only for us who are already a part of the congregation – then we will see a lot more children use the environment nearby as a learning resource, guided by experienced and well-educated teachers into the curriculum of the compulsory school. No extra costs, just another learning option.

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Has been the vocational leader of the project “OutLines” (www.outdooreducation.dk), a highly succesfull project on using the outdoors as a part of the curriculum and subject based education in teacher education in 6 European countries. Starts by now the Leonardo da Vinci project “In and Out” working with the collaboration between teachers and rangers (nature interpretations) in an European context.

Concepts of Nature in Outdoor Study Programmes of Universities and Colleges of Higher Education

Outdoor Teaching in Education for Primary School Teachers

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Abstract

Outdoor teaching is one of a contemporary ways of teaching. Even though someone is educated for being teacher and has a lot of proper knowledge and competences for teaching he/she often uses old ways of teaching. This is one of the reasons why university professors should use different ways of teaching. We tried to figure out what kind of approaches university professors use in their pedagogical work and what are advantages and disadvantages of such process.

Intorduction

Nowadays nature is used as a special kind of classroom which helps children and students in learning, getting to know one another and themselves and in developing social abilities. There are also a lot of different ways of so called fieldwork which can be realised not only in nature but also in different institutions like museums, cultural and natural attractions etc. As results figure out learning is much more efficient if learning environment is changed from time to time. Education in nature demands that all of pupil's receptors are active so the pupil is active participant of educational process. Fieldwork does not have good reputation on the university level but it is crucial that students get enough knowledge and experiences with that kind of teaching. This is the only way for transferring teaching in nature in practice.

Lectures, seminars and different kinds of experimental work are often used at university level of education. One of the oldest and commonly used ways of teaching is lecture. Due to frontal teaching, personal characteristics and often low pedagogical knowledge of professor lectures nowadays are under sharp criticism. Lectures have a high number of disadvantages such as:

- Students are not active participants.
- It is hard to achieve higher levels of knowledge (like synthesis, analysis, evaluation).
- Professors often read their lecture.

But on the other hand there are some advantages of lectures if professor put questions to students, allow students to ask questions and encourage them to solve problems. That kind of lectures is important for students due to the fact that they can understand the problem of the subject. Because of the high number of students (approximately 120 students per class) lectures take part at the faculty's lecture halls.

More proper kind of teaching are seminars which take place in smaller groups (between 8 and 20 students) and are devoted to group discussion with mostly intellectual goals and should be managed by professor. At seminary works, in comparison with lectures, students and professors can:

- Upgrading contents from the lecture part.
- Introducing specific contents that require discussion.
- Solve problems.
- Forming opinions and developing occupational ethos.
- Develop communications skills.

There are also some negative points of seminars such as poor quality of prepared term papers, poor presentation, passive students, students who do not listen one another and students who do not know enough about introduced topic (Bečaj, 2001).

Seminars are in comparison with lectures kind of teaching that can be carry out in nature (not only outside of the faculty).

Every professor should have in mind that active study is one of the best ways to achieve higher levels of knowledge and lead to connecting previous knowledge with new knowledge. One of the important parts of active study is definitely “study in nature”, especially when students are active participants from the beginning of the process.

Teaching in university area is mostly rigid, so teaching in nature is more frequent in subject that requires work in nature. But the nature could also be learning place for mathematics, history, foreign language and so on. If professor knows, that his/her way of teaching is as much important as the contest of learning, he/she will try to carry out part of pedagogical process in nature.

Because there are completely new educational programmes on the University of Ljubljana, we tried to figure out, if there is some kind of fieldwork involved in new study programmes of primary school teacher programme.

Aims

We tried to figure out:

- By which subject fieldwork is possible way of teaching.
- What are advantages and disadvantages of fieldwork?

Hypotesis

H1: Fieldwork is more frequent by subjects that already require work, study in nature.

H2: Problems (disadvantages) of fieldwork are result of large group of students, high costs and of schedule.

H3: Advantages of fieldwork are better student's knowledge and better relationships between students.

Participants

14 professors were included in sample. They teach 34 different subjects of 8 different areas (Natural science, Social science, Literature, Music, Physical Education, Creative Movement and Puppets, Educational psychology and Children with special needs).

Measures

Questionnaire was created for this research that includes three different parts:

- Execution of educational process outdoor,
- Advantages of educational process that is held outdoor,
- Disadvantages of educational process that is held outdoor.

Data analysis

Basic statistical methods were used (frequency and percentage).

Results and discussion

Professors who participated in research teach 34 different subjects of 8 different areas (Natural science, Social science, Literature, Music, Physical Education, Creative Movement and Puppets, Educational psychology and Children with special needs).

Part of educational process was carried out of faculty in 26 cases (76.5%). The result is extremely high but we must know that included subjects are from areas where working only in classrooms is not enough. At the same time we should know that questionnaire was returned mostly from professors who already carry out part of educational process outdoor. Subjects that were never taught outdoor

are: Educational psychology, Didactic of technical education, Didactic of literature and Children with special needs.

Table 1: Parts of educational process that are done out of faculty

Parts of educational process	yes	no
Part of experimental work	9	1
Part of seminary work	5	5
Part of lectures	1	9

Experimental work is part of educational process which is most often done out of faculty. The answer is expected because experimental work goes on in smaller group (up to 18 students). Participation on experimental work is also obligatory for students. So it is much easier to organise something different in educational process during experimental work than during lectures for instance. We also think that professors sometimes do not know how to organise lectures or seminars out of classrooms. And it is even possible that they think that educational process which goes on out of faculty is not suitable for their subject.

Table 2: Where does educational process go on?

Where does educational process go on?	yes	no
Out of Ljubljana for few days	5	5
In Ljubljana for one day	4	6
Other	4	6
Near the faculty	2	8

Answers in section "Other" were:

- Visiting different cultural institutions.
- Excursions that last one day and go on in Slovenia, Austria and Italy.
- Visiting Puppet's theatre, Ljubljana Festival in Mini Theatre.

Fieldwork which last few days is connected with subjects from natural sciences and from sport. Most common kind of educational process that goes on out of faculty is experimental work and by Didactic of sport there are also seminars that take part out of faculty, in nature. Fieldwork that goes on in Ljubljana and lasts one day is often connected with visiting different institutions. It is very frequent by social sciences like history and geography. Near the faculty is so called "outdoor classroom" with pond so part of the biological contents can be carry out near the faculty.

Table 3: Part of educational process that goes on out of faculty

Part of educational process	No of answers
Up to 5% hours	3
6 – 10% hours	4
above 11% hours	3

It was expected that part of the educational process which goes on out of faculty will be low. Only subjects of sport and social sciences have higher percentage of all hours that are carrying out of faculty which was also expected. Contents of Didactic of sport, History and Geography demand that part of educational process is performed outside (for instance skiing, swimming, visiting different places, museums...).

Table 4: Reasons for execution of fieldwork

Reasons	No of answers
Students need different ways of learning	7
Contents of a subject are appropriate for fieldwork	5
I can establish different, better relationship with students	5
Fieldwork give variety to traditional way of teaching	4
I want to try different kinds of teaching	4
Other	4
Students get different knowledge	1

Answers in section “Other” were:

- Some contents cannot be interceding so well in classroom as they can be in nature (out of classrooms).
- There are only few students who spend enough time in nature.
- Students can get different, better experiences in professional environment.
- Students can really see, hear, smell and try what we are talking about.
- Professor is model for students.

Professors are aware of importance of fieldwork (especially experiential learning). They are also aware of other components of educational process (like socialisation) which are not often the case with university level of teaching, but they are also extremely important part of quality teaching and learning. But there is often a problem of professors’ fear of students that discourage professors from fieldwork. They often think they will lose authority if they come to close to student. That is not true, on the contrary students respect professors who know their names, who know how to laugh with them, who is accessible for students’ questions and answers and who is able to say that he/she does not know everything.

Table 5: Problems at realisation of fieldwork

Problems at realisation of fieldwork	No of answers
Problems at organisations (I am alone for everything)	6
Costs	5
Increased risk for injuries	3
Other	3
I do not have problems	2
Groups of students are too large	2
Students’ attention is too small	1

Answers in section “Other” were:

- Extra time and work that is necessary for qualitative fieldwork are not adequately evaluated and are often underestimated.
- I often have problems with weather conditions (rain for example).
- Unforeseen circumstances (breakdown of a bus).
- Inappropriate timetable.
- Students have to use their own cars – problem of safety.

Major part of the problems stressed by professors is organisational. As professors said fieldwork is not adequately evaluated and this is one of the reasons why professor has to organise everything by him/herself. He/she has to prepare and carry out all programs, makes a bus reservation and makes a hotel reservation and so on. Study program ought to be free from charge but students have to pay a fee for fieldwork. So professor often try to find cheaper way of fieldwork. That is why students often come to fieldwork on their own (by cars) which is definitely less safe than by bus. That is why some professors still do not like fieldwork because question of the safety is always on the first place. A lot of professors also do not know norms for number of students when they work out of faculty, so it is not unusual to see 50 students with only one professor on excursion somewhere abroad.

Professors also try to find some less expensive ways for living during fieldwork and one of the possibilities is living in “Center šolskih in obšolskih dejavnosti”. But that also mean fieldwork has to be carried out during weekends and sometimes even during feast days.

There are a lot of similarities with other's researches results (Kolenc Kolnik, 2005) so results were expected.

Table 6: Reasons for no-implementation of fieldwork

Reasons	No of answers
Contents of subject are not suitable for fieldwork	2
Other	2

Answers in section “Other” were:

- There are not enough hours for educational process out of classroom.
- Regulations of University.

Professors who gave answers were professors who never go out of classrooms. Belief of professors that contents of their subject do not allow fieldwork is mainly results of lack of knowledge and ideas how to transfer educational process out of classrooms. Almost all contents are proper for fieldwork and next example show us that this is true: By subject Educational psychology student had task to remember and reproduce one story to next student. We gave them exactly the same task by the subject Didactic of physical education when we had fieldwork and we had social evening. Results were much better in the second case, when we were in nature, so students were more relaxed and they remembered more than in classroom.

There are never enough hours for educational process let alone for fieldwork, if professor wants to tell students everything he knows. He has to make reduction of all contents and demands from students to study at home – by themselves. Hours for educational process he could destine for teaching more difficult contents and for fieldwork. It is really necessary for professors to know that is not important how much contents they directly transfer to students. What is important is what kind of teaching methods they use. One of the most important advantages of fieldwork and work in nature is higher emotional involvement, much more unassisted learning and as a result better student's knowledge.

Table 7: Is there any possibility for professors who never practice fieldwork to try different kind of teaching

Professors' answers	No of answers
Other	2
That kind of work is absolutely not suitable for my subject	1
Only if students want different kind of work	1

Answers of four professors who never do fieldwork show that they also never think about different ways of teaching or using nature as classroom for their subject. Initiative of students is very rare in Slovenian university area. It is frequent by “up-to-date” professors who encourage students to ask

questions, to discuss, who allow them to make mistakes, who believe in them and who let them know that he is only a human. Answer (in section "Other") that professor would teach out of classroom if he figure out that such kind of work can refine educational process shows us that professors do not have enough knowledge about different ways of teaching. Every changing in teaching and learning let alone changing of place for educational process has positive effects on educational process.

Conclusions

Results show that we can confirm the first hypothesis. Fieldwork is very frequent way of teaching only by subjects where it is almost necessary (natural and social sciences, sport). Organisation and costs cause most of the problems at fieldwork and that is why we cannot accept the second hypothesis. We also cannot accept the third hypothesis because professors said the most important advantage of fieldwork is that students need different kind or educational process.

Sample of participants were very small so we cannot generalize the results but the fact is that fieldwork is used less than we expected. Nature as a classroom is used only by subject from natural science and from sport area, despite every subject could be carry out in nature. In new study program for primary school teacher only 22 hours (0.7%) of all hours are intended for fieldwork (natural sciences, social sciences, sport). Fieldwork is also mention by music, but only by sport there will also be seminary works too (not only experimental work) that will take place in nature.

Advantages of educational process in nature are gathered in sentences of students who (by subject Didactic of physical education) did seminary work in nature. One of the most frequent advantages was possibility of discussion because there was no time limit (timetable was not rigid and we could adapt it to their interests, wishes and needs). They also said that seminary work out of faculty, in nature was "superb"; their motivation was extremely high while the atmosphere was relaxed and very working at the same time. In particular they like activities in nature, easiness of professor and seminars carried out in nature. They also wished more time for such kind of activities and more activities at all (Štemberger, 2004).

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Vesna Štemberger was born in 1969 in Ljubljana. In 1999 she made her MSc and in 2003 she defended PhD. Main topic of her research work is quality in physical education. She has been working at the Faculty of Education since 1992. She was member of the group for evaluation of physical education, of the group for detecting and working with overweight children and of the group for researching children's lifestyle in Slovenia. She has been a mentor for more than 150 students at their diploma thesis. At the moment she is head of department for Elementary school teacher at the Faculty of Education in Ljubljana, president of the programme board of the Center šolskih in obšolskih dejavnosti, member of the program committee at the Zavod za šport RS Planica and member of the ski-jumping committee by the Slovenian Ski Association.

Tsunami on the Baltic Sea – How to Get the Knowledge about One's Own Region

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The Pomeranian Region among other regions in Poland stands out thanks to its clearly determined natural borders. They are outlined by the Odra river to the west, the Noteć and Warta rivers to the south, the Vistula river to the east and the coastline of the Baltic Sea to the north. However, the whole region is integrated into the territory of our country in a highly natural way.

The tumultuous history of the Pomeranian Region caused its division into two parts – the Eastern and the Western Pomerania – which took place as far as in the Middle Ages. The history of both parts had been taking its own course of action until the end of the World War II. The West Pomeranian is an exceptional region in contemporary Poland, mainly due to its material heritage which is an output and achievement of numerous communities inhabiting that region for centuries. Tracks of their presence were left here by Pomeranian people, Vikings, Kashubians, Swedes, and finally, to a large extent, by our western neighbours – the German.

According to the opinions of sociologists, inhabitants of the West Pomeranian Voivodship show a low attachment to their 'small homeland'¹¹. Contemporary dwellers of that area, however, are trying to search for the regional identity. One of the best ways to build the bond with the region is getting the knowledge about its natural and cultural values and doing it by the means of sightseeing tourism, as in accordance with a well-known sociologist professor K. Przeclawski:

*'Tourism means travelling and meeting with nature, culture and people.'*¹²

The tool to accomplish these demands are school trips and classes held in the field. According to a familiar for many years opinion of Wincent Okoń, approximately 30% of school curriculum should be taught in the field. Unfortunately, that idea can't have been introduced for many years.

Mr Okoń defines school trips as¹³:

'Forms of teaching and educational work, which in a direct contact let students acquire knowledge about their local environment, own region, homeland, or other countries with their geographical, historical, ethnical, cultural or economic characteristics.'

Knowledge achieved in the closest environment should be rational, so as it would be easy to get it extended and broadened during next trips or field activities. The way to get such type of knowledge - apart from experiencing – is the act of observation. According to Świtalski's opinion¹⁴:

¹¹ Leoński J. 2003. Kilka socjologicznych uwag o świadomości regionalnej mieszkańców Pomorza Zachodniego. w: Integracja i tożsamość. Zachodniopomorskie w przededniu rozszerzenia Unii Europejskiej. Materiały I Kongresu Zachodniopomorskiego. s. 255-260

¹² Przeclawski K. 2006. Społeczny wymiar turystyki. w: Gremium ekspertów turystyki. Turystyka w ujęciu podmiotowym i przestrzennym. G. Gołembski (red.). Wydawnictwo Akademii Ekonomicznej w Poznaniu. s. 21

¹³ Denek K. 1985. Poradnik dla organizatorów wycieczek szkolnych. Wydawnictwo PTTK „Kraj”. Warszawa. s. 12

¹⁴ Świtalski E. 1985. Szkolne koła geograficzne i turystyczno-krajoznawcze. WSiP. Warszawa. s. 8

‘Observation is a method of scientific research (on the school level), which aim is to notice facts in a well-planned and systematic way, in order to determine the quality and quantity of the examined facts, phenomena, processes.’

School trips are a perfect tool to accomplish the idea of environmental education understood as **‘a long-lasting process of developing skills and behaviours needed to understand and accept mutual relations between the human and their culture and natural environment.’**¹⁵

Thanks to environmental education the way of perception alters, and so called popular knowledge changes into the scientific one. The result of these processes is the change in human's attitude towards their surrounding environment. That phenomenon caused by the natural environment education has definitely a positive influence on developing the feeling of ‘a place attachment’. It is the first step on the way to build identity, firstly the local and then the regional one. However, the main role in this process has the teacher, as it is they who choose the place to conduct the lesson. It should be the closest area to start with, then the region.

Among numerous social functions of sightseeing, there are two basic functions one should pay attention to¹⁶:

1/ educational function – understood as the set of all influences and effects shaping human's development and preparing them to live in the society,

2/ training function – that is getting a sense of direction in the surrounding natural and social realities, mainly of one's own country, region and the place of living.

Opinions quoted on the role of tourism and sightseeing in a contemporary school enjoy a widespread agreement. Tourism and sightseeing are assumed as extremely important and valuable ingredients of the educational system. In that situation one should strive to disseminate these forms of education and training. Despite these indisputable opinions, tourism and sightseeing face a number of obstructions which make it impossible to accomplish these highly correct ideas.

Among the most important ones we should enumerate:

- imperfections of the legal articles, which arouse a lot of controversy in their interpretation,
- lack of enough factual preparation to conduct classes in the field among a considerable number of teachers,
- relatively high costs of participation in sightseeing trips,
- insufficient way of promoting tourist assets in many Polish regions including the West Pomeranian Voivodship.

Unfortunately, the results of researches done in schools of the West Pomeranian Voivodship confirm that students have highly unsatisfactory knowledge about the region they live in¹⁷. There are a lot of causes of that occurrence. One of the most important ones is an insufficient way to promote the regional tourist assets and resources and an incorrect method to adapt transmitting information. Both

¹⁵ Grodzińska - Jurczak M. 2000. Edukacja środowiskowa - historia powstania i rozwój. Wszechświat. T.101 nr 10-12. s. 258

¹⁶ Gaworecki W. 2007. Turystyka. Polskie Wydawnictwo Ekonomiczne. Warszawa. s. 27

¹⁷ Głabiński Z. 2008. Szkolny ruch turystyczno-krajoznawczy jako czynnik kształtowania tożsamości regionalnej. Forum Turystyki Regionów. Szczecin.

of them fail to meet the contemporary needs. The reason of that situation is caused by the fact that the teaching staff is not well prepared to conduct various forms of sightseeing tourism in the region¹⁸.

Due to that reason, a team consisting of geologists, geographers, art historians and professional excursionists decided to undertake the project called 'The adventure with tourism – training teachers in the field of environmental education as a factor leading to affecting environmental awareness and regional identity in the West Pomeranian Voivodship.' The above actions were conducted under the auspices of the Regional Tourism Forum with the cooperation of the Department of Tourism (the University of Szczecin), as a part of the Human Capital Operational Programme in years 2008-2009. The aims of that project were as following:

1. An increase of teachers' awareness in the matters of not only how important tourist and landscaping assets in the West Pomeranian Voivodship are, but also in all the regulations of formal, legal, organisational and institutional requirements concerning school tourism and sightseeing movement.
2. Raising the effectiveness of environmental education classes by introducing various interactive forms of teaching, including marking out trip routes and delineating areas to teach field classes, which make the maximum usage of the tourist and sightseeing potential of the region, and as a consequence make it possible to gain broader knowledge about one's own 'small homeland'.
3. Increasing teachers' factual and organizational qualifications in the area of conducting field classes in environmental education.

Altogether 354 teachers from the whole area of the West Pomeranian Voivodship were trained. Trainings, which took place in the field, were supposed to present basic theory, but above all, introduce practical methods of how to teach field classes, as well as how to organize tourist and sightseeing events for children and the youth. Moreover, the aim of the training was getting the knowledge in an empirical way, and then presenting the possibilities in which one could use the potential of tourism and sightseeing of the West Pomeranian Voivodship in environmental education. In order to do that trainees under specialists' tutelage:

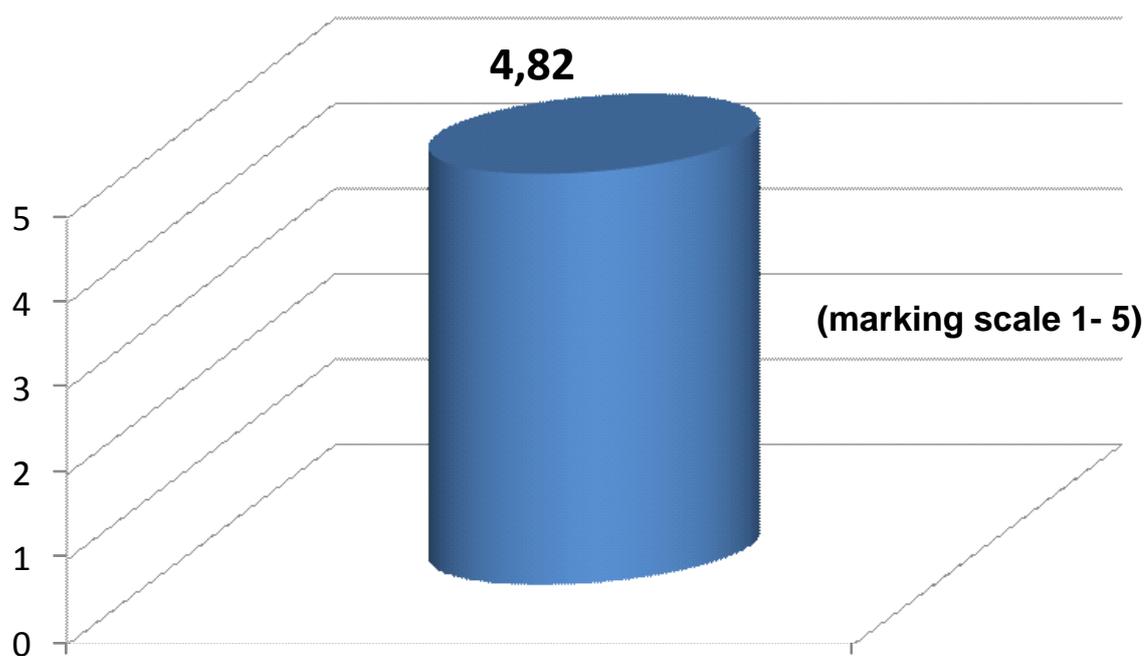
- were collecting and denoting rocks and minerals,
- were collecting and recognising shells from the Baltic beaches,
- were analysing fossils personally collected in Czarnogłowy, Dziwnówek, Storkowo and Kołacz
- were measuring efficiency of springs with a marked vessel,
- were measuring the circumferences of erratic boulders, such as the 'Tryglaw' in Tychowo, which the biggest one in Poland,
- were measuring breast height diameters of tree trunks in parks and forests in Przelewice, Glinna, Połczyn, Kołobrzeg,
- were trying to read inscriptions on tombstones in churches,
- were describing chosen architectural details of historic buildings,
- were recognising the species of tress and bushes with the help of a special key to denote plants,
- were analysing landscapes from the beauty spots on Wola and Spyczna Mountains in the area of the Drawski Landscapel Park, the lighthouse in Niechorze, the hill nearby Domacyno, Chełmska Mountain in Koszalin, the sightseeing tower in Cedynia and others.

¹⁸ Ibidem s.

All the activities were done by the easiest tools available in every school or possible to be bought even in a small country shop (a measuring tape, a bricklaying hammer, marked kitchen dishes, plastic bags, paper, a pencil). Collected in the field specimens and materials were classified and marked by the trainees with the idea to build school collections. During the training course in the field conditions teachers learned about techniques and types of classes which involving participants allow to understand all the processes and phenomena taking place in nature and human activity.

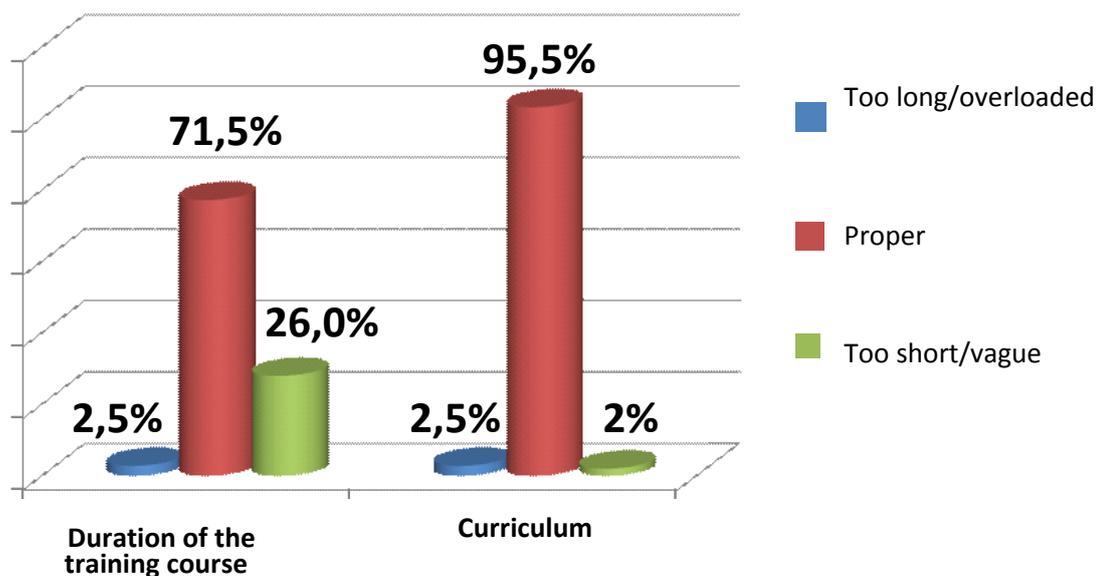
It was especially important to make the right choice of tutors who would guarantee having a perfect skill to present and explain to other people these often complicated natural phenomena. The team responsible for the field classes always included two representatives of two different scientific disciplines. It was i.e. an archaeologist and a geologist or a geographer and an art historian. This way of giving training classes paid attention to the necessity of holistic way to capture and present the surrounding reality. It was a practical carrying out of the natural environment education amicable with its definition.

Graph 1. Tutors factual preparation and the way of conducting the training



Source: own analysis based on the questionnaire results

Graph 2. Duration and a course curriculum assessment



Source: own analysis based on the questionnaire results

The training made use of the latest results of researches done in the Westpomeranian region, researches concerning geological science, geographical, archaeological and history of art ones. The research results mentioned above were often published in specialist literature with a low edition of copies, and usually were unavailable to a wider group of readers. The research results gave the participants of our training course knowledge about extremely interesting facts and ways of natural phenomena interpretations. The success of achievement of all the goals set was the proper duration of the training (24h during one weekend) as well as its concerning the substance curriculum (Graph 2).

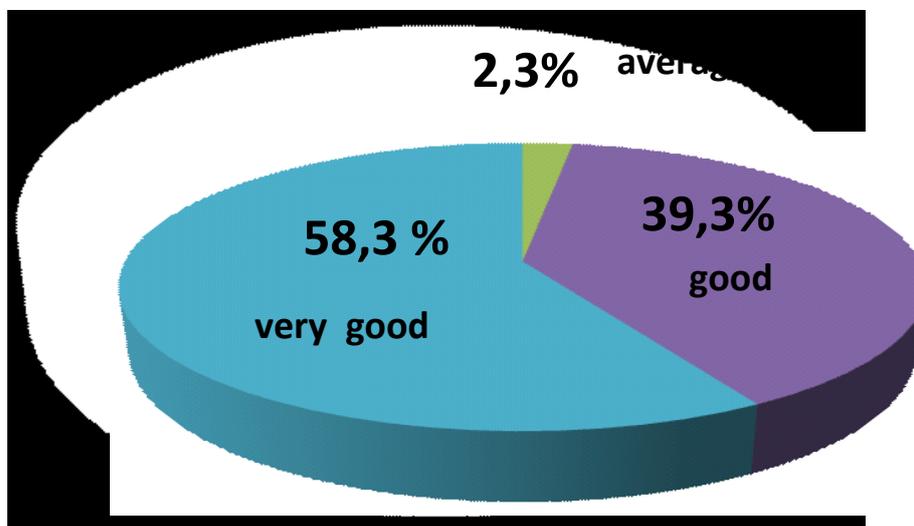
Information acquired by the participants, popularized and made available to inhabitants and tourists may become new tourist attractions in the near future. Moreover, with the time being, they may contribute to a raising sense of pride of living in an interesting and engaging region. Due to that fact two publications – ‘The guide for the inquisitive’¹⁹ and ‘Teachers methodological handbook’²⁰ were prepared. They were published under one title ‘Secrets of the Westpomeranian landscapes’.

The books were assessed as highly useful to the further work with the youth by the participants of our training course. One should hope that these teachers will be able to make use of the knowledge and acquired during the course skills in their further work.

¹⁹ Tajemnice krajobrazów Pomorza Zachodniego – przewodnik dla dociekliwych. 2009. Z. Głębiński (red.). Forum Turystyki Regionów. Szczecin.

²⁰ Tajemnice krajobrazów Pomorza Zachodniego – poradnik metodyczny dla nauczycieli. 2009. Głębiński Z., Kamieniecka W. Forum Turystyki Regionów. Szczecin.

Graph 3. To what extent did you broaden your knowledge and skills as far as the training course issues are concerned?



Source: own analysis based on the questionnaire results

One of the examples of an unusual and almost unknown fact, which the participants of the training course had the chance to learn about, and which can turn into a tourist attraction, is the tsunami which appeared in the area of Darłowo on 16th September 1497.

In the chronicles and of course the sightseeing and tourism literature that fact was written down and described, but no sooner than in the modern times it was explained. Earlier it was only stated that a huge storm and flood took place on that day. However, no trial of explaining the reasons of that catastrophic incident was tackled. According to A. Piotrowski from the National Institute of Geology in Szczecin, the wave of that tsunami was caused by an explosion of methane which was accumulated in rocks building the Baltic Sea bed. The explosion happened as the result of a small earthquake in the area of Werner Lake in Sweden. The earthquake was not a strong one and had only 4.5 degrees in the Richter scale and was too weak to cause directly a tsunami wave. Marks, such as craters, left after the methane explosion and are still found on the Baltic Sea bed.

The results of the tsunami were catastrophic. They caused not only a lot of damage to buildings and port devices, but also moving back of the coast, lifting four ships and leaving them far away from the coast. As the chronicle notes say, one of the ships was left on the hill, at the height of 20 metres above the sea level, where the Chapel of St. Gertrude in Darłowo is found today.

Uniqueness of that historical fact and the explanation of the tsunami phenomenon may turn out to be a great chance to create a new tourist attraction by the local authorities. The easiest way would be preparing a multimedia presentation and an exhibition in the Pomeranian Dukes Castle in Dałowo. A simulator or a multimedia room called 'the time machine' could allow visitors to turn back into the times of the medieval age and experience that catastrophic phenomenon. If such an attraction was accompanied by a factually solid and interesting exhibition, it would be definitely more than just a regional attraction.

There are a lot of such facts and phenomena on the territory of the West Pomeranian Voivodship. Presented in an interesting way they could cause a raise in a territory awareness of inhabitants, who

often not knowing about the assets of one's own area, treat their 'small homeland' with disrespect and embarrassment. Interesting facts and figures could also be an alternative to not enough sophisticated forms of commercialized entertainment, which are common in tourist towns of the Western Pomeranian Region.

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Intercultural Learning with Outdoor Training and Experiential Learning under the perspective of culturally divergent concepts of nature

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Abstract

This paper examines possible impacts of culturally divergent concepts of nature on intercultural learning situations conducted in an outdoor setting. It further investigates the relationship of the terms 'nature' and 'culture' and draws attention to the social constructionist approach of defining nature as a social and cultural phenomenon. Different concepts of nature have diverse implications for behavior. If concepts of nature are socially constructed and culturally bound, culture can be said to influence a person's relationship and attitude towards nature. Of course nature plays a major role in outdoor training interventions, because the action usually takes place in "natural" environment. This paper argues that specific approaches to nature can also be used for enhancing intercultural learning processes of persons and groups, as nature can be used for learning purposes that emphasize analogue elements of communication that are especially apt for intercultural dialogue.

Culture and nature

Among the numerous definitions of culture for the purpose of this paper we chose an approach from cultural anthropology and sociology. We define culture as collectively shared systems of meaning within a society, including common basic assumptions, values, norms, behavioral patterns and experiences. These sets of beliefs and traditions are socially constructed and therefore subject to intervention from and interpretation of different powerful actors like organizations, and political institutions. Important stakeholders decide and legitimate which values are relevant and which behavioral patterns are widely used in a society. (Berger/Luckmann 1967, pp. 124; Eriksen 2010, pp. 3; Humberstone et al. 2008, pp. 193)

Cultural anthropology is primarily involved in studying similarities between cultures as well as cultural differences. There are generally accepted commonalities within humanity that differentiate human beings from animals (like the structure of the human mind or the concept of kinship). In addition many culture bound values and practices have been observed and investigated by anthropologists (Eriksen 2010, 5). Both aspects are also important to intercultural learning situations, as we will see below.

The relationship between culture and nature is often described as nature being the opposite of culture. Culture refers to human practices, cognitions and interpretations. It is often associated with a process of transformation of originally natural resources, which are converted into cultural artefacts. The natural environment is subject to exploitation and in many places endangered. When ecologist movements try to reinstall natural environments, where cultural processes of transformation have already destroyed the original landscape, it becomes a matter of interest to cultural processes again (Gerndt 2002, pp. 126). At the same time nature often is seen as being something dangerous, threatening humanity, provoking death and destroying cultural achievements: Earthquakes, avalanches, sea waves, volcanoes threaten human populations in many parts of the world (Gerndt 2002, pp. 139). Therefore one can say that "culture is intrinsically connected with nature" (Eriksen 2010, 51).

Nevertheless this conception of relationship between nature and culture does not include all possible aspects. Actually, we assume that the conception of nature itself is socially constructed and therefore

culture-bound. What is felt as natural is different according to various times and places. Even within societies there are diverse concepts of nature. This is true for the inner as well as for the outer nature (*Schörghuber 1999, 30; Eriksen 2010, 50; Gerndt 2002, 135*).

The inner nature refers to the human body. The physical condition of a person, like sickness or masculinity/femininity, is always associated with social roles. Being a man, woman or sick person is, for example mediated by culture. If we talk about men and women in different cultures, we talk automatically about their social roles conditioned by cultural beliefs, symbols and traditions (*Turner 1984, pp. 58*). The body as a metaphor of the social system explains a variety of cultural patterns (*Turner 1995, 5*).

Berger and Luckmann describe the dialectic process between (inner) nature and society as a process of permanent coexistence and ongoing mutual influence, conditioning human behavior (dealing with issues like sexuality, feelings of hunger or thirst etc.). “Man is biologically predestined to construct and to inhabit a world with others. This world becomes for him the dominant and definite reality. Its limits are set by nature, but, once constructed, this world acts back upon nature. In the dialectic between nature and the socially constructed world the human organism itself is transformed. In this same dialectic man produces reality and thereby produces himself.” (*Berger/Luckmann 1967, 204*)

The same is true for the social construction of the outer or external nature, the natural environment. Concepts of nature are describing individual and collective realities. The perception of nature and knowledge about it is part of the creative process of the individual (*Schörghuber 1999, 33*). The individual's notion of nature is always influenced by its prior experiences in the socio-cultural world, it is a result of the individual's process of socialization. Nature as a concept is an act of invention on the individual level as well as on the collective level. Consequently different concepts of nature exist in the world, they are subject to change, embedded in history and cultural contexts (*Eriksen 2010, pp. 64; Gerndt 2002, pp. 194*). *Eder* describes, for example in detail the European concept of and relationship to nature, which according to him is clearly socially constructed and in addition, the social construction is discussed as construction as well in Western approaches (*Eder 2002, pp. 31*).

To summarize the relationship between nature and culture, there are two remarkable ways in approaching this topic. “Nature thus exists both as cultural representation of nature and as something outside of culture and society, yet influencing the ways in which humans live. As a biological species, we take part in ecosystems and modify them; as cultural beings, we develop concepts about our environment and place ourselves outside it.” (*Eriksen 2010, 52*) In the second case the relationship of human beings to nature is seen as a cultural-bound construction. Making sense out of nature and the decision about what is seen as natural and what not, is part of a cultural process (*Schörghuber 1996, 108; Humberstone 1998, pp. 381 and 2000, 22*).

Culture and society

For the purpose of this paper we assume that persons always “enter” nature as holistic creatures with their bodies, souls and minds and with their social as well as cultural backgrounds. In this section the concepts of society and culture are briefly discussed, as they both play a major role for our topic.

In sociology as well as in anthropology attempts have been made to find clear distinctions between the terms culture and society. Primarily for analytical reasons this seems to be a legitimate concern. *Kroeber and Parsons (1958)* define culture as the “transmitted and created content and patterns of values, ideas, and other symbolic-meaningful systems as factors in the shaping of human behavior and the artifacts produced through behavior”.

Eriksen describes the linkage between culture and society in a very similar way: “Culture refers to the acquired, cognitive and symbolic aspects of existence, whereas society refers to the social organization of human life, patterns of interaction and power relationships” (*Eriksen 2010, 4*).

Nevertheless the two systems culture and society are related and it makes sense to investigate social and cultural aspects from the same object or subject of research (*Kroeber and Parsons 1958, 583*). Especially from a social constructionist approach we assume that cultural phenomena are created as symbolic universes. If there existed alternative forms of conceptualizations, the ultimate success and permanent institutionalization of one symbolic universe would depend upon its legitimation, which is directly influenced by the power of the actors behind (*Berger/Luckmann 1967, 116f.*). This is also true for the social construction of the inner and outer nature. Consequently the exploitation of human bodies on the one hand and the subjugation of the external environment on the other hand cannot be seriously discussed without linking cultural and societal aspects in the same study.

Intercultural learning

In times of globalization intercultural learning situations are becoming more and more important. In universities the institutionalization of exchange programs enhances intercultural contacts between students and offers multiple learning opportunities for them. Intercultural learning situations are also part of everyday life in schools, when teachers work in classes with pupils that have different cultural backgrounds. In social work and therapy young people with different cultural backgrounds and socialization live together in youth welfare institutions and meet in organizations like youth centres, where intercultural dialogue, contact and conflict take place. Additionally, intercultural settings can be found in multinational organizations, e.g. in virtual teams, which need to work together over a certain period of time.

In contrast to transcultural (focus on similarities) and multicultural (focus on differences), in our context, the term intercultural refers not only to the work on cultural similarities and differences between cultures, but concentrates on interferences and interdependencies as well as on the mutual interfusion of limits and contacts (*Demorgon/Kordes 2006, pp. 33*).

If increased intercultural contact and possible coping strategies for individuals and groups are the explicit purpose of a training situation, it is common to refer to *Kolb's (1975)* experiential learning theory that is also applicable when talking about different ways how to learn about another culture (*Paige 2004, 112*). *Kolb's Learning Style Inventory* distinguishes four major learning styles: concrete experience, abstract conceptualization, active experimentation and reflective observation (*Kolb/Fry 1975*). In literature on intercultural training, instruments used are categorized according to their dominating learning styles. Concrete experience and active experimentation play an important role when classifying the crucial learning style of each instrument (*Fowler/Blohm 2004, 79*).

It is quite obvious that the combination of elements of experiential learning theory and the concept of learning according to the concept of "Integrative Outdoor-Aktivitäten®" is feasible. Both concepts use relevant experiences as basic input to induce learning processes. The concept of IOA® with its systemic-constructionist approach offers learning situations to persons and groups, where they can gain new meaningful experiences, which are integrated afterwards into the individual's existing body of knowledge and experiences. (Experiential) learning then means the construction of new realities. This is only possible when experiences are transferred to the conscious level and reflected in an appropriate way (*Pfingstner 2005, pp. 51*). Experiences in an outdoor setting always activate different levels of learning: cognitive, social, physical and emotional learning effects are likely to happen. When working on the different concepts of inner and outer nature, it's necessary to induce those relevant experiences in relation to nature. Concerning the inner (human) nature, thus the human body, this seems quite easy to achieve through different tasks and exercises. But also the relationship to the natural environment can be treated equally in the training situation, so that an expansion of the person's relationship to nature can be attained.

To use outdoor focused interventions for intercultural learning purposes seems quite reasonable, since experiential learning theory has already entered the field long time ago. Especially in multinational

companies at least teambuilding measures as start-up exercise are recommended when implementing virtual teams to reduce conflict due to different cultural backgrounds. (*Zigurs 2003, 348*). The same is true for other fields of application as mentioned above.

Concepts of nature and implication for behavior

Men and women create their concepts of nature according to their cultural and social background and derive normative standards for behavior from these concepts. The social construction of body for example leads to certain implications for behavior (*Gerndt 2002, 125*).

On the individual level body modification strategies can be cited as one example of cultural transformation of the (inner) nature. They are one possibility to get control over the former “natural” body. It refers to all kinds of practices like piercing, tattooing, branding, cutting, fasting, exercise, cosmetic and fashion regimes (*Featherstone 2000, 1*). The decision how to transform the human body is not always made by the person concerned, but it is often influenced by cultural standards that are applied and may represent societal power relations. This is true for clothing rules in different religions or for tattooing or piercing practices in traditional and some modern cultures, where body modifications often mark a transition. These kind of body marks can be collectively, visibly and permanently worn and they mean a culturally induced behavior changing the inner nature (the human body) (*Turner 2000, 39*).

On the level of organizations we follow *Schein (2004, pp. 26 and 1988, 9a)*, who states that cultures are divergent in their basic assumptions concerning for example their relationships to the external environment or their assumptions about human nature, activity and relationships. He considers basic assumptions as taken-for-granted beliefs and perceptions, which often influence a group's behavior on an unconscious level. Collectively shared basic assumptions are difficult to change and they reproduce similar behavior that is acceptable and excludes more or less successful deviant behavior. The concept of basic assumptions as taken-for-granted ideas and feelings seems to be compatible with the concept of implicit cultural patterns which according to *Kroeber and Parsons (1958, pp. 98)* refer to the more unconscious part of a culture, that shapes human behavior.

Schein (2004, pp. 175), discusses the human relationship to nature, when elaborating different possible assumptions about appropriate human activity. Actually he talks about organizational/environmental relations, when arguing that “In every organization there will evolve a deeply held view of whether (1) nature, the perceived total environment, can be subjugated and controlled (the Western tradition), or (2) nature must be harmonized with (the assumptions of many Asian religions and societies), or (3) one must subjugate oneself to nature (the assumption of some Southeast Asian religions and societies).” (*Schein, 2004, 177*)

Quite similar are the results of *Trompenaars's* study that are worth being mentioned here. He identifies several important dimensions of culture, like orientations towards time, feelings and relationships and the relationship towards (outer) nature, which might affect conduct in organizations. “Orientations to nature have much to do with how we conduct our day-to-day lives and manage business.” (*Trompenaars 1993, 144*)

The orientations towards nature according to *Trompenaars* can be inner-directed. In this case people believe that it is possible to control nature and that societies should try to dominate the environment to ensure economic development. In this view organizations are seen as machines, which can be manipulated. Persons usually have an internal locus of control. They are convinced that they can control their environment and that they are the captains of their fate. Success is perceived as having control over external forces like the customer, the market or new technologies (*Trompenaars 1993, pp. 137*).

In cultures that are outer-directed in their relationship to nature, people have an external locus of control. Survival means acting with instead of against nature and hence economic success means

effective adaption to external influences. It cannot be decided generally which strategy is best. "Outer-directed need not mean God-directed or fate-directed; it may mean directed by the knowledge revolution or by the looming pollution crises, or by a joint venture partner. The ideal is to fit yourself advantageously to an external force." (*Trompenaars 1993, 141*)

Trompenaars mentions a third view of nature which he calls the cybernetic nature, where we can observe a reconciliation of internal and external control. "There is a shift from trying to seize control **over** nature to identifying with its ecological self-regulation and natural balance. The manager **intervenes** but is not the **cause** of what occurs; the systems of organizations and markets have their own momentum which we can influence but not drive." (*Trompenaars 1993, 144*)

There are implications for behavior in organizations when managing or being managed in internal- and external-oriented cultures. For example conflict management (open discussion versus receiving enough time to quietly work through conflicts), management styles (management by objectives versus management by environments, that is permanent adaption to fit external demands perfectly), and leadership style (task-orientated versus person-orientated) are supposed to take shape differently (*Trompenaars 1993, pp. 150*).

Implications for behavior can also be found on a societal level. As we have seen above, the process of social construction is always subject to unequal power relations. What kind of human behavior is possible in a society, depends on the results of different social construction processes. This view corresponds to current discourses about links between nature and gender in Western systems of thought. The relationship of men and women as well as of culture and nature is often compared with each other. Anthropologists found out that "in many societies, women are seen as being closer to nature than men, who are considered more cultivated than woman" (*Eriksen 2010, 139*). It is argued that biological reasons and cultural roles adopted by women induce such a line of thought. These observations also entered into the ecofeminist discourse combining feminist and ecological approaches. According to *Humberstone (1998, 384)* there is a double domination of women and nature. Both are devalued compared either with men and culture respectively. Their exploitation cannot be explained without recurring to the unequal power relations existing in contemporary societies and thus to the social construction of reality, that also could be modified: "Femininity and masculinity are often viewed as immutable and natural arrangements. Although biological sex is usually fixed, masculinity and femininity are constructs of a particular culture or society and may therefore be open to change" (*Humberstone/Clayton 2007, 230*).

Implications for outdoor training concepts

In outdoor training and experiential learning settings, nature plays a fundamental role. There are different assumptions about effects of nature in practical pedagogical, psychological and therapeutic work, like nature and its healing effects or nature as an obstacle (*Schörghuber 1999, pp. 38*). If nature is seen as an individual and socio-cultural construction, this has several impacts on training situations which emphasize nature experience:

Instead of a normative approach, where participants of outdoor training situations learn how to treat nature in the right way, individually relationships to nature based on individual and social-cultural experiences are discussed. It is possible to define one's own position, to find out something about one's own conditions for the construction of nature. The process of observation and reflection concerning the individual and social constructs of relationship becomes important and helps to establish intra- and interpersonal relationships (*Schörghuber 1999, pp.46 and 2010*).

Schörghuber (1999, pp.49) elaborates on several guiding principles for seminars with nature experience as the major topic. As objectives he mentions

- To experience and describe perceptions and observations of individual relationships to nature from different perspectives.

- Reflection of these perspectives with regard to the occupied position.
- Reflection of social constructs of nature and its possibilities and handicaps.
- Not to impart new knowledge but to make visible that what is already available.
- Interpretations of distinctions made by the participants between inner and outer nature are avoided (or declared). The work with individual interpretations, souvenirs, images, connotations and evaluations is supported.

Interventions concerning the perception of self, nature and the other are treated on several levels: physical, mental, cognitive, spiritual and social. To be able to perceive inner and outer nature it is preferable to prepare the participants with body-oriented exercises, for example on the principles of Bioenergetic Analysis. As precondition for trainers and coaches in the field an adequate qualification and reflection of one's own concepts of nature is indispensable (*Schörghuber 1999, pp.49*).

Using analogue elements of learning in an intercultural setting

The individual's relationship to nature can serve as a learning field using analogue elements of communication and behavior, that allow, for instance, working on intrapersonal and interpersonal contact (*Schörghuber 1996, pp.172 and 1999, 31*). Analogue elements of communication and behavior easily lead to misunderstandings between individuals from different cultures, as long as they are not reflected on a conscious level (*Watzlawick/Beavin/Jackson 1990, 20*). They play a major role in intercultural contact and relationships, but as they are often ambiguous and cannot transmit clear information, intercultural communication always risks "failing" (*Watzlawick/Beavin/Jackson 1990, pp. 62*). In the outdoor training situation, where reflection is a central part of the trainer's intervention cycle, it is possible to get some of these partly unconscious elements onto the surface via feedback and communication and thus make them treatable.

If we emphasize the relational aspect between persons and nature, we regard nature as something "similar" to human beings. This also means to highlight a person's relationship towards nature, which is influenced by his or her past experiences to nature, by the individual's process of socialization and all kinds of memories. Therefore we assume that there are similarities when people from different cultures come into contact and enter into some kind of relationship and when people try to come intentionally into contact with nature. Human beings can come into contact with other human beings or with nature and both aspects are apt to deliver personal insights about individual patterns of behavior, which might also be cultural-bound.

If the link person-nature is seen in this relational way, it is not only possible to work on contact, but also to work on dialogue, on identity and identification as well as to use nature as 'intensifying environment'. (*Amesberger G./Amesberger B. 1998, pp. 13*). Especially the work on dialogue and on identity can also serve for the goal of initiating intercultural learning processes. In this view the focus of outdoor-related interventions will be on body and perception exercises that encourage relations, on enhancing free connotations, imaginary journeys, telling stories etc. (*IOA® 2009, pp. 15*)

For intercultural learning situations the fact that the human body is common to all persons regardless of social or cultural background is especially helpful. We can use different impressive and relevant experiences in the outer nature that influence aspects of the inner nature, like body consciousness, body images, body concepts/conceptions, physical experience and physical perception, in outdoor training situations for initiating the reflection process (*Amesberger 1995, 2*). We suppose that the physical elements allow similar experiences. Their interpretation is depending on the individual's social and cultural background and offers possibilities for intercultural dialogue and contact.

Summary

The aim of this paper was to show that from a social constructionist approach nature can be seen as something that is culturally formed by human beings. Therefore it is an interesting topic to be reflected in an outdoor setting, when the purpose of the training situation is to initiate intercultural learning processes of persons and groups.

The result of such a social construction process is a diversity of meanings that can be discovered in different cultures. Nature can be holy, spiritual, a resource, female, a danger or threat, a framework of action and living, symbol for sustainability, subject to preservation, a place, property etc. (*Stewart 2003, 312*).

In the outdoor training situation it is possible to work with these different perspectives and orientations towards nature without preferring one. This offers occasions for intercultural encountering and dialogue.

We distinguished inner and outer nature for analytical reasons. In fact inner nature (the human body) and outer nature (the external environment) are in touch with each other. Human beings are in our understanding always part of the nature (*Nicol/Higgins 2008*). We emphasize in this context the relationship between human beings and nature. If we want to seize the meaning of nature for individuals or groups, we have to bear in mind the whole person who is embedded in cultural and societal contexts. Societal forces influence cultural norms and cannot be ignored neither in the scientific discussion nor in the experiential learning practice.

Using analogue elements of learning in an intercultural setting means to enter into a direct relationship to nature. This can be a simple dialogue with a tree. In this case the tree is no longer an object outside the person and is described in parameters of height and color, but the attention is drawn to things between the person and the tree like in any other interpersonal relationship. Nature can in this way point to certain patterns of behavior that might be cultural bound and in the first step on an unconscious level. It is the task of the well-trained outdoor trainer to provide conditions and tasks that ensure that there are possibilities for persons and groups to enter into a direct relationship with nature and in a second step to enter into intra- and interpersonal dialogue to be able to reflect personal concepts of nature and those of others.

“In the relationship to nature [the tree, note from the authors] personal attitudes, physical postures, personal transmission patterns, societal values and, what we call nature, meet each other. The adapted and focused structuring of this relationship represents the job of educators and trainers.” (*IOA® 2009, 17*)

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Outdoor Learning Within the Formal Scottish Secondary Curriculum: Opportunities and Challenges

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Abstract

A number of global and national trends have culminated in the re-emergence of outdoor learning within the Scottish curriculum. The Decade of Education for Sustainable Development [ESD] (2005-2014) highlights the important role of education in engaging young people with global challenges. Increased poor health in children and inactivity (British Medical Association, 2007) are well documented. Louv (2005) describes the lack of contact with nature in today's younger generation and associated health problems as 'nature-deficit disorder' (p.99). Kahn (2002) states that 'environmental generational amnesia' has reduced an individual's desire to care for their environment. These concerns are increasingly reflected in many developed nation's education systems (Hogan et al, 2008; Ministry of Education [MOE], 2007; Broadhead, 2001) including Scotland's Curriculum for Excellence [CfE] (Scottish Executive [SE], 2004). Commonalities relating to social constructivist pedagogies, inter-disciplinary learning, ESD, health and well being, personal and social development can be seen across these curricula. Beames, Atencio and Ross (2009) highlight the integral contribution that outdoor education might play in delivering experiential education relevant to the needs of modern society and the big issues of our time. The role of outdoor learning is rarely explicit in Scottish policy and is frequently viewed as an 'add on' (Nicol, Higgins, Ross & Mannion, 2007). Research has outlined the personal and social benefits and explored some of the barriers schools and teachers face (Nicol et al., 2007; Rickinson et al., 2004). The current international and national policy context create an opportunity for a more embedded position for outdoor learning within the formal curriculum. This paper seeks to provide an update into the changing role of outdoor learning across the curriculum and examines the opportunities and challenges that this presents for secondary schools in Scotland.

Outdoor Learning

The terms 'outdoor education' and 'outdoor learning' are often used interchangeably. Thorburn and Allison (2010) identify 'considerable conceptual confusion' (p.99) within the literature. Historically, outdoor learning has been characterised by the development of an individual's relationship with self, others, and the natural environment (Mortlock, 1984; Hopkins & Putnam, 1993). Traditionally this involved a technical focus, requiring mastery of the skills necessary for outdoor pursuits. Donaldson and Donaldson (1958) presented a wider definition which illustrated the overlapping nature of outdoor education. Higgins and Loyne's (1997) venn diagram echoed this description identifying three components – education 'in' the outdoors (outdoor activities), 'through' the outdoors (personal and social development), and 'about' the outdoors (environmental education). **Outdoor learning is becoming more integrated, crossing traditional boundaries.** It is now viewed as a broader and more enabling term than outdoor education which is often associated with residential centres and expeditions. Greenaway offers a broad definition (Institute for Outdoor Learning, www.outdoorlearning.org/what_is_outdoor_learning/index.htm) which states that although diverse, outdoor learning has a common core: which develops values, is based on direct experiences and

promotes active and real learning. Learning and Teaching Scotland [LTS] (2007) defined ‘outdoor education as a process in which educators, students and others take part’ and ‘outdoor learning’ as that learning which accrues as a result (p.5).

Outdoor education in Scotland is delivered by the public, private and charitable sectors within schools, residential, outdoor and field-studies centres, and hostels and camps. Table 1 illustrates the range of outdoor education activities which may be currently encountered within the formal Scottish secondary school curriculum. Extra-curricular, lunchtime and sport related activities will be outwith the scope of this paper. This paper will focus on outdoor learning within secondary schools in Scotland. The majority of Scottish pupils attend secondary schools from ages 12-17, although some choose to leave at 16.

Table 1

Spectrum of Outdoor Learning Activities	Key focus	Setting	Examples
Outdoor adventure education	Outdoor adventurous activities which primarily promote affective learning - teamwork, interpersonal skills and self development.	Often specialist residential centre in an unfamiliar environment	Narrow - Zip wire, high ropes courses, abseiling Broad - Duke of Edinburgh Award (extra-curricula semi-formal personal development awards)
Fieldwork and outdoor visits	Learning activities usually linked to the curriculum.	Field studies centres, environment centres, parks, museums.	Geography river study. RME visit to Buddhist monastery.
School grounds/ community based projects	Learning takes place near the school with a range of curricular, cross-curricular or extra-curricular activities. Promotes both cognitive and affective learning.	Local	Eco-schools Learning Journeys (Beames et al., 2009)

Outdoor Learning and the Scottish Curriculum

Higgins (2002) provides a detailed account of the history of outdoor education in Scotland. Sir Patrick Geddes and Kurt Hahn were key figures associated with the development of outdoor learning. The 1945 Education (Scotland) Act acknowledged the value of direct outdoor experience and led to a growth in residential and adventure education in secondary schools during the 1960s and 1970s. Several local education authorities [LEAs] were world renowned for their formalised provision of outdoor education (Cheesmond, 1979 cited in Higgins, 2002). Whilst the 5-14 (Scottish Office Education Department, 1993) school curriculum arrangements acknowledged the benefits of outdoor education (Higgins, Nicol & Ross, 2006), the lack of specific endorsement and shared vision (Raffe, Howieson & Tinklin, 2007) resulted in a limited presence in a predominantly subject-based curriculum. The latter part of the 20th Century saw a steady decline in outdoor centre school activities due to rising costs, a more formalised and controlled curricula and increased managerialism in schools. The 1998 restructuring of nine regional authorities to 32 LEAs further exacerbated this trend.

In 2005 a research and development programme 'Outdoor Connections' sponsored by the SE and led by LTS was announced. The programme's purpose was to connect outdoor education with a range of current and emerging education priorities, policies and stakeholders. Its aim was to improve the quality of learning experiences; and secure a sustainable status for outdoor education as part of overall education and lifelong learning provision. 'Taking Learning Outdoors' (LTS, 2007) was the culmination of this work and claimed that core experiences in the curriculum were enhanced and integrated by outdoor education. Criticisms linked to lack of research rigour were levelled at the initiative. It was perceived as not radical enough and failed to offer sustained leadership, curriculum and pedagogical justification and insight about how a change agenda could be enacted (Thorburn & Allison, 2010). Mannion, Doyle, Sankey, Mattu and Wilson (2007) illustrated the declining trend in outdoor learning provision with secondary school pupils spending least time outdoors. Formal outdoor learning events were surveyed in 15 secondary schools during the 2006 summer term. The average duration spent on outdoor learning by randomly chosen secondary schools was 13 minutes per pupil per week. Residential adventure activities were more prevalent than local based initiatives. The data revealed that a substantial number of young people in secondary schools received no outdoor learning during the eight week survey period.

CfE, the new curriculum to be implemented from August 2010, heralds an opportunity for outdoor learning.

CfE (SE, 2004) emerged in post-devolution Scotland from the National Debate on Education in 2002. The values, purposes and principles for education were to be delivered through a single, coherent 3-18, de-cluttered curriculum characterised by greater teacher autonomy and curriculum decision-making. It signalled a policy change from a traditional, knowledge-driven curriculum towards a more skill-based, flexible, creative system promoting transferable skills. The Minister for Education and Young People identified CfE as having 'profound implications for what is learnt, how it is taught and what is assessed' (SE, 2004, p.3). CfE connects to a wide range of existing educational agendas - Education for Citizenship (LTS, 2002), Enterprise Education (SE, 2007a), ESD (Sustainable Development Education Liaison Group, 2007) and highlights health and well being as the responsibility of all practitioners. It seeks to develop four capacities within pupils 'successful learners, confident individuals, responsible citizens and effective contributors' (SE, 2004, p.3). A commitment to 'greater cross-subject activity' and space for activities that 'broaden the life experiences - and life chances - of young people' (SE, 2004, p. 4) have been welcomed by outdoor education stakeholders. CfE aims to place the learner at the centre of the curriculum, to reduce the amount of de-contextualised subject content and to promote real world experience (SE, 2007b). Situated learning in the outdoors appears 'legitimised' by CfE (Beames et al, 2009). However, this match has not been evident in curriculum documentation where specific reference to outdoor learning in secondary schools has been limited (SE, 2008, p. 39). In 2008 the Scottish Government set up the Outdoor Learning Strategic Advisory Group (OLSAG) to provide clear strategic advice and leadership on learning beyond the classroom, in all its forms, which is consistent with the experiences and outcomes for the 3-18 curricula. This culminated in the publication of 'Curriculum for Excellence through outdoor learning' (LTS, 2010) which sets out a vision for all schools:

to provide frequent and progressive outdoor learning opportunities which are clearly part of the curriculum. It is the responsibility of all involved in education to recognise the place of outdoor learning within the curriculum and plan accordingly to ensure that all children and young people in Scotland receive these opportunities as part of their learning journey. (2010, p.26)

Traditionally outdoor learning has been associated with geography, biology and extra-curricular activities such as Duke of Edinburgh. This document challenges these traditions advocating outdoor learning across all curriculum areas. It calls for progressive, sustainable and regular outdoor learning opportunities that are planned and integrated into ongoing work across all curriculum areas. Local place-based, low cost, sustainable activities are encouraged. Partnership working is acknowledged as important, however, class teachers are expected to deliver the majority of outdoor learning activities as part of a planned approach to engaging learners and developing wider achievements. Continuing professional development will therefore be essential. The document highlights the need to assess the value of outdoor learning experiences. A self-evaluation framework is provided which is based on the current self-evaluation quality improvement and inspection framework 'How Good is Our School 3' (Her Majesty's Inspectorate of Education [HMIe], 2007). This structure may lead to HMIe commenting more rigorously on outdoor learning practice.

While ambitions are high at governmental level, concerns have been raised around the lack of consultation and clear rationale linked to the values which underpin CfE (Gillies, 2006). Scottish secondary schools have undergone little structural change since the introduction of the comprehensive system. Most secondary teachers' professional identities are strongly grounded in a sense of subject specialism (Priestley, 2005). Concerns, around CfE, have been raised over the loss of subject identity within a more generic curriculum (MacIver, 2007). This is compounded by truncated management structures, introduced by some LEAs, which group subject specialists in larger composite departments or 'faculties'. Priestley and Humes (2010) argue that CfE is:

... inimical to the underlying purposes of the curriculum as expressed in the four capacities. There are thus tensions between convergent and divergent modes of learning, between teleological and open ended conceptions of education, which may be unhelpful to the process of enactment in the classroom (p.358).

Outdoor learning has always been viewed as an 'ad hoc' element of the Scottish curriculum dependent on local factors, teacher enthusiasm, resource availability and political factors. Humes (2008) described outdoor learning policy making in Scotland as uncritical with stakeholders making the most of the 'narrative privilege' (p.71) which exists within official policy reporting. The current situation is one where national governments gain acclaim for policy statements which when translated to LEA and school level are more difficult to detect (Whitty, 2006). Evidence exists to support the health and social benefits of outdoor learning through residential and adventure education (Higgins & Nicol, 2002). The role of outdoor learning in developing pupil understanding and skills in the formal curriculum (Rickinson et al., 2004; Office for Standards in Education, 2004) is less clear. It is an apposite time to consider the opportunities and challenges the current context presents.

Opportunities

The current policy context provides strong support and justification to schools and teachers who wish to embed outdoor learning within the curriculum. Beames, et al. (2009) argue that this context may go some way to reducing previously identified barriers such as health and safety, time allocation and timetable disruption Higgins et al. (2006). CfE provides an opportunity to develop local, place based, creative outdoor learning opportunities which meet the needs of the curriculum for example Outdoor Journeys.

From our perspectives, effective outdoor learning resonates so clearly with CfE that pupils who are being denied an education outside the classroom may be limited in their ability to develop the four capacities to their full potential (Beames et al., pp.42-43).

CfE states that 'learning is embedded in experience' (SE, 2007b, p. 10). This is not a new concept as illustrated by the work of Dewey, Piaget, Bloom, Friere, Gardner and Kolb. Research has claimed that outdoor learning is more effective at developing cognitive skills than classroom based learning (Eaton, 2000), promotes deeper rooted learning and better concentration (Szczepanski, Malmer, Nelson, & Dahlgren, 2006). International literature offers examples of approaches which embed outdoor learning within the school curriculum (Wrigley & Lofsnaes, 2005; Levine, 2002; Thomas, Enloe, & Newell, 2005; Henderson & Vikander, 2007; Bentsen, Mygind Thomas & Randrup &, 2009). Scotland has much to learn from such examples. Sterling (2001) advocates an ecological view of teaching and learning which is characterised by transformation, process development and action. An integrative relationship is promoted between learners and teachers, and functional, critical and creative competencies valued. A changing curriculum creates an opportunity to address 21st century challenges and concerns. Outdoor learning's place within the formal curriculum may be one fruitful area in which change can take place to deliver the curriculum's ambitions (Beames et al., 2009).

For years there has been a growing sense of frustration that for some pupils there has been too little time in the formal curriculum for personal and social development of a more active nature. Moves towards curriculum flexibility offer the chance to build in alternative, powerful learning experiences... (Depute Head, Scottish Secondary School, 2008)

Brookes (2002) challenges the traditional view of 'curriculum' as the ordering of learning in time and highlights the importance of locating learning in place. Brookes (2002) argues for a place in curriculum discourse where 'patterns of geographical experience' (p. 408) are understood as curriculum stating that if outdoor education curriculum development was ultimately local and school-based, it would make a more profound contribution to the wider development of a curriculum fit for the modern times. In a curriculum dominated by 'indoor' learning there exists a policy opportunity for greater learning to take place in outdoor settings. CfE permits greater professional autonomy and responsibility in relation to curriculum planning and design. This presents an opportunity to consider more creative approaches to curriculum 'architecture' (White, 2004; Boyd et al, 2007).

The framework provides flexibility to organise, schedule and deliver the experiences and outcomes in ways that meet the needs of all learners, but also provides reassurance about consistency where necessary. Such flexibility will result in a more varied pattern of curriculum structures to reflect local needs and circumstances (SE, 2008, pp11-12).

A cross-disciplinary function affords outdoor learning a central curricular role and an organising framework which encourages teachers to make more use of the flexible course programming arrangements and allows pupils to review what is of value to them. This requires exemplification, both in terms of articulation with curriculum arrangements and pedagogy. Little research exists which examines subject approaches to outdoor learning and the influence of changing structures.

Challenges

Critics might consider that little real change has been achieved to date other than raising the profile of outdoor learning and reaffirming its potential contribution to all areas of the curriculum. Curriculum change can be a slow process and schools change reforms as much as reforms change schools (Cuban, 1998). The process of change currently being seen with CfE is often little more than an audit to see what fits with existing practice followed by minimal modification to meet the requirements of the new curriculum (Supovitz & Weinbaum 2008). Superficial changes to schools, or first order changes to improve efficiency (Cuban, 1988), are easy. Second order changes, changing the 'core' of teaching are much more difficult (Elmore, 2004). There has been considerable apathy and uncertainty towards CfE amongst secondary practitioners. CfE is perceived by some to undermine the exclusive centrality of subject specialism and de-contextualised disciplinary content (Carr, Allison & Meldrum, 2006). The emphasis on disciplinary specialism within secondary schools and measurable content in the official curriculum (Hargreaves, 1994; Priestley, 2005) may be a barrier to outdoor learning; alongside resources, time, professional development and safety constraints. Priestley and Humes (2010) fear that the aspirational curriculum imagined at the outset of CfE, appears increasingly constrained and may threaten the freedom and creativity of teachers and learners. The Organisation for Economic Co-operation and Development Report (2007) warned that Scotland's long gap between proposing and implementing change compared badly with countries like Finland. This could lead to a loss of momentum, enthusiasm and commitment amongst practitioners (p.121). Sustaining the focus on outdoor learning may prove difficult as teachers focus on assessment priorities and resource development.

The curriculum operates at different levels, namely policy and practice. A range of factors affect curriculum-making in schools: contextual factors, organisational factors, styles of management, resources, locus of decision-making, internal or external assessments, curriculum factors, micro-political factors, expectations of students and parents and individual factors. The prescribed policy, enacted and received curriculum vary greatly. Rickinson et al. (2004) suggested that place, programme and participants are all factors that can facilitate or impede students' learning in outdoor settings. Drawing on Mortlock's (1984) work Mannion et al (2007) echo those findings identifying the individual, the activity and the environment as inter-related factors in valued outdoor experiences. Schools, teachers and pupils' biographies shape their attitude to outdoor learning. Providing professional development opportunities for teachers and ensuring that outdoor learning is integrated into teacher training programmes is essential if the 'ad hoc' and variable pupil experience found within Scottish schools is to be addressed. Ballantyne and Packer (2002) found significant differences between primary and secondary students' enthusiasm and motivation relating to outdoor learning. Outdoor education programs should be rooted in the history, ecology, culture, and stories of the places they are in (Brookes, 2002; Knapp, 2005; Stewart, 2004). Initiatives such as 'Effective outdoor learning in secondary school grounds' delivered by Grounds for Learning and Scottish Natural Heritage's 'Teaching in Nature' project encourage collaborative partnerships which develop sustainable, local outdoor learning experiences suited to pupils needs.

The emergent position of outdoor learning within the formal curriculum raises questions in relation to pedagogy and planning. The move towards a more embedded curricular approach to outdoor learning may result in the generation of pre-determined learning intentions removed from the learners' experiences (Hovelynck cited in Beames, 2006). Rickinson et al. (2004) highlights failure to deliver aims in practice, as one of outdoor learning's shortfalls. This raises the question - should outdoor learning be quantified, pre-planned and measured? Beames (2006) wrestles with some of these issues and accepts that all outdoor education programs are contrived to some degree, but advocates 'broad adventures' that involve much longer time scales, varied challenges and devolve some responsibilities

to students (Rubens, 1999). Outdoor learning is currently viewed by pupils as a desirable alternative to routine classroom based pedagogy. If outdoor learning becomes more prevalent in schools will it too become routine and therefore less effective? The type of pedagogy that evolves will be key – simply transferring indoor practice to the outdoors fails to capitalise on the benefits of outdoor experiential learning. As schools strive to demonstrate competencies and capacities relating to citizenship, ESD, health and well being, outdoor learning may be viewed as one vehicle to deliver the tick box culture characteristic of a standards based curriculum. Questions relating to subject suitability also arise – does outdoor learning enhance pupils' learning experiences and aid understanding in all subjects? Research evidence suggests that fieldwork relating to science and geography may improve pupil learning (Nundy, 1999), knowledge retention, motivation, higher-order learning (Kern & Carpenter, 1986; Rickinson et al, 2004) and practical skills (Kent, Gilberstone & Hunt, 1997; Rickinson et al, 2004).

This paper has considered the changing nature and place of outdoor learning within Scotland's new curriculum. The current international and national policy context creates favourable opportunities for a more embedded, sustainable approach to outdoor learning in secondary schools. Several challenges have been highlighted. Scotland can learn much by considering outdoor learning curricular provision in other countries within Europe, such as *udeskole* (Bentsen et al., 2008) and further afield (Brookes, 2002).

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The concept of nature in Outdoor Studies at the University of Marburg

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Abstract

This lecture deals with different ideas or conceptualisations of nature being crucial for the outdoor education program at the University of Marburg. Of course, a main core of outdoor educational practice is acting in, into, against or with nature. In general these close bond between nature and outdoor education is associated with direct experience, concreteness and the very naturalness. In doing so the appearance of nature is very different. Our study program tries to expound the problems of the widespread use of nature being (only) a coulisse for experience. There a some more ideas or conceptualisations like 'nature as a counter-world', 'nature as the not-human sphere', 'nature as landscape', 'nature as a subject', 'nature as an aesthetic or scientific object' and more. This lecture intends to clarify the different characterizations of those ideas of nature in the framework of our outdoor study program. It is the 1st (more theoretical) part of a consideration which is deepened in a 2nd presentation entitled „Contemplative approaches during an excursion“ focussing on aesthetic dimensions.

Contemplative Approaches During an Excursion Focussing on Aesthetic Dimensions

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Abstract

In this workshop we will continue with the lecture on the concept of nature in Outdoor Studies at the University of Marburg. We will focus on experiences we have made during different excursions with our students in the Alps. Painting or drawing the landscape is seen by us as a way to explore the particular of a certain landscape. We will invite all participants to go out and to find a nice place for painting. After this practical exploration we will discuss the process of the work and not the result of the paintings. And we will try to find out possible outcomes by using this method in an educational setting.

Physical Activity and Learning in *Udeskole*

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Abstract

Teaching outside the classroom (Udeskole) one day every week has been observed to influence children's physical activity, learning and social relations positively. However, these observations are based on very few case studies. From a few udeskole classes in year 2000, the number has now increased to more than 290 in Denmark, which makes it possible to get a much better understanding of whether and how udeskole has an impact on physical activity, school performance and other competencies. The aim of the presentation is to describe, discuss and query a national Danish out-of-classroom study in the years to come. A mixed methods study is used to achieve stronger evidence about strengths and weaknesses of practicing udeskole. Do the alternative teaching practices of udeskole increase children's physical activity, while also facilitating academic learning and improving motivation for school? It is hypothesized that learning processes taking place in outdoor settings are motivating and effect full for children while also increasing their physical activity level. Of special interest is whether children with overweight, special needs or minority groups will benefit from udeskole in relation to health as well as learning perspectives?

1. Introduction

In Denmark, as in many other countries, there is a growing concern about the health of children, and in particular the current obesity epidemic with 21% of girls and 15% of boys being overweight due to lifestyle and lack of physical activity (Pearson et al., 2005). Research has shown that the general health and physical condition of school children has changed for the worse over the past 10 to 15 years (Rasmussen, Due & Holstein, 2000) and that children's daily levels of physical activity have become polarized over the last 20 years resulting in an increasing number of children being insufficiently active (Wedderkopp et al., 2004; Wedderkopp et al., 2001; Ekland et al., 1999; Harsha, 1995). This is problematic as, it is well-documented that physical activity among children reduces a number of health-risk factors such as blood lipids, insulin resistance, hypertension and body fatness, both on the short and long term (e.g. Andersen et al., 2006; Kimm et al., 2005; Riddoch & Boreham, 1995; US Department of Health and Human Service, 1997).

In order to address the health problems caused by inactivity of children, different sectors of children's everyday lives that provide opportunities for physical activity have been considered as settings in which to plan public-health initiatives. The voluntary club-sport system offers children and youth opportunities for physical activity in terms of sporting and other recreational activities in their leisure time. However, the clubs do not manage to attract or include all children (Pilgaard, 2008), and it has been shown, for example, that girls of ethnic background other than Danish and overweight children seldom participate (Nielsen & Ibsen, 2008).

Since all children spend a large proportion of their time in school, the school domain could play an important role in promoting daily physical activity for all children. Currently, Danish schools offer from one to two hours of formal physical education (PE) every week. Research has shown that the recommended amount of physical activity for children should be one hour of moderate activity every day (e.g. Sallis, 1993; Biddle et al., 1998, US Department of Health and Human Services, 1997),

which far exceeds what is being provided in terms of compulsory PE in schools. Some interventions have tested the impact of increasing the hours of PE provided in schools (Eichberg Hansen, 2005; Grønfeldt, 2007). These types of intervention can be criticized for two main reasons. Firstly, formal PE in schools has often a sporting or performance focus that might not interest or motivate all children (Orlick, 1986; Weiss, 1986); therefore increasing the hours of PE may not have a broad impact on physical activity for all children. Secondly, it is problematic if efforts to increase physical activity in terms of more PE happen at the expense of the resources allocated to children's learning and academic performances. As a result, it is relevant to investigate whether alternative teaching practices, such as *udeskole*²¹, could provide different solutions to increase children's physical activity, while also facilitating academic learning and improving motivation for school. Research projects in pre-school institutions have demonstrated an improvement in physical fitness, motor skills and coordination and a higher ability to concentrate when children were allowed to spend time in natural settings on a daily basis (Fjørtoft, 1998; Grahn et al., 1997).

1.1 Udeskole: education outside the classroom in Danish schools

Udeskole targets school children age 7 to 16, and is characterised by *compulsory* educational activities outside the school area on a *regular* basis (i.e. one day weekly or fortnightly) and can take place in various settings, such as nature, local communities, factories and farms (Jordet, 1998, 2007; Bentsen et al., 2010). Especially in the Scandinavian countries, there is a belief that nature may have a role in childhood and in the education of children and adolescents (Bentsen et al., 2009a; O'Brien & Murray, 2007; Dahlgren & Szczepanski, 1998).

In Denmark, *udeskole* has so far been practised in natural settings and the term *nature classes* have been used and could be understood as a part of the term *udeskole* (Mygind 2005). *Udeskole*-activities are characterised by making use of the local environment when teaching specific subjects and curriculum areas by, for example, measuring and calculating the volume of trees in mathematics, writing poems in and about nature when teaching languages, or visiting historical significant places in history or religious education although the teaching/learning activities are often cross-disciplinary and cross-curricular activities. Thus, the approach is often to deal with an academic subject matter or concept in its real concrete form to facilitate learning and understanding processes in children and provide a motivating school setting.

Since 2000, the Danish school system has shown increasing interest in *udeskole* and today approximately 290 schools practice *udeskole* in Denmark (Bentsen et al., 2009c), however evidence and knowledge about how outdoor teaching and learning has an impact on children's well-being, social relations, learning and physical activity level is still lacking (Mygind, 2005, 2007, 2009). The results of emerging recent research into *udeskole* have generally been positive (Bentsen et al., 2010). Research in Norway has documented learning potentials of *udeskole* (Jordet, 2007), and a study in Sweden has found a stress-reducing effect on teachers teaching in the outdoor environment (Szczepanski et al., 2006). A review that critically examined 150 articles of research published in English on outdoor learning between 1993 and 2003 summarised that: "*Substantial evidence exists to indicate that fieldwork, properly conceived, adequately planned, well taught and effectively followed*

²¹ *Udeskole* is a broad term referring to curriculum based teaching on a regular basis in *nature* as well as *culture* settings. It is hard to find a suitable equivalent word in English, but *udeskole* could be understood as 'outdoor schooling' or 'out-of-school-teaching'. The concept of out-of-school-teaching originates from Norway where teachers and pupils also use natural surroundings or a culture setting i.e. museums, companies, factories, churches etc as 'outdoor' classrooms on a regular basis.

up, offers learners opportunities to develop their knowledge and skills in ways that add value to their everyday experiences in the classroom. Specifically, fieldwork can have a positive impact on long-term memory due to the memorable nature of the fieldwork setting. Effective fieldwork and residential experience in particular, can lead to individual growth and improvements in social skills” (Rickinson et al., 2004, p. 5). The review concluded that there is a need for a greater number of in-depth studies on outdoor learning in school grounds and community settings (Rickinson et al., 2004). Finally, it was stressed that only few studies had a focus on the impact of outdoor education programmes on physical activity (ibid.). More recently, two studies have shown the health potential of outdoor teaching and learning and both studies found that the physical activity level in nature classes increased significantly on school days spent in nature (Mygind, 2007; Grønningsæter et al., 2007).

However, some caution is required in the interpretation of the results of this emerging field of research. First of all, the scope of the research in *udeskole* has mainly been limited to investigations into teaching and learning outcomes and has been based on small numbers of children and teachers. Secondly, only case studies and action research have been conducted. Therefore, larger quantitative studies about the impacts and outcomes of *udeskole* are needed in order to provide the necessary basis of evidence and insight on which future political decisions about *udeskole* in the Danish school system can be based.

2. Aims of the study

The study follows three paths of investigation.

2.1 Path 1: Physical activity and health

This path of investigation will aim to generate an in-depth understanding of how *udeskole* impacts physical activity and health (the prevalence of overweight) among children in primary school when practiced one day every week. Based on the present knowledge, a positive and significant effect is hypothesised (Mygind, 2007; Grønningsæter et al., 2007). The much higher number of nature classes today provides the opportunity for a more powerful and detailed quantitative study. This makes it possible to investigate whether sedentary and overweight children who avoid sport and physical activities both in school (PE) could benefit in terms of increased physical activity levels from being taught in *udeskole* and natural settings. Furthermore, research has shown that in general girls are more inactive than boys (Motions- og Ernæringsrådet, 2007), while there seems to be a trend that boys and girls are almost equal active during *udeskole* based on results from a Danish case study (Mygind, 2007). The results will provide evidence on which to base political decisions on issues such as curriculum-based use of *udeskole* as a mean of improving health. However, this is done knowing that several actions need to be taken to prevent the prevalence of obesity.

2.2 Path 2: School performances

The second path has the aim to investigate to what extent school performances in the subjects Danish and Mathematics are influenced by practicing *udeskole* where 20 % of all teaching takes place outside the classroom. Over the last 10 years, this has been a standing question raised by parents, teachers and school leaders involved with *udeskole*. Today, there is a belief that using *udeskole* has a positive impact on learning, social interaction, communication and motivation because of the variation in didactics and teaching methods used and due to the learning process taking place in *udeskole* (Herholdt, 2003; Mygind, 2005; Jordet, 2007). Furthermore, it can be hypothesized that learning processes taking place in specific natural settings might be especially motivating and effect full for

children who do not perform well in the more abstract classroom teaching. But as mentioned, there is a lack of evidence whether *udeskole*, has a negative or positive impact on school performances in i.e. Danish and Mathematics and whether it has any special effects for children in general as well as children with special educational needs. In 2009 8.4 % of all Danish school children were categorized as needing some sort of special and extra teaching and school help (Danish Ministry of Education, 2009). How does teaching in *udeskole* affect this group of children and what kind of impact does *udeskole* have on their learning process in Danish and Mathematics? The results are expected to give evidence to whether *udeskole* is of disadvantage or advantage to the learning process in Danish and Mathematics among children in primary school.

2.3 Path 3: Learning, competencies and experiences

Path one and two focus on health, physical activity and learning outcomes in Danish and Mathematics from participating in *udeskole*. However, children's health and wellbeing does not only rely on objectively measured physiological parameters. Also factors at the social (relations to others) and the psychological level (feelings of self-worth, happiness and motivation) must be considered as important health parameters (Jensen 2005, Sørensen 2006). It is likely that *udeskole* due to its more children involving and interactionist teaching changes and creates other relations among children as well as between children and teachers and that this process might have a positive effect on the overall social climate in the class as well as on the personal wellbeing and motivation for school among the children.

At the same time, it is necessary to investigate whether *udeskole* contains other important learning potentials than the 'traditional' folkeskole. Whether this style of learning and teaching develops and reinforces competencies, which are of use from both a child's and societal perspective.

An interesting question is whether the combination of indoor and outdoor teaching is better able to engage and develop various competencies and levels of understanding (e.g. Blooms Taxonomi) compared with 'traditional' classroom teaching. The question originates from a case study of an *udeskole* class, showing that while the communication in the classroom was typically recounting and referring, a more explorative language and communication style was predominant among the students in the outdoors (Herholdt, 2003).

Furthermore, in the general aims of the Danish Folkeskole it is emphasised that "*the school's everyday life and teaching must build on freedom of thought, equality and democracy, must develop the single pupil's personal competencies through the acquirement of knowledge, skills, methods and ways of expression. The single school must create settings, that leads to self efficacy and a basis for personal decisions and actions, must provide settings for experiences, enterprise, absorption, comprehension, imagination and a desire to learn*". And it is emphasized that "*the pupils must develop an understanding and knowledge of Danish culture and other cultures as well as of the interaction between human and nature*"²².

A central question in Path 3 is to what extent *udeskole* contributes to these aims of the Danish folkeskole and furthermore it is investigated, how the combination of indoor and outdoor teaching have an impact on the relations between pupils, pupils and teachers, pupils and schools and pupils and the surroundings (nature and culture). Does *udeskole* contain some specific academic and social competence building potentials, which can supplement teaching in the classroom and add more quality to the Danish Folkeskole, enabling it to better meet its general aims?

²² Our translation from Danish

3. Research questions

- What are the physical activity levels in primary school classes on days with *udeskole*, on normal school days, and days with PE? Are there gender differences and differences due to overweight status?
- What impact does one year with *udeskole* one day per week have on children's skills in Mathematics and Danish (negative, neutral or positive)? Are there different results for different subgroups, i.e. for children defined as having learning difficulties "specialundervisning", children who do not perform well in the traditional school system, boys compared to girls, etc.)?
- What kind of competencies and experiences do children develop from participating in *udeskole* one day per week?

The three paths and research questions are not independent from one another. Therefore the research group will work closely together in the exploration of the three paths and research questions.

4. Materials and methods

Schools having classes that practise *udeskole* one day per week or more will be asked to take part in the study. Children in the classes doing *udeskole* will form an intervention group and children from their parallel classes not doing *udeskole* will form a control group. The study will involve children in the classes from second to fifth grade. In 2008, a total of 32 primary school classes (from grade 2 to 5) nationwide were practising *udeskole* one day per week and further 11 classes were doing more than one day per week (Bentsen, unpublished data). On the basis of this information we estimate that more than 800 children are practising *udeskole* and are potential participants in the intervention group of the study. Based on power calculations the total number of children in the intervention and control group, respectively, must be more than 400 in order to make significant conclusions on whether *udeskole* has a significant impact on (in an *udeskole* perspective) important subgroups of children, such as children who are overweight or children who do not do well (academically and socially) in the conventional school system²³. With an expected compliance rate of approximately 50% among all known *udeskole* classes we intend to invite all classes practising *udeskole* one day every week. Data on health, school performance and social psychological wellbeing will be collected at pre (baseline) and post (endline) tests and both control group and intervention group children are tested.

4.1 Path 1. Physical activity in *udeskole*, classroom teaching and PE

Measurement of physical activity

Measures of the amounts of physical activity among the children will be collected from different schools, with an *udeskole* class (intervention) and a control class from one individual school being measured once every month during the duration of the project, allowing for physical activity to be measured and compared during all types of seasons. The children's physical activity will be measured from Monday to Friday including school days with and without school PE, and days with and without *udeskole*. This will enable a comparison of weekly amounts of physical activity among children who participate in *udeskole* (intervention group) with children who do not (control group), as well as comparing days with and without *udeskole* (for the *udeskole* children). In this way children who have

²³ Based on that 18% of schoolchildren are overweight (Pearson et al. 2005) and 8.4% of school children receives special teaching/school support (Danish Ministry of Education).

udeskole can function as their own control but can also be compared to a control group, regarding the effects of *udeskole* on physical activity.

ActiTrainer accelerometer devices will be used to measure levels of physical activity by collecting data on heart rate, calories used, steps taken, pace and distance of movements. Accelerometers are physical activity monitors that provide precise measurement of children's daily activity levels which overcome children's lack of ability to recall and quantify their physical activities in detail. Accelerometers have been well validated in children against a range of outcomes (Ekelund et al., 2001) and have shown to compare favourably with other similar objective measuring instruments (De Vries et al., 2006) and have proved to be robust in epidemiological, fieldwork situations (Mattocks et al., 2008). The ActiTrainer contains one megabyte of flash memory and is capable of storing up to 59 days worth of data in its most common configuration.

Physical measurements and health indicators

Height, weight and waist circumference are measured. Overweight will be estimated based on waist height ratio as well as body mass index (BMI) using age and gender specific references (Cole et al., 2000). The number of days with illness and school absence will be recorded. Finally, the children's motor functioning will be measured by the German 'Körperkoordinationstest für Kinder' (KTK) test (Schilling, 2000). These measures of health will be carried out as pre and post tests.

4.2 Path 2. School performance in the subjects Danish and Mathematics

Existing and widely used tests in the subjects Danish and Mathematics will be used as baseline and endline measures of the children's school performance levels. Both control group and intervention group children are tested.

4.3 Path 3. Learning, competencies and experiences

As mentioned earlier *udeskole* may improve children's ability to work co-operatively with others, increase self-esteem, contribute to the development of language and develop children's knowledge of the environment, increase motivation and concentration. However, research on such topics is sparse and knowledge about the impact of *udeskole* on children with special needs not existing.

One of the project's biggest challenges is to develop methods and assessment tools that can intercept other forms of learning than concrete testable academic performance as well as the changes in social relations, motivation, well-being, attitudes and values that *udeskole* participation might cause. Personal competencies, perceptions and social relations are however difficult to measure and require different methodological approaches than documentation of school performances in concrete academic knowledge.

Qualitative methods

Qualitative observations and interviews are central methods for exploring complex situations, personal meanings and social interactions (Maaløe 1999, Flyvbjerg 2004). A strategically selected population of 3 control and 3 intervention classes with practiced and experienced *udeskole* teachers (i.e. 'good' practice) will be observed using video and tape recordings. 3 days of observations is carried out in each of the selected classes. Furthermore, 6 focus group interviews are carried out with girls and boys respectively from the above selected *udeskole* classes and 2 of these focus group interviews will be targeted at pupils who receive special needs education (i.e. special undervisning).

These methods will focus on creating an understanding of what meaning and experiences children develop from participating in *udeskole* compared to conventional school teaching and thereby create an understanding of the possible potentials of *udeskole* regarding children's learning and development of personal and social competencies as well as their thriving.

Quantitative methods

Questionnaires has earlier shown also to be useful tools for exploring pupils' experiences of social relations and teaching environments when comparing indoor and outdoor teaching (e.g. Christiansen et al. 2000, Mygind 2009). In this study questionnaire surveys will be used to supplement and add generalization to information gained through qualitative observations and interviews (Patton 2002) and thereby help explain the impact of *udeskole*. A questionnaire that evaluates the social relations, motivation, well-being, attitudes and values of the children will be developed based on former research in the area as well as our theories and hypothesis. This questionnaire will be developed in cooperation with Danmarks Evalueringsinstitut (<http://www.eva.dk/grundskole>). The questionnaires will be handed out in the beginning of the school year (August) as well as at the end (May/June) to all pupils in second to fifth grade in intervention and control classes.

5. Dissemination and publications

The extensive number of data collected is expected to give evidence and a more solid knowledge base on which to base future decisions on whether and how *udeskole* should be an integrated part of the Danish Folkeskole. In the ongoing debate about physical activity, inactive children and increasing numbers being overweight and obese it is of relevance to know whether *udeskole* has something to offer from a health point of view as a supplement to PE in school. Furthermore, with the increasing numbers of children receiving teaching support (children with special needs), it is relevant to know whether *udeskole* has anything to offer learning wise. Do all or some children learn more by receiving teaching in the *udeskole* environment and by the use of teaching/learning methods used in *udeskole*? Do they learn other and different skills than in 'normal' school? Are they more motivated for school as a result of *udeskole* once per week?

Based on more insight into these important questions, school boards and politicians will have a better foundation for making decisions for future curriculum changes. The results will be presented in national as well as international peer reviewed journals, through seminars and at conferences. Furthermore, the knowledge gained will be used in the education of future *udeskole* teachers and other professionals in outdoor education such as park managers, rangers and outdoor guides.

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The objectives relevant for the present application on Physical activity and learning in udeskole are:

- Documentation, allocation and promotion of new potentials for the use of green areas
- To extend the learning surroundings and improve its potentials through outdoor teaching in green areas
- To show others ways of learning in the primary and intermediate school related to green areas
- To describe and understand how children, teachers and parents experience and evaluate *udeskole*

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Making Pedagogy of Friluftsliv – a Fusion with an Unpredictable Result

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Abstract

The Scandinavian outdoor practice friluftsliv is associated with values such as: health, environmental awareness, experiences of nature, cultural landscape perspectives, non-competition, ecology, folksiness, simplicity, mindfulness and resistance towards commercialism and consumption. Despite its primarily recreational character as a leisure practice, friluftsliv also has a long tradition as an educational element in childrens' and young peoples' schooling in Scandinavia. Making pedagogy of recreational outdoor leisure practices is a wide spread international phenomenon. This paper addresses the result of transforming friluftsliv into pedagogy in a context of Physical Education (PE) and in the education of PE teachers in Sweden. The results from interviews with teachers and teacher educators in the PE context as well as from text analysis of PE curriculum documents shows that several of the values associated with Scandinavian friluftsliv as a recreational leisure practice are replaced by other values when being brought into school and education. The result of transforming friluftsliv into pedagogy will be discussed from educational and sociological perspectives.

Introduction

Teaching in the outdoors and in the countryside has a long tradition in the Swedish school (Carlgren & Marton, 2003, p. 196-197). The outdoors, nature and environmental concerns are today all concepts that occur in the general Swedish curriculum for both preschool, compulsory school, and in the specific curriculum for science studies. It is therefore reasonable to assume that there are various outdoor teaching practices that occur on different levels in Swedish schools. However, the Scandinavian outdoor leisure practice friluftsliv is only stipulated in the curricula for PE (Physical Education) (SNAE, 2000) and friluftsliv as an educational element in the Swedish school can therefore be considered to belong to PE (Sundberg & Öhman, 2008). As with its international equivalent in PE, outdoor education there is no consensus regarding the meaning of friluftsliv. Instead, it is a word imbued with a multiple of values. In this paper I address the result of transforming friluftsliv into pedagogy in a context of Physical Education (PE) and in the education of PE teachers in Sweden.

My interest in examining friluftsliv as a part of PE and Physical Education Teacher Education (PETE) in Sweden, has its origin in the observation that despite being one of few obligatory aims in Swedish PE (SNAE, 2000), friluftsliv does not, paradoxically, seem to be thoroughly implemented in compulsory and upper secondary school teaching (Al-Abdi, 1984; Backman, 2004; Svenning, 2001; Quennerstedt *et al.*, 2008). For a more thorough analysis and discussion of this condition I refer to my thesis (Backman, 2010).

Values associated with Scandinavian friluftsliv

In addition to the values expressed in the official Swedish definition of friluftsliv, i.e. "Friluftsliv means being outside, in the natural and cultural landscape for the purpose of well-being or to gain experience of our natural surroundings with-out the demands of competition" (Swedish Ministry of the environment, 2003), there are also others expressed in the literature. Although my paper concerns the Swedish context, values associated with friluftsliv in Norway and Denmark are important to relate to since the tradition of friluftsliv to some extent is mutual in the Scandinavian countries.

The emphasis on *environmental awareness* in friluftsliv has been intensified by the Swedish authorities during the last century with regularly intervals (Sandell, 2008, p. 96-99). One of these expressions is The Right of Public Access²⁴ which has been claimed to have been of utmost importance for the development of a sustainable environment (Sandell, 2009). Friluftsliv has also been associated with *simplicity* and being able to mentally and physically detach oneself from civilization. In Norway, the polar explorer Fridtjof Nansen and his back country skiing tour across Greenland in 1888 contributed to the Norwegian identity and culture (Tordsson, 2008, p. 56-57). Dahle (2007) also suggests that the typical Norwegian friluftsliv such as long walks and ski tours made at weekends by families and friends is practiced by *common people*. Further, values associated with *simple friluftsliv* have also been described as in opposed position to values associated with adventure (Andkjær, 2008). It has also been emphasized that friluftsliv should take place in a *free and uncivilised nature*, not restricted by civilization (Tellnes, 1985). As a reaction against increasing *consumption and commercialism*, there is also a part of friluftsliv that stresses *a resistance towards these tendencies* in society. Sandell (2006) calls attention to the ambivalence involved in the fact that friluftsliv in many ways is a counter-movement to the society it is at the same time a part of. Among the organizations using friluftsliv as a method, the Scout movement has had the *fostering of young peoples' characters* as an important aim (Sandell & Sörlin, 2008, p. 27-45). Further, Faarlund (1978, 1994) have claimed *philosophical ideas of ecology* and *spiritual experiences that go beyond the basics of living in the outdoors*, as characteristics for Norwegian friluftsliv. Are these friluftsliv values also expressed in the research of friluftsliv within the PE context?

Values associated with friluftsliv in Swedish PE

In accordance with the international literature on outdoor teaching practices in PE, friluftsliv in the Swedish school context is claimed to contribute with values that differ to some degree from those dominating PE. According to Sundberg and Öhman (2008) friluftsliv can “represent an alternative movement culture, characterised by the *joy of movement, sensibility and cooperation*, where the *experience of nature* is in focus” and could thereby be a “guide for other physical activities in PE” (p. 116, my translation). Sandell (2007) also suggests that the view of nature and environment mediated through the teaching of friluftsliv is decisive for its potential to lead to *environmental awareness*. There is some attention devoted to the pedagogical potential involved in knowledge of *historical and cultural perspectives on the landscape* (Brügge & Sandell, 2007). Further, in contrast to the pre-determined patterns of body-movement, and the focus on competition and physical achievements characterising a significant part of the physical activities and sports offered to children today, it is suggested that friluftsliv involves opportunities for more of open and *non-predetermined encounters with the body* (Öhman & Sundberg, 2004). The potential of *health* involved in friluftsliv is emphasised by Quennerstedt et al. (2007). Brügge et al. (2007) also highlights possibilities of *integrating school subjects* when teaching friluftsliv. This is a pedagogical method that is said to involve the different senses and thereby contribute to a deeper learning.

Almost all of the above mentioned values are also expressed in the international literature on outdoor education and adventure education. I have found that values of risk, challenge, adventure and safety are mentioned in relation to adventure education and a resistance to focus on technical skills and movement skills is mentioned in relation to outdoor education. However, these expressions are not to be found in literature on friluftsliv within Swedish PE. Based on the fact that there seem to be

²⁴ The Right of Public Access is a non-legislated tradition, with its history back in the beginning of the 20th century. It can be described as a confidence given to the Swedes, allowing them to make outings in their land and countryside without many detailed restrictions.

difficulties regarding the transformation of friluftsliv from curriculum documents into actual teaching, there is reason to explore what occurs during this transformation. Perhaps some of the difficulties proven to surround teaching in friluftsliv and other outdoor practices on a school level can be made more comprehensible in the light of education in friluftsliv within PETE?

Values associated with friluftsliv in Swedish PETE

From Larsson's (2009) study, friluftsliv appears to occupy a position apart from other elements in Swedish PETE. In interviews with students as well as PE teacher educators, friluftsliv is expressed as one of the most positive values in the education (p. 147 & p. 251-253). However, Larsson claims the education in friluftsliv to be more of an investment in the individual project rather than adapted to the future profession of a PE teacher.

... the respondents' expressions of friluftsliv do not include knowledge useful for the exercise of a future profession. Instead emphasis is put on the individual experience, to try something new and exciting, a kind of personal development. (Larsson, 2009, p. 225, my translation)

It may be that the valuation of *personal development* within friluftsliv education is at the expense of critical perspectives. Another observation from Larsson's (2009, p. 225) study is that the students' notion of education in friluftsliv is primarily about friluftsliv during *winter and the skiing trips* included in the programme, an observation also confirmed by Backman (2007). In the friluftsliv literature from most Swedish PETE departments, friluftsliv is discussed from social, philosophical, ideological and educational perspectives (Brügge *et al.*, 2007). Values such as: *resistance towards competition; cultural perspectives on the landscape; health and environmental awareness*, can therefore be considered to be a part of the education in friluftsliv within Swedish PETE. Many of the departments also have literature of the "tips and advice" kind, recommending *methods and technical aspects of practising friluftsliv* (Backman, 2010).

Several of the interviewed PE teacher educators in Larsson's (2009) Swedish study suggest teaching in friluftsliv to be unique in the sense that "there is nothing that encourages the creation of gender differences" (p. 162-163, my translation). The idea of outdoor teaching practices being more *gender neutral* compared to other PE teaching practices is supported by Paechter (2006), however also questioned by Dignan (2002) and Humberstone (2000). In fact, friluftsliv has been claimed to contribute to notions of masculinity and associated with traditional masculine attributes (Humberstone & Pedersen, 2001; Pedersen Gurholt, 2008).

Summary of friluftsliv values from different contexts

Figure 1 is an attempt to illustrate the result of bringing together values emphasised within, firstly, the literature on the Scandinavian tradition of friluftsliv, secondly the literature on friluftsliv within Swedish PE and thirdly the literature and curriculum documents on friluftsliv within Swedish PETE.

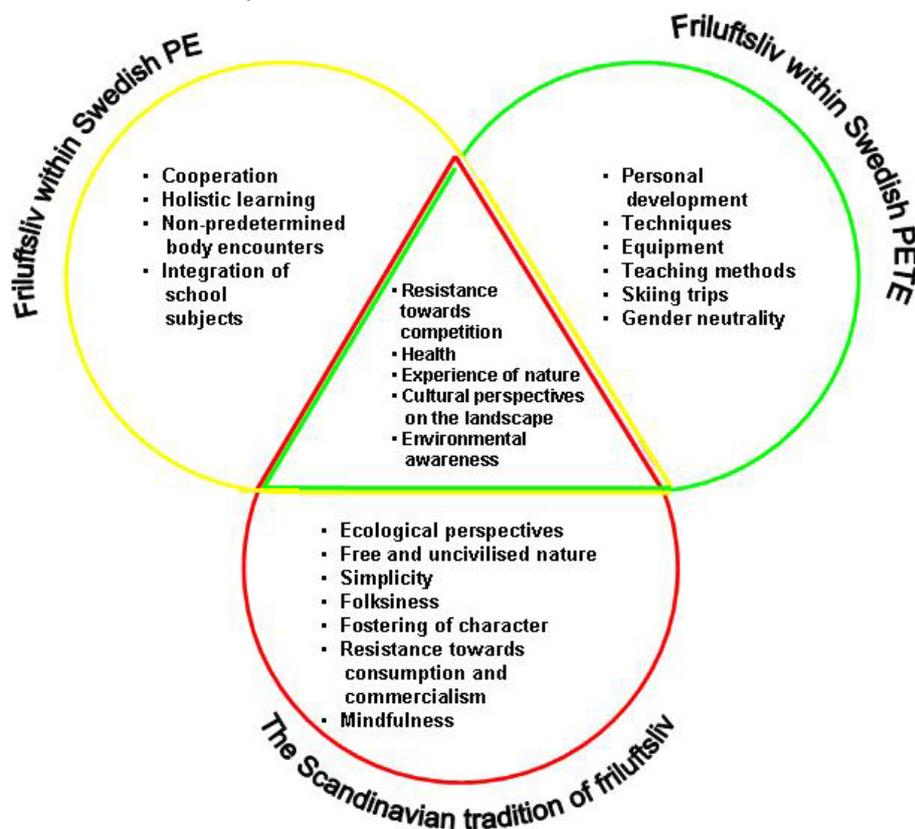


Figure 1: Values expressed in the literature on the Scandinavian tradition of friluftsliv, in the literature on friluftsliv within Swedish PE and in the literature and curriculum documents on friluftsliv within Swedish PETE.

As seen from Figure 1, only a few of the expressed values within the three compared contexts are synonymous with each other (those in the triangle). In fact, four of these (with environmental awareness as an exception) are the values expressed in the official Swedish definition of friluftsliv (Swedish Ministry of the Environment, 2003). There are several values that appear to be specific for whether friluftsliv is discussed in the Scandinavian tradition, in PE or in PETE. This might be seen as an expression of the dependency on context involved when bringing friluftsliv into school or into higher education. Friluftsliv seems to be differently constructed in different contexts. Whether or not the teaching of friluftsliv within Swedish PE and in Swedish PETE actually involves the values expressed, is an empirical question on which I hope my results can shed some light. The answer to this question will most likely depend on the conditions of its implementation.

Investigating friluftsliv teaching within Swedish PE

As discussed in the review of research above, the conceptual understanding of friluftsliv is strongly contextually dependent. Building on Figure 1, Figure 2 is an attempt to illustrate how the values

expressed in results from my investigation of friluftsliv within Swedish PE relate to the values expressed in the literature on friluftsliv within Swedish PE.

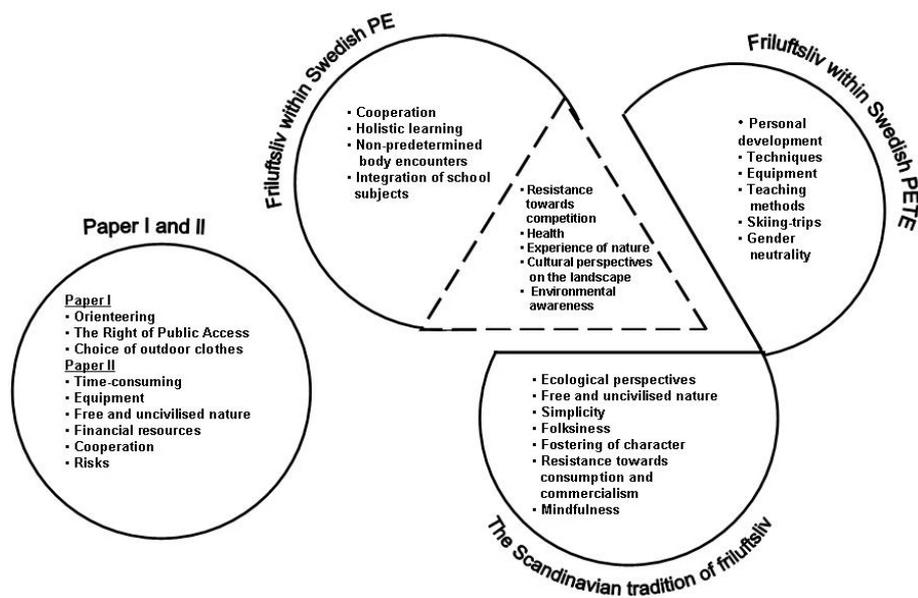


Figure 2: A comparison between the values expressed in the literature on friluftsliv within Swedish PE and values expressed in the empirical investigations of friluftsliv within PE.

On a comprehensive level, there are several values expressed in the literature on friluftsliv within PE which are not expressed in my results, and vice versa. It seems as though the values expressed in the official Swedish definition of friluftsliv (Swedish Ministry of the Environment, 2003; see the triangle) are not to be found in the PE teachers' description of their teaching of friluftsliv. Swedish PE teachers seem to be unfamiliar with making their own interpretations of how "environmental awareness", "experiences of nature", "cultural perspectives on the landscape", "holistic learning", and "non-predetermined body encounters" can be expressed in documents and teaching. It is also astonishing that "health" is not expressed as a value in friluftsliv in my investigations, especially since it is a part of the Swedish name of the school subject PE as "Idrott och hälsa" (Sport and Health). Perhaps this is due to the fact that many Swedish PE teacher students have their background in the Swedish sports movement (Annerstedt, 1991; Larsson, 2009) and there developed a rational and instrumental way of thinking about body movement, health and ability in PE.

When addressed at all, friluftsliv becomes a teaching practice in which the logic and grounds for assessment do not seem to differ significantly from other traditional outdoor sport activities in the PE teaching. There also seem to be many requirements of a physical and organizational character to fulfil for teaching in friluftsliv to be considered legitimate. When described as in my results, friluftsliv becomes an exception from ordinary teaching, a project that is probably difficult for PE teachers to implement themselves. As expressed in the values emphasized in the Scandinavian tradition of friluftsliv, several elements of an ideological nature, involving alternative lifestyles in modern society, could contribute with new perspectives to the friluftsliv taught within Swedish PE.

Investigating friluftsliv teaching within Swedish PETE

Teacher education is claimed to be an important contributor to the production of pedagogic discourses (Macdonald *et al.*, 1999; Singh, 2002). Tinning (2006, p. 381) suggests that the guarding of positions within PETE leads to the obstruction of openness towards new perspectives and a reproduction of a restrictive and conservative attitude. When considering research in which teacher education in general (Hensvold, 2003; Lortie, 1975; Marton & Booth, 1997) and PETE in particular (Annerstedt & Bergendahl, 2002; Larsson, 2009) is claimed to have marginal importance for what is expressed in the teaching on a school level, it seemed interesting to investigate what an exploration of education in friluftsliv within PETE could say of its relationship to the friluftsliv teaching within Swedish compulsory school.

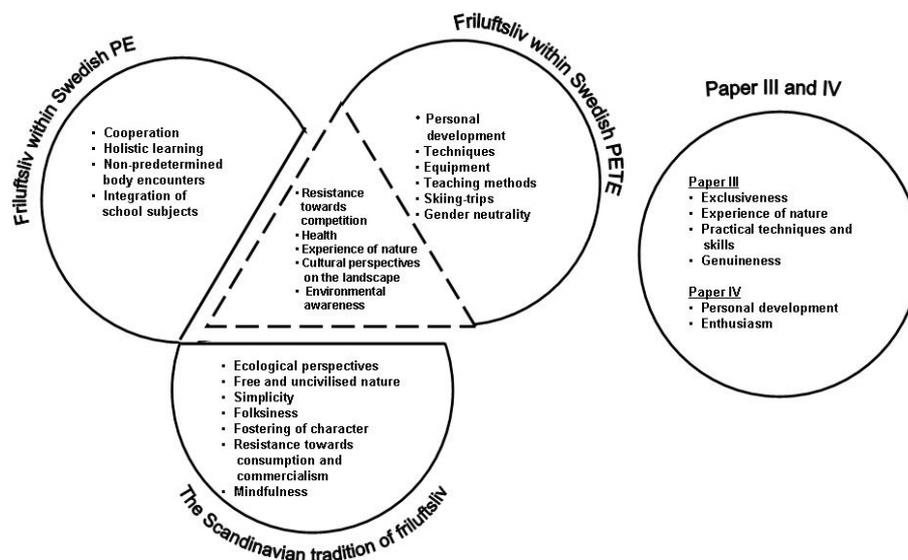


Figure 3: A comparison between the values expressed in the literature and curriculum documents on friluftsliv within Swedish PETE and values expressed in Papers III and IV.

Figure 3 is an attempt to describe the relationship between the values expressed in the literature and curriculum documents on friluftsliv within Swedish PETE and the values discovered in my empirical investigations of friluftsliv education within Swedish PETE. On a comprehensive level, the findings in my results correspond well with the values expressed in the literature and the curriculum documents. While exploring friluftsliv within PETE, I discovered that the debates concerning the legitimate education in friluftsliv could be resembled to a field involving struggles for objectively defined positions (Bourdieu, 1993). I reached this interpretation based on the PE teacher educators' emphasis on different values associated with friluftsliv education. My interpretation was that some of the values made visible appeared as a consequence of the fact that the context studied was under the influence of the different logics inherent in the academic field, the field of sport and in the Scandinavian tradition of friluftsliv. I found it contradictory that Swedish PE teacher students are examined in the practical and technical skills seen to be required to perform activities in friluftsliv while they are, simultaneously, taught about the experience of nature as the essence of friluftsliv. The importance of skills to perform physical activities is an issue of constant debate in Swedish PETE. This ability is often emphasised as the essence of the professional PE teacher's identity but at the same time, the academic acceptance of examining physical skills is not obvious, a condition creating ambivalence among Swedish PE teacher educators (Larsson, 2009, p. 140-148).

One part of the explanation of this ambivalent attitude might be found within a tradition in Swedish PE focusing the performance of "correct" body movements as an important ability per se. In the

friluftsliv education within Swedish PETE, technical and predetermined skills required to perform outdoor activities appear to be valuable. I suggest that a supplement to the discussion of the importance of skills in performing physical activities in the outdoors could be viewing them as one of several abilities needed to teach body movements. If the ability to teach movements in the outdoors is primarily focused, this might also involve a reassessment of the role of the skill-instructor in PE (see Thomas, 2007). An inclusive approach within PE could mean viewing body movements not as hierarchic, predetermined or correct, but instead as a plurality of equal opportunities. Similarities can be seen with the way Öhman and Sundberg (2004) discuss open and non-predetermined encounters with the body through friluftsliv.

Another contradiction was found in the valuation of friluftsliv taught in a remote wilderness (for example on skiing trips) with a certain focus on physical exertion and specialized knowledge, while simultaneously the respondents claimed this type of friluftsliv to be difficult to implement on a school level. Further, the PE teacher educators thought that friluftsliv should be a simple, unaffected and pure life close to nature without too many modern and technical aids. I have referred to these positions within PETE as exclusive friluftsliv and genuine friluftsliv respectively. These positions can also be reflected in the valuation of students' enthusiasm for friluftsliv and their personal development. It appears reasonable to assume that the friluftsliv teaching within Swedish PE has to a certain extent been shaped during education in friluftsliv within PETE.

Conclusions

Friluftsliv teaching in Swedish PE is produced in a fusion between the formulations of aims for friluftsliv in curriculum documents, the biographies of PE teacher students and their educators, physical and organisational factors' control of PE teaching in the outdoors, the values emphasised in the friluftsliv taught within PETE, and the values associated with the Scandinavian tradition of friluftsliv. This fusion has produced the notion of friluftsliv in PE as teaching which should take place in a natural setting remote from civilisation, involve risks, and require time, technical equipment, financial resources, and cooperation. With this pedagogic discourse as the frame of reference, the teaching of friluftsliv is difficult to implement and is instead, under the influence of performance and perfection codes (Evans & Davies 2006a, 2006b), transformed into outdoor activities with which the PE teachers are familiar and can themselves recognise (often sports), or is totally left out of PE teaching. I have argued that the offering of friluftsliv teaching according to the aims in the national Swedish PE curriculum would benefit from a turn to a friluftsliv that is experienced as unthinkable (Bernstein, 2000) in relation to the dominant pedagogic discourse. This would also result in a strengthening of the classification of friluftsliv and Swedish PE.

Friluftsliv education in Swedish PETE is a site for struggles regarding what values are regarded as legitimate. I have considered the values expressed in this context as a consequence of the influence of the different logics inherent in the academic field, the field of sport, and the Scandinavian tradition of friluftsliv. The exclusive friluftsliv, carried out in a remote natural setting and requiring physical exertion and special knowledge, and the genuine friluftsliv, a simple, unaffected and pure life close to nature without too many modern and technical aids, are two variants considered valuable among PE teacher educators. These types of friluftsliv appear to fit well into the ideas expressed here for developing students as individuals and developing their enthusiasm and taste for friluftsliv through experiences of nature during PETE. Physical and technical skills in outdoor activities have also been considered a valuable physical capital for future PE teachers. As has been shown, these values in friluftsliv education in PETE do not seem to be easily transferable to PE teaching in a school context. I have argued for more of socially critical perspectives in Swedish PETE courses in general and in

friluftsliv in particular, in order to make teaching according to the national Swedish PE curriculum possible and for friluftsliv to contribute to more of environmental awareness, historical and cultural understanding of the development of landscapes, and finally a questioning of our lifestyles in modern society.

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Into the Backwash of Kayak Adventures

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Abstract

The scope of this essay is to explore the meaning that Norwegian kayakers form in engagement with and reflections upon uncertainty, risk and resistance. Kayaking adventures are found not only on long journeys, but in risk itself, in the exposure to wind, currents and waves found in a sea kayak community in the outskirts of the Oslofjord. The lecture refers to ethnographic fieldwork and participation-observation conducted in these communities. In meetings with wind and waves kayakers report that they improve their skills, but this is secondary to the experience of flow and joy, and reflections on the necessity of being humble in order to survive. This is seen as edgework, being and out of control, and a valuable part of learning processes.

Key words: *Bildung, Edgework, Friluftsliv, Kayak, Risk*

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Re-envisioning nature from a New Zealand Māori perspective

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Abstract

Many of the traditional practices and assumptions that have underpinned outdoor education are anthropocentric. These include the role of risk and adventure, the emphasis on individualism and personal development, a focus on skill learning and the pervasion of consumerism. Coupled with the neoliberal policies of Western governments, these discourses can be seen to perpetuate the status quo and work against environmentally sustainable living. Yet outdoor educators are in a unique position to influence their students towards sustainability.

This paper examines the traditional philosophies and values of Māori, the indigenous occupants of New Zealand and how these philosophies can provide an eco-centric framework for outdoor educators. The inextricable interconnection of whānau (people) and whenua (land) is expressed in personal and kinship relationships with all natural things. This provides tūrangawaewae, a sense of place and belonging from which the life force (mauri) exudes. Examples of how these ideas are implemented in tertiary outdoor education programmes are presented.

Introduction

There is a plethora of information documenting the contemporary disjuncture between humanity and nature (see Gruenewald, 2003; L. H. Hill & Johnston, 2003; LeFay, 2006). Instead of embracing connection to place, plant, creature, people and planet we see ourselves as separate, superior and controlling. Our political and social exploitation of the natural environment has created problems that threaten the foundations of our existence. The inexhaustible drive of the global competitive marketplace is unsustainable, threatening the viability of natural systems (Bowers, 2002).

Outdoor education in many ways has been guilty of being complicit in reinforcing patterns of thinking that exacerbate the crisis. Bowers (2002), identifies the prevalence of taken-for-granted cultural assumptions (root metaphors) that are encoded in language and allow the embrace of certain relationships while suppressing others. These serve to reinforce neoliberal philosophy as the status quo, with globalised principles of the free market and consumerism dominant and seemingly unstoppable (Apple, 2009).

Outdoor education in a traditional sense has been associated with specific outdoor pursuits like rock climbing and tramping, that largely originate from white male European recreational patterns (Payne & Wattoo, 2008). Consistent with a Hahnian approach, adventure and challenge and the embrace of risk have been seductive. The importance of skill learning plus personal and social development through group and team building is well established and lip service is given to environmental beliefs and values (Boyes & Zink, 2005; A. Hill, 2010). These dimensions serve to support anthropocentrism, promote individualism and consumerism, and misconstrue place.

Anthropocentrism has been identified as human chauvinism where nature is reduced to an exploitable resource (Bowers, 2002). Humans are seen as separate from and often superior to nature. Anthropocentrism can be clearly seen in risk taking behaviour where people pit themselves against a self selected challenge provided by the environment. Giddens (2006) and Beck (1992) describe modern society as a globalised risk society where the pursuit of risk becomes a key structural principle

extending through the social system in patterns of economic, political, cultural and leisure activity. Risk taking is valued as: (1) a pure expression that sees risk as an essential part of modern life; and (2) as a radical form of escape from social conditions that deaden the human spirit (Lyng, 2005). In leisure, this is epitomised in the activities of extreme sport.

Extreme sport is an expression coined by the media to describe forms of outdoor adventure activities that are owned by youth subcultures and valorised by the global media. Risk engagement and dramatic action are fundamental, with individuals competing against environmental obstacles and challenges, with the main goal being the completion of exceptional tasks (Booth & Thorpe, 2007). Mountains, rivers and surf are seen as resources existing for human consumption. Extreme sport activities draw on existing forms of outdoor pursuits sometimes with innovative variations. Its importance can be gauged by television and U-tube ratings, large spectator appeal and control by wealthy multinational companies. The activities also have a high degree of dependency on technology, paraphernalia and consumption of the spectacle as a product. Concerningly, the environment does not figure in the extreme sport literature; for example the *Berkshire Encyclopaedia of Extreme Sport* (Booth & Thorpe, 2007), does not have an entry for environment. This flaw has been discussed in detail by Brymer, Downey & Gray (2009), who counter-argue that participants develop strong feelings of connection to the environment. However, they ignore the larger perspective of the ruling ideas espoused at societal level.

Individualism is closely linked to extreme sport and is a facet of neoliberalism and the free market. The individual is endorsed as the basic social unit in society with an emphasis on personal choice, advantage and responsibility for self. Self interest is promoted over the interests of community and the tenor of moral authority has moved from community values to the valorisation of the globalised individual (Bowers, 2002; Gruenewald, 2003). The relocation of values is a pre-requisite for a successful free market with individuals as unquestioning and unbridled consumers. In outdoor education, the goals of risk, adventure, personal development and vocational goals are driven by individualism (Hill, 2010).

The commodification of adventure and individualism contribute to consumerism; the rights of the individual to consume are normalised. As well as outdoor activities themselves, the prevalence of outdoor clothing, images and other paraphernalia is predominant in western society. The process of commodification often includes distinctive places; mountains, cultural icons, beaches and places that are viewed from a mechanistic, economic perspective. At best, environments are wallpaper, at worst they are plundered and modified on need. For example Mitre Peak in NZ is a magnificent mountain located in a seemingly pristine fjord. But a look in the immediate reverse direction shows the reality of buses, planes, boats, hotels, waste, asphalt and people that provide the commodified infrastructure for the view (Abbott, 2010).

The problems created by the intensive consumption of resources are many. For a start, our present progress is unsustainable, with a rapid decline in the viability of natural systems (Bowers, 2002). We are faced with a tragic loss of species and massive waste disposal problems. Our world view: "...erroneously separates and elevates humans above physical reality, and alienates humans from life, the earth and the cosmos." (Hill & Johnstone, 2003, p. 21). Bowers (2002), also notes our dependence on the values of consumerism rather than family and networks of mutual support within our communities.

Bowers (2002) proposed that ecology should become a pervasive cultural understanding that drives our philosophy and practice. He believes we need to: (1) appreciate the relational and interdependent nature of our existence as cultural beings; (2) shape our children's experiences by engagement with cultural traditions of empowerment, self sufficiency and social justice; (3) value forms of knowledge

that come from direct experience of negotiating social and environmental relationships in everyday life; (4) value intergenerational knowledge and the wisdom of elders and mentors; and (5) learn about the non-commodified traditions of ethnic minorities.

Likewise, Gruenewald (2003), proposed a critical pedagogy of place so that the education of citizens would have a direct bearing on the wellbeing of the social and ecological places people inhabit. He challenges people to explore the complex inter-relationships between cultural and ecological environments and in particular to explicitly examine the place specific nexus between environment, culture and education. Both Bowers and Gruenewald, lay the foundation to explore the contribution that indigenous philosophy can contribute to modern sustainable living.

Māori Beliefs and Values

Like most indigenous peoples, traditional Māori civilisation lived in close proximity with the land and lifestyles were intrinsically linked to natural features. Māori have a fundamental belief that humans are part of a broader understanding of family that incorporates the environment and humanity, where all things are interconnected. This is clearly seen in the Māori legend of creation where there is belief in the oneness of environment, ancestors and people.

Originally Papatūānuku (the earth mother) & Ranginui (the sky father) were together in a loving and fruitful embrace. Their children were between them, but were shut off from the light and unable to grow. The children separate their parents, creating an open environment in which all could flourish. The children became the ancestors of humans and all other living things; hence Tane-mahuta is the god of trees and birds, Tangaroa the parent of fish in the sea and others. People are living on the fruitful living body of the earth mother & beneath the living sky father. Natural features like streams, rivers and forests, arise from and are nurtured by Papatūānuku. Rain for instance, is a sign of the aroha (love) between Rangi and Papa and their grief at being separated. The relationship is exemplified in the proverb: Ko Papatūānuku to tatou whaea, Ko ia te matua atawhai, He orange mo tatou, I roto i te moengaroa, Ka hoki tatou ki te kopu o te whenua (The land is our mother, she is the loving parent, she nourishes and sustains us, when we die she enfolds us in her arms). (Roberts, Norman, Minhinnick, Wihongi, & Kirkwood, 1995). We are surrounded by our cousins, who are also our ancestors.

Māori also believe that all things have mauri, which has been defined as a life force or essence, and is something to be nurtured and protected (Mead, 2003; Patterson, 1992). When applied to people it is the spark of life, the active component that indicates the person is alive. Inanimate objects like mountains, rocks and man-made craft like weaving also have mauri that relates to and interacts with everything else. In New Zealand, there has been an interesting debate over mountain peaks and whether climbers should stand on the summit. For many pakeha there is no question that the top is the top and they have not been there unless they stand on it. However for Māori the mountain peaks are likely to be gods, sacred, and embedded in mythology. At the very least a mountain possesses mauri that must be respected. Hence accessing the mountain needs to be accompanied by karakia (prayer) and respect and standing on the very summit may be an insult. The logic follows that because all things are an ancestor and have mauri, then we must treat the earth with care, like we would our human family, and nourish and respect it so it may flourish (Patterson, 1999).

In effect, Māori see themselves as tangata-whenua (people of the land) and this concept refers to those who belong and have authority in a particular place. This is based on their deep relationship with that place, often through birth and their ancestors' births. Significantly, whenua (land) is also the word for placenta and links life to the womb of Papatūānuku. A commonly practised Māori tradition is to bury the placenta and umbilical of a new child on land of personal significance. Some will plant a native tree on the burial spot to celebrate the event and increasing numbers of non-Māori have also

undertaken this ritual. Subsequently, new family members are bonded to the land. It is likely that deceased family members are also buried in/near that place so ancestors and children have a common belonging to a specific place. These primeval connections provide mana whenua (status on the land), spiritual and moral authority in a given place.

Generations are not separated as they are in Western society and the ancestral landscape emphasises the centrality of ancestors and the values that guide present and future generations. Ko nga tohu o o ratou tapuwae i kakahutia ki runga i te mata o te whenua – he taonga, he tapu. (Their sacred footprints are scattered over the surface of the land, treasured and sacred) (Kawharu, 2009, p. 324). Kawharu also discusses the importance of spiritual and cultural values linking people to a specific place. He feels that tangible and intangible values help explain relationships between people and environment, "... their reverence for places and the reasons why trusteeship is important." (ibid, p.321).

On a personal level, tūrangawaewae (turanga – standing; waewae – feet) provides a place for one to stand where a person feels especially empowered, connected and founded (Mead, 2003, p. 272). Personal identification through tūrangawaewae will link a person with the predominant natural features and ancestors of a specific place. If I introduce myself in Māori I would say: Ko Ruapehu te maunga, Ko Rangitikei te awa, Ko Mātene te taone (Mount Ruapehu is my mountain, the Rangitikei river is my river and my town is Marton). The mountains and rivers provide an internal sense of security and foundation as well as a geographical location. Mead (ibid) also believes that in a modern globalised society all people need a place to call their own, and land/place is important for people to define themselves.

As discussed earlier, Māori believe they and the world are bound together by ties of kinship and people must accept the associated responsibilities (Patterson, 1999). Everything in the universe has its own whakapapa (genealogy), that is part of the unified whole. Tūrangawaewae means people standing on the place to which they belong; they have mana (status) in that place, and take responsibility for their actions and are responsible for that place. Because of the strengths of whanaungatanga (extended family relationships & belonging), the responsibility is a collective one where the community accepts responsibility as well as the individual. The relationship may be deeply spiritual in that land nourishes our spiritual being and physical needs, provides our identity and reciprocation is essential. If we fail to do this, our mana-whenua, our status in that place and our right to be a kaitiaki (steward), is lost or suffers (Patterson, 1999).

Mana-whenua promotes kaitiakitanga (guardianship) which describes the mantle of responsibility worn by tangata whenua to promote the care and protection of taonga (treasure) such as waters, coasts, flora and fauna, forests, mountains, the earth and the sky (Blundell, 2006). Within takiwā (specific locations), iwi (tribes) and hapū (subtribes) have responsibilities to ensure the maintenance and sustenance of Papatūānuku and her children. This worldview is not based on ownership, but on the understanding that all life is created from Papa and supported by her. The fulfilment of these obligations is crucial to the identity and mana of the local iwi authority (a Māori group with statutory rights), and includes the sustainable use of natural resources. In New Zealand, the recognition of a Māori world view and kaitiakitanga is enshrined in law and practiced on a daily basis. For instance, the Treaty of Waitangi (a foundational document signed by Māori and Europeans in 1840), gives full, exclusive and undisturbed possession of their lands and estates, forests, fisheries and other properties to Māori. More importantly, subsequent legislation like the Environment Act 1986, the Local Government Act 2002 and the Resources Management Act 1991, officially placed kaitiakitanga into legislation and required hapū and iwi to be involved in the management of all natural resources (for a fuller discussion see Blundell, 2006).

In summary, the legend of Papatūānuku and the interconnection of all living and non-living things is a valuable ethical foundation for sustainability. If we treat the earth with the care and respect we show to a parent and are prepared to be guardians and stewards of it we are reconnecting with the interdependent nature of our existence. The recognition that all things have mauri (life essence) also leads to respectful relationships. As individuals, we are spiritually nourished by knowing we have a rightful place on the earth and knowing well the specific places where we belong. Turangawaewae (a place to stand) comes with moral commitments to take full responsibility for the wellbeing of the features and organisms within that place. If we embrace these beliefs as an ideology, we may save the earth and be truly called tangata-whenua (people of the land).

Infusing Māori Values in Tertiary Courses

In the School of Physical Education at the University of Otago, we have a number of courses in outdoor education all of which include Māori philosophies, values and components to varying degrees. Some courses are practically oriented, others are theoretical. For instance PHSE 231 is a selection of outdoor practicals of which waka ama (Māori canoeing) is one. PHSE 104 *Applied Physical Experiences* explores Māori culture through Ngā mahia a te rehia - waiata and haka (song & dance). Another course, PHSE 416 *Adventure, Environment and Society*, adopts a critical theory perspective to adventure and the environment. The aims are: (1) To critique the theoretical frameworks, paradigms and literature underpinning outdoor education practice, and to develop a philosophy to understand the various relationships existing between humans and the natural environment; (2) To explore personal relationships with nature, especially with respect to socio-cultural and socio-historical influences upon ecological consciousness and worldview; (3) To facilitate an environmentally focused activity and to experience a range of such activities facilitated by others; (4) To investigate an environmental issue related to outdoor education or adventure.

In terms of taha Māori, the overall intention is to acquaint the students with elements of Māori language (te reo Māori) and the customs and traditions of Māori (tikanga Māori). Our course components are informed by Māori knowledge and specific activities are infused within the courses. Specific components may include: (1) seashore studies (tapātai whakatewhatewha); (2) Maori medicinal plants (rongoa Māori); (3) food preparation (hangi); (4) Flax weaving (harakeke); (5) kite flying (whakaro taratahi); (6) song (waiata & haka); and (7) canoeing (waka ama). Within these activities, a strong theme of critical engagement in environmental debates occurs and Māori wisdom is infused wherever possible.

Harakeke (flax) weaving is a good example. Harakeke is seen not just as a plant, it is a descendant of Tane-Mahutu. In keeping with Māori philosophy, a small karakia (prayer) is said before gathering leaves. The mauri (life force) of the plant is acknowledged; the welfare of the plant and the weavers is embraced. Strict protocols exist in the gathering of harakeke. The bush grows in a fan like pattern, likened to a family group. The middle leaves are the future of the plant and termed the rito (baby) and awahi roto (parent) and are never taken. Rather, the leaves are only taken from the outside; the tupuna (grandparents). Sustainable harvesting is ensured and the relationship of the plant to Papatūānuku is embraced. Additionally, the mauri (life force) is recognised in another way; the leaves must be used wisely for a worthwhile outcome. In the words of a weaver: "Once I have taken it from where it belongs, I must give another dimension to its life force so that it is still a thing of beauty." (Patterson, 1992, p. 18). The flax harvesting is linked to its end use, not separated as in the commercial harvesting of trees.

There are some very relevant eco-centric environmental messages in the Māori worldview. Māori philosophy, local knowledge and ecological practices are a source of wisdom for sustainable

environmental use and conservation in New Zealand. The indigenous knowledge of the Māori is living and contemporary and not a romanticised artefact from days of old. It is practiced on a daily basis by Māori and Pakeha (European) alike and enshrined in the laws of New Zealand. For Māori, it is a way of life, for non-Māori the concepts can provide a basis for environmental ideals that challenge consumerism and empower eco-justice.

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Nature in Outdoor Learning-Observations from the Well-being and Outdoor Pedagogies project

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Abstract

This paper draws upon research undertaken for the Well-being and Outdoor Pedagogies project and previous PhD research. These projects explored the processes of teaching and learning at one outdoor residential education centre. Data were collected through ethnographic research and included participant observation, interviews with teachers, parents, centre staff and group interviews with pupils. Previous analyses of this research have highlighted a number of aspects of the experience such as, for example, whilst the interviewed children reflected positively on the experience, the research highlighted the importance of teachers' interaction with the children in providing for democratic, shared positive learning. The activities undertaken by the pupils included physical activities focusing upon team work and problem solving, and activities which focused on exploring nature and the natural environment which surrounded the residential centre. In this paper we look at the ways in which the experience of the natural environment was made available to the pupils and the types of activities which provided for specific engagement with the local natural environment. The dominant philosophy of the residential centre is considered as are the ways in which nature and the natural environment appear largely taken-for-granted.

Research Methodology

Ethnography

This paper is based on research conducted at a small UK residential outdoor centre as part of the Well-being and Outdoor Pedagogies project¹, involving primary school children aged between 6-10, their teachers, parents and centre staff. A qualitative approach was adopted, taking the form of an ethnographic study, which was considered to be sensitive to the individual and to the social processes (Davies, 1984; Griffin, 1985; Humberstone, 1986; Willis, 1977) in order to allow for an in-depth understanding of the phenomena explored. This sensitivity of ethnography, its capability of capturing the process in its wholeness (Fetterman, 1989), the fact that it allows the researcher to have an insight into other people's experiences were factors that influenced the decision to use this approach in this research.

According to Denscombe (1983, p. 107), ethnography aims 'to describe and explain the culture of a social group and examine the circumstances in which this culture arises'. This research did not focus on the outcome of the teaching process, measuring its efficiency, but rather it was mainly interested in the customs and behaviour of the participants and, particularly, their understanding of the world in which they lived (Denscombe, 1983). What resulted was thick or rich description (Geertz, 1973) of the 'outdoor' classroom, where data was presented in sufficient detail so as to allow the reader to visualise the situation being described, in an attempt to give credibility to the research.

The interpretations made are not considered to be final, as the reader may have a different view of the world represented, but they are informed by the observations in the field, the reflexive account as well as the interviews, and integrated within the relevant theory. According to Hammersley and Atkinson (1995), reflexivity is a significant feature of social research and they argue that all social research

takes the form of participant observation, because it involves participating in the social world, in any role, and reflecting on the products of that participation. Reflexivity was achieved throughout this research, by keeping a fieldwork diary, containing recordings of thoughts for the day, considerations of the reasons behind reactions to certain situations or the reactions of the participants to the researcher conducting the fieldwork, to the environment or towards one another. This process constituted an early stage of data analysis (Fetterman, 1989; Hammersley and Atkinson, 1995).

Participant observation and semi-structured interviews have been used in order to collect a variety of data, which is central to ethnographic research (Walford, 2001). The context in which this data was collected was always taken into consideration when analysing and interpreting the data (Delamont, 2002). The fieldwork took place at a residential outdoor centre set in the English country side. The observational data were collected over three years (2005, 2006 and 2008)², mostly during the spring and summer months, when most primary schools would take part in residential outdoor visit. This type of data was recorded as the activities were taking place, using pen and notepads. These instruments did not seem at all intrusive, and were very practical, inexpensive and easy to use. It was felt that using more sophisticated equipment, such as a laptop or a video camera, would be rather cumbersome and impractical. Also, using images had further implications on consent. Participants soon got used to notes being taken all the time and they did not seem to mind it, most of the times they completely forgot about it, as they were too involved in the activity. The interviews were audio recorded and conducted toward the end of the fieldwork periods, when a strong rapport was build with the participants.

A total of 16 different school groups were observed, during the three phases of data collection at the centre. The groups came from ten schools, which means that, in some cases, there were two to four different groups coming from the same school at different times. Most of the groups stayed for two days and a half, either arriving on the Monday morning and leaving on Wednesday before lunch, or arriving on the Wednesday morning and leaving on the Friday before lunch. There were two school groups that stayed for five days, arriving on the Monday and leaving on the Friday, and one group that only stayed for one day. The schools that visited the centre were not all the same; there were certain differences with regard to the setting that they came from, i.e. rural or urban, but also with regard to the ethnicity and social background of their pupils.

Ethical considerations

Ethical issues are central to ethnographic research and particularly so for this study since research involved young children. The British Educational Research Association's (BERA)³ ethical guidelines for educational research underpinned the project. The research concerning this paper was conducted overtly, with the informed consent of all the participants involved. The researcher, Ina Stan, carrying out the data collection underwent a Criminal Records Bureau (CRB) check, which is a legal requirement for anybody working with young children. In order to protect the anonymity of the participants, no real names of persons, places or institutions are used in this paper. Interviews were conducted with pupils, parents, teachers and centre staff.

Before discussing the findings relevant to this paper a brief description of the research setting is given, in order to help the reader contextualise the data and visualise the context.

The Setting: the historical, environmental and organisational context

The outdoor centre is situated in the English countryside, set within 24 acres of private grounds, with neighbouring farms and a few cottages. The local countryside provides interesting walks with plenty of opportunities to take a closer look at the wildlife. There are rabbits everywhere, running frightened at the sound of human steps, lazy pheasants, and the occasional deer. The house itself is a monument to history. Built in the early 17th century, it is an old manor house and has its own ghost stories and plots. When a school group arrives at the centre they are gathered in the red room. Two large paintings dominate the wall that the four rows of chairs face. Children often ask about the man and the woman in each painting. This is when they are introduced to the Red Lady who is the ghost of the manor. The ghost myth is perpetuated both by the staff and the visiting pupils. Sometimes children would share stories about wardrobes moving and not being able to get a wink of sleep because they were terrified of the Red Lady. Nevertheless, most of the pupils seemed to thrive on the mystery.

Children are told a little about the history of the house: it is 400 years old, so there are valuable things inside, therefore no running is allowed inside. The house provides accommodation for 50 to 60 guests. It has large meeting rooms and lounge areas all furnished in a traditional style. Outside there is plenty of room to run around, there are green fields and two wooded areas. The smaller wooded area is close to the house and has some rare trees and quite a lot of small creatures, this is the area where the activities in which the pupils are encouraged to explore nature, such as 'environmental senses' and 'creepi crawls', are experienced.

The facilities also include a recently built low ropes course, a recreation centre with a heated pool, a campsite, a wildlife pond, nature trails, an observatory and an all-weather floodlit games area these all offer scope for a variety of learning experiences including training, environmental studies, team building exercises and sports. There is also a fully adaptable sports hall/auditorium with a theatre stage with recording and rehearsal rooms.

The centre is a charity that accommodates school visits and corporate courses in order to sponsor programmes involving youth at risk and disabled young people. The schools that attend are much involved in choosing the activities and putting together the programme. Some of the activities are facilitated by the teachers, rather than the staff at the centre, and schools are aware of this fact before coming to the centre.

Interactions, Activities and Nature

Previous analyses of observational data from both the early research and the Well-being and Outdoor Pedagogies project and the subsequent publications have largely focused on the interactions between teachers, facilitators and pupil and amongst pupils in which issues around power, empowerment and control in the learning process are considered (see Humberstone and Stan, 2010a; Stan, 2009; Stan and Humberstone , 2011). Whilst, in addition, publications drawing upon interviews with teaching staff, facilitators, parents and pupils have sought to make sense of the experience from a variety of participant's perspectives and to understand concepts such as well-being, safety and risk which emerge from the experience (see Humberstone and Stan, 2009; Humberstone and Stan, 2010b).

None of these analyses has considered in any detail the curriculum or content of the programme that the pupils are presented with. Nor to any degree have the relationships of the children with the natural environment surrounding the centre been examined. We have largely focused on the pedagogic experience and whilst nature or the natural environment is central it has largely been taken for granted as given. This has often the case when 'classroom' interaction in the outdoors or outdoor learning is researched.

In light of the focus of this EOE conference, 'Encountering, Experiencing and Exploring Nature in Education', and to redress the imbalance and the neglect of the environment in this work we draw attention to the environmental experiences made available to the pupils and pupil's engagement with the natural environment together with some of the parents' comments. Consequently, this paper draws attention, albeit briefly, to the

ways in which the outdoor experience examined in the research facilitates encountering, experiencing and exploring nature.

The Centre's Philosophy and Curriculum

The types of activities that are made available to the pupils who attended the centre are shown in Appendix 1. This shows that of the twenty nine activities available, six can be identified as focusing on nature and the natural environment these are as follows: environmental senses, creepi crawl, ghost story/walk, shelter building, forest walk and pond dipping. Sixteen of the activities are categorised as group or team orientated, emphasising the organisation's prevailing philosophy which appears to place great importance on team building and group work. According to one of the directors, group work, teaching children to work together, is the central core of the work of the centre. When asked why he thought this the director answered:

well, it reflects life and it's not realistic to expect to move on into further education [...]and not work together as a team, not socialise, not um to be able to communicate, to work with ... to be sympathetic to peoples' opinions and ideas, um, in their future, and that's one of the reasons why I feel very strongly that the national curriculum is not helping. (Paul-13.07.2005)

(Stan, 2008)

The emphasis of the centre was therefore largely concerned with social development, developing team work and decision making skills. This emphasis can be seen in appendix 1 column 3 where the majority of activities are seen as group interaction or team building events. However, the locations or places in which much of this work occurred are located in the natural environment and, as shown in the appendix 1 column 2, all but 6 or 7 of the varied activities were undertaken outdoors and in nature.

One example is the 'creepi crawl' activity. Directions to teachers are shown in appendix 2 . This activity provides opportunities for the pupils to explore the nature around the site and to explore the living creatures existing on the walk. Participation in creepi crawl is individualistic rather than group orientated and has a high degree of teacher involvement. It is also an activity that is lead by the school teacher rather than a member of the centre staff.

As identified previously (Humberstone and Stan, 2009; Stan and Humberstone, 2011) for teachers and centre staff the safety of the pupils is a paramount consideration and this as we have shown previously effected the ways in which the experience was interpreted and made available particularly by the school teachers. Furthermore concepts of safety also effected the ways in which the natural environment and the animals within could be 'imagined'. The 'creepi crawl' guidance sheet (appendix 2) under safety states. 'Remember to take special care near the pond'.

Engagement with nature

Observational data collected during the field work suggested that the pupils were eager to explore the wooded and natural areas in the centre's grounds in which the pond was located. However, in order to scare the children from swimming in the pond there was a long standing story narrated that conjured up an imaginary pigmy alligator contained in the pond. Not all the pupils are ready to believe the story about the alligator:

Susan (facilitator): [...] Don't swim in the pond! There's an alligator.

Pg1: Is there?

Pg2: No there isn't! (Field notes I, p. 3, 13.06.2005)

The story of the alligator or crocodile was quite a popular one, and some pupils would name it and swear that they saw it. The staff at the centre actively encouraged the perpetuation of this myth. An example of this is from observations at the pond and the pupils appear to be scared of it

Pg1: Does it (the crocodile) go on both sides?

They quietly look for it. They think they see it. Whispering.

Pg2: What should we call it?

They pupils choose a name. [They seem happy]. They see Jimmy (facilitator). They run to tell him about the crocodile.

Jimmy: Wow, you are very lucky, it's a really shy crocodile. (Field notes IV, p. 33-34, 22.05.2006)

In this episode above we see the myth of the crocodile being perpetuated. Whilst one of the most dangerous elements for young children is water, we can ask a number of questions regarding the veracity of this information given to the children and how and if this form of myth making helps pupils to understand and engage with the natural environment. Certainly it is factually inaccurate as crocodiles and alligators rarely live for long in UK water!!

Concluding Remarks

This paper has drawn attention to the taken-for grantedness of nature and the natural environment in the provision of outdoor learning at one specific outdoor centre. However, it is important to note that whilst only a few activities specifically made nature and its living creatures the focus of the learning most of the activities were located in nature and wooded areas. At the very least, it could be argued that pupils attending this centre were encountering, experiencing and exploring nature in a variety of ways and that nature formed a bridge between their formal educational experiences and the non formal educational experiences that were made available at the centre.

Notes

1. Ina Stan undertook her research for her PhD at the centre between 2005-2006. Ina Stan was then funded as post –doc research assistant to Barbara Humberstone for the Well-being and Outdoor Pedagogies project from monies obtained through funding obtained through the 2008 Research Activity Exercise.
2. Observational data were collected in 2005, 2006 and in 2008 as part of the Wellbeing and Outdoor pedagogies project.
3. BERA ethical guidelines can be found at www.bera.ac.uk/ethics-and-educational-research-2/

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Appendix 1 – Paradigm Worksheet: Analysis for Kinds of Activities

Activity	Place	Type	Conducted by	Degree of adult intervention/ involvement	Perceived Risk
Orienteering	Large area on centre grounds, outdoors	Team building, competitive exercise	Centre staff / visiting teachers	Low – Medium, sometimes high	Low (no safety equipment worn)
Parachute games	Small area of centre grounds, indoors or outdoors	Group interaction, fun orientated	Centre staff	High	Low
Low ropes course	Enclosed activity area on centre grounds, outdoors	Team building exercise	Centre staff	Medium - High	High (safety equipment worn)
Blind string trail	Enclosed activity area on centre grounds, outdoors	Team building exercise	Centre staff / visiting teachers	Medium - High	Medium (no safety equipment worn)
Environmental senses	Specific wooden area of centre grounds or at a nearby centre, outdoors	Individualistic experiential learning activity	Centre staff / visiting teachers	High	Low
Art	Small area of centre grounds or at a nearby centre, indoors or outdoors	Individualistic creative activity	Teachers / staff from a nearby centre	High	Low
Creepi crawl	Specific wooded area of centre grounds, outdoors	Individualistic experiential learning activity	Visiting teachers	High	Low
Campfire activities	Specific barbeque area of centre grounds, outdoors	Fun oriented activity, involves the whole group	Centre staff	High	Low
Sport hall games	The Centre's sports Hall, indoors	Competitive activities	Centre staff	High	Medium
Swimming	The Centre's swimming pool, indoors	Competitive, fun orientated activities	Centre staff	High	Medium – High (life guards and teachers supervising)
Spider's web	Enclosed activity area on centre grounds, outdoors	Team building exercise	Centre staff / visiting teachers	Medium - High	Medium
Krypton puzzles	Small area on centre grounds, indoors or outdoors	Team building exercise	Centre staff / visiting teaches	Low - Medium	Low
Scavenger Hunt	Large area on centre grounds, outdoors or inside the centre building	Team building competitive exercise	Visiting teachers / centre staff	Low	Low
Eggs can fly	Small area on centre grounds indoors or outdoors	Team building competitive exercise	Centre staff / visiting teachers	Low - Medium	Low
Disco	The cellar of the centre building, indoors	Fun activity, involves the whole group	Centre staff	Low	Low
Toxic waste	Enclosed activity area on centre grounds, outdoors	Team building exercise	Centre staff	Low – Medium – High	Low
Recording studio	The centre's recording studio, indoors	Fun activity, individualistic, sometimes involves groups	Centre staff	Low - Medium	Low
Connect force	Large area of centre grounds, outdoors or in the centre building, indoors	Team building, competitive exercise	Centre staff	Low - Medium	Low
Ghost story / walk	A grotto, outdoors or the centre building, indoors	Fun activity, involves the whole group	Centre staff	High	Low
Poisoned ground	Enclosed activity area on centre grounds, outdoors	Team building exercise	Centre staff / visiting teachers	Medium - High	Medium (some safety equipment worn: gloves)
Shelter building	Large wooden area on centre grounds, outdoors	Team building activity	Visiting teachers	Low	Low
Archery	The centre's Sport Hall, indoors or enclosed area, outdoors	Individualistic competitive exercise	Centre staff	High	Medium
Diary writing	Indoors	Individualistic activity	Visiting teachers	Medium	Low
Forest walk	The nearby forest, outdoors	Individualistic experiential learning activity	Centre staff / staff from a nearby centre	High	Low
Pond dipping	The centre's pond, outdoors	Individualistic experiential learning activity	Centre staff	High	Low
Video	The centre building, indoors	Fun, individualistic activity	Visiting teachers	High	Low
Raft building	Small area on centre grounds, outdoors and the swimming pool	Team building competitive exercise	Centre staff	Medium	Medium – High (life guards and teachers supervising)
Climbing	Outside the centre's grounds, indoors	Individualistic activity	Staff from a nearby centre	Medium	High (safety equipment worn)
Astroturf games	Centre's Astroturf, outdoors	Competitive group interaction activity	Visiting teachers / centre staff	High	Low

Adapted from Stan, 2008

Appendix 2 – Description of ‘creepi crawl’ activity at the centre

BEFORE YOU START.....

All leaders—please read this carefully before setting off to explore the Creepi Crawl.

This pack is intended for use by group leaders, rather than by the students themselves, although you may photocopy any of the sheets for their use before, during or after your visit. Although there are plenty of suggestions on the interpretation boards along the route, you may also wish to do some of the activities in this pack, selecting those that would appeal to your group, or concentrating on some particular aspect of the Creepi Crawl. The detailed Trail Notes included in this pack can be used in conjunction with the interpretation boards, enabling you to get more out of your day.

The Route:

The trail is about 1km long and takes about one hour to walk, but more time should be allowed for activities. It can be split into two parts, or you may like to walk it more than once so that you can concentrate on different aspects. There is also a short cut back to the house from the Insect Eye stopping point. There is a map provided, and waymarkers to find your way around the trail. It is possible to take wheelchairs around the whole trail.

Equipment:

No special clothing is required, except for strong shoes if you want to go off the hard surfaces, and waterproofs in wet weather. Any special equipment needed for activities is listed in the trail notes. You may wish to take a camera (flash facility recommended) for the sculpture activity at Feely Forest.

Safety:

Any safety points you need to be aware of are highlighted in the text. Remember to take special care near the pond. All children must be supervised throughout the trail. Please be aware that electric storms or high winds can be a danger in woodland.

Activities:

If you want to follow the trail with the mind of a minibeast, you may wish to make use of the “Who Am I?” minibeast notes (and answers), an example of which is included in this pack. Collect the appropriate number of badges from the house for the size of your group before you set off. Give out the right question sheet to each student, according to which minibeast they are to be. When they have correctly guessed who they are, then give out the badges. If there are more than seven students they may have to work in pairs.

Outdoor Play and Learning in Early Childhood

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Abstract

Very young children have a particular way of interacting with nature and of learning about and from it. They mostly learn through play. Natural environments provide far more opportunities for creative play than playgrounds and indoor places. In of our research we investigated to what an extent play and learning in natural environments are gaining acceptance in Slovene kindergartens. We collected data and opinions of 78 kindergarten teachers from numerous Slovene kindergartens. Parents' opinions about outdoor kindergarten are also presented, as well as preschool children's views about how and where they like to play. Our results show that the vast majority (81%) of kindergarten teachers does not spend more than four hours weekly in natural environments with children. That is few, even more so if compared to the many European "outdoor kindergartens", where children spend time in nature four hours daily or even longer, whatever the weather and season. Most of the kindergarten teachers (73%) consider that the time spent in natural outdoors is insufficient. Over a half (56%) of the parents believe it would benefit their children if they spend more time in nature than they do now. Preschool children prefer playing outdoors. After they were given the opportunity to play in the natural environment for a longer period of time, the majority of them (58%) chose nature as their favourite playspace. The results of our research reveal that in Slovene kindergartens more time and attention should be devoted to play and learning in nature.

Key words: *preschool children, outdoor play, outdoor learning, creative play*

1 INTRODUCTION

Many adults, when asked to tell about a significant childhood memory, recount an outdoor experience, often in considerable detail and charged with highly positive affect (Chawla, 1990). These, often the most memorable learning experiences, help us to make sense of the world around us by making links between feelings and learning. They stay with us into adulthood and affect our behaviour, lifestyle and work. They influence our values and the decisions we make (Waite, 2007).

Young children are fascinated by the natural world. They know and experience the natural world differently to adults (White, 2008; Wilson, 2008). According to Rachel Carson (1956), the child knows the world as being "fresh and new and beautiful, full of wonder and excitement". As for adults, Carson says: "It is our misfortune that for most of us that clear-eyed vision, that true instinct for what is beautiful and awe-inspiring, is dimmed and even lost before we reach adulthood".

Young children not only know the world differently than adults, they also do different things in interacting with nature. The natural world for children is not just a scene or backdrop – it is something to be interacted with. Young children want to do more than look. They want to touch, dig, poke, shake, pound, pour, smell, taste and "muck around". They want to explore and experiment (Wilson, 2008). They interact and learn through movement and doing, involving their whole body and using it to find out and to express. They take in information through all their senses, with less emphasis on talk than we do as adults. They notice details and things that adults miss or filter out. They need real and relevant experiences, with lots of handling, direct contact and playful exploration of materials. They

also need lots of opportunities to imitate, repeat and revisit through their own self-directed play (White, 2008).

Most of what very young children need to learn during their early childhood years cannot be taught. It is discovered through play. Through play children learn about themselves and the world around them. Through play they develop a sense of competence and make invaluable discoveries about their social, cultural and physical environments (Wilson, 2008).

The natural environment is an ideal place for children to engage in creative play. It offers an incredible wealth of sensory experiences and open-ended materials (materials that can be used in a wide variety of ways) for motoric manipulation. Experiences in natural outdoor playspaces promote the holistic development of children as they foster growth in all of the developmental domains, including adaptive, cognitive, aesthetic, communication, sensorimotor and socioemotional. Another advantage of play in a natural environment is the lessening of aggressive behaviours (Wilson, 1995). The quality of play also tends to be richer in natural environments, where children engage in more creative forms of play (including fantasy and pretend play) than in playgrounds or “prepared” indoor playspaces (Wilson, 2008).

Creative play in natural environments also fosters the development of an environmental ethics, which must start at the early childhood level, as this is the period of life when basic attitudes and values are established (Wilson 1994). The most effective way to instill a lifelong sense of caring and responsibility for the natural world is to give young children frequent positive experiences with the world of nature. Unless children have frequent positive interactions with the natural world, they are likely to develop unfounded fears and prejudices about nature that impede the development of an environmental ethic (Wilson, 2008).

Knowledgeable and enthusiastic adults are crucial to unlocking the potential of outdoors (White, 2008).

In this paper, we present the results of our research, in which we investigated to what an extent outdoor play and learning are gaining acceptance in Slovene kindergartens. We collected data and opinions of kindergarten teachers from a number of Slovene kindergartens. Also parents' and preschool children's views about outdoor play and learning are reported.

2 RESEARCH ON OUTDOOR PLAY AND LEARNING IN SLOVENE KINDERGARTENS

2.1. Sample and methods

The research included 78 kindergarten teachers working with children aged 3–6 in kindergartens across Slovenia. The research further included 50 parents of preschool children aged 3–6 who go to two kindergartens in the town of Grosuplje, Slovenia. The kindergarten teachers and parents were asked to complete surveys.

We also held one-on-one interviews with 24 children aged 3–6, from kindergarten Kekec in the town of Grosuplje. The children were interviewed twice, both times being asked the same set of questions. In the course of the one month in between the first and second interview the children were taken to play into the forest and onto a meadow, twice or three times each week.

The kindergartens where we based our research are located in an urban environment.

2.2 Results

2.2.1 Kindergarten teachers about outdoor play and learning

We asked the kindergarten teachers how much time (how many hours weekly, on average) they spend with the children in a natural setting – in the forest, on the meadow, by the stream – thus outside man-made playgrounds. The answers differed considerably. Most teachers (26 %) answered they spend 2 hours a week with the children in a natural environment, while very frequent answers were also 3 hours (15%) and 1 hour (14%). It is worrying that 11% of the teachers answered they spend less than 1 hour a week in a natural setting with their children. The vast majority (81%) of teachers does not spend more than 4 hours weekly in a natural landscape with their children (Fig. 1).

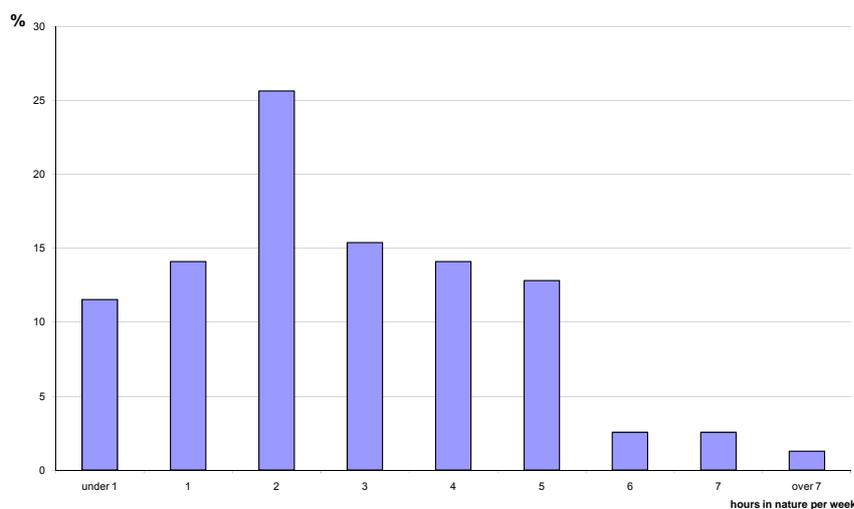


Fig 1: Time that Slovene kindergarten teachers spend with the children in natural environments (hours per week).

After asking teachers how many hours a week they spent with the children in the natural outdoors we asked the following question: »Do you consider this to be enough? « The majority (73%) do not think so and wish children could spend more time in a natural setting.

We wanted to find out which are the biggest obstacles that kindergarten teachers face in organizing outdoor play and learning. Most answers were related to the kindergartens' distance from natural landscapes, organizational problems (need for additional assistants, scheduled daily routines) and security issues (less control over the children, ticks, dangerous roads).

We were also curious to know how kindergarten teachers spend time with the children when they are in natural environments, what they do there. The most frequent answer (48%) was taking walks. Less frequent answers were guided sports and science activities and art-related activities. Only a small number (15%) of teachers mentioned spontaneous, unmediated play.

2.2.2 Parents about outdoor play and learning

We wanted to find out whether parents thought their children spend enough time in the natural outdoor environment (thus outside playgrounds) while being in the kindergarten. Over a half of them (56%) believe it would benefit their children if they spend more time in nature than they do now. All of these parents said they are willing to assume the inconveniences and risks related to the natural outdoors, such that cannot be fully avoided despite maximum care and attention (ticks, dirty clothes, children cannot come to the kindergarten if they are not completely healthy). All of them also answered they are willing to take on the additional expense of buying their children waterproof clothes, to be kept in the kindergarten for the children's convenience so they can spend more quality time outdoors.

We asked the parents what kind of a kindergarten they would chose for their child if they had all options open: a kindergarten in an urban environment, close to all the institutions, shops and bus stops, or a kindergarten close to a forest and outside a residential area, with an expansive fenced meadow and forest, where children can spend a lot of time outdoors. The vast majority of parents (78%) chose the second option, a kindergarten on the edge of a forest.

2.2.3 Preschool children about outdoor play and learning

Last but not least we were interested in what preschool children themselves think about playing and learning in a natural setting. In the first interview we asked the children how much time they spend outdoors during their day in the kindergarten, and whether they would like to be outside more. The vast majority (78%) answered yes.

We further asked them where they prefer to play while being with the kindergarten teacher and children. Before being taken to play in the natural settings, the majority (54%) answered their favourite play area is the outdoor playground, 26% said they prefer the playroom, and only 20% said their favourite play areas are the forest or meadow. After a month of spending a lot of time in the natural outdoors (Figs. 2 and 3) their answers were completely different. The majority (58%) now chose the forest and meadow to be their favourite play areas.

We asked the children to tell us which structures and materials they want in their outdoor playspaces. Their most common answers in the initial interviews were: water, trees to climb, bushes to play hide and seek, and sand. After a month spent regularly playing in natural landscapes, their wishes multiplied. They now said they also want leaves, branches, moss and stones to play with.

We also wanted to know if the children are bothered about their clothes getting dirty from playing outdoors. Initially the vast majority (76%) answered yes. After playing in the natural outdoors (where dirty clothes were never an issue) their answers changed considerably. 79% of the children now answered they are not at all bothered by getting dirty from playing outside.



Fig.2



Fig. 3

Figs. 2 and 3:

Creative play in the forest. Children manipulate a variety of natural materials and objects, which assume a symbolic meaning through play and can be used in a wide variety of ways. Children engage in creative forms of play (including pretend and fantasy play).

2.3 Discussion and conclusions

The results of our surveys of kindergarten teachers lead us to conclude that Slovene kindergartens do not devote enough attention to children's playing and learning in natural outdoor settings. Four hours a week is few, even more so if compared to the many European »forest kindergartens« or »outdoor kindergartens«, where children spend time in nature every day, whatever the weather and season, being outside for four hours daily or even longer. It is encouraging, however, that most Slovene kindergarten teachers, included in the research, realize that the time spent with the children in the natural outdoors is insufficient. We assume they recognize, at least in part, the importance of play and learning in the natural outdoors for preschool children. On the other hand they seem to lack the related knowledge and experience; even when they do take children into a natural environment they spend most time taking walks, as if they lacked ideas what to do with the children there. Efficient organization can overcome the obstacles teachers see as preventing outdoor play and learning from becoming more important in the children's everyday life in the kindergarten. These obstacles include the teachers' belief that children gain more from playing indoors than they would if they played outdoors, and that both teachers and children are preoccupied with other activities. Educating kindergarten teachers about outdoor play and learning, and sharing with them the positive impacts of outdoor play witnessed by kindergartens that practise it, can surely help change this line of thinking.

It is evident that preschool children want to spend more time outdoors. If they are given the opportunity to play in the natural environment for a longer period of time and find out what it has to offer, they grow fond of it. Having at their disposal playrooms with toys and conventional outdoor playgrounds with manufactured equipment and natural environments, children will choose the latter as

their favourite playspace. The repeated experience of playing in a natural environment will soon make any prejudice against playing outside, such as dirty clothes (if they are not made into an issue by parents and teachers), go away.

The United Nations Convention on the Rights of the Child recognizes the right of children to live and play in an environment that stimulates their healthy development. The opinions of surveyed teachers, parents and children all point into the same direction: in Slovene kindergartens more time and attention should be devoted to play and learning in a natural setting. Our research has revealed a readiness to give the outdoor kindergarten more prominence, and it encourages further action. Educating teachers and parents about the importance of play and learning outdoors and introducing them to the positive experience of European outdoor kindergartens can help overcome the related organizational and material obstacles as well as prejudices.

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First hand experiences and interactive learning – Environmental Education and Outdoor Education in Finland

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Abstract

The purpose of this article is to be an introduction of outdoor education in Finland. Firstly, Environmental Education theories and models used as background for outdoor education will be presented. Thereafter, a case study, showing how different emotions are correlating with learning and with learning in a different learning environment, will be shortly described. This research is part of project SEED 2009-2011, Sustainable food education for self-efficacy development and it is partly funded by Academy of Finland. At the end of the article, it will be described how environmental education and outdoor education have been taken into account in the Finnish national and local school curricula and given some examples about them in Finnish schools. The article will provide new aspects for teacher education and the development of school curricula.

Key words: *cross-curricular theme, environmental education, emotions and learning, national and local curricula*

Introduction

The Tbilisi Declaration (UNESCO-UNEP, 1978) emphasized an active citizenry by suggesting, that the goal of environmental education (EE) was to

“help individuals and communities ... acquire the knowledge, values, attitudes, and practical skills to participate in a responsible and effective way in anticipating and solving environmental problems, and in the management of the quality of the environment.”

Palmer and Neal (1994) define EE as: 1) education about the environment, which builds awareness, understanding, and the skills necessary to obtain the understanding; 2) education in (or from) the environment, where learning occurs outside of the classroom; and 3) education for the environment, which has objectives related to nature conservation and sustainable development (SD). Hungerford and Volk (1990) have argued that active participation is not emphasized enough in EE although environmentally responsible behaviour can be developed by 1) entry level variables, including the ability to experience and enjoy nature and knowledge of ecology; 2) ownership variables, such as in-depth knowledge and personal investment in the environment; and 3) empowerment variables like internal locus of control and intention and ability to act for the environment.

The EE research has focused on changes in the cognitive and affective attributes brought about by EE interventions. Outdoor education (Ode) has been found to be an effective way of learning (Bogner, 1998). An emphatic relation to nature (Palmberg & Kuru, 1998), nature sensitivity (Nykänen & Kinnunen, 1992), environmental awareness, attitudes, and conceptions can be fostered by repeated nature experiences (Gilbertson, 1990) and long-term nature education (Palmberg, 1989).

Persons' knowledge level, together with values and conceptions of responsibility, has an effect on how interested they are in environmental questions (Bulkeley, 2000). Education is a prerequisite for promoting the behavioural changes and providing citizens with the key competencies needed to achieve SD. In order to encourage the promotion of EE and Sustainable Development Education (SDE) in Finland, a national strategy for EE (A National Strategy for..., 1991) has been created, as well as a strategy for SDE (Loukola et al., 2002). EE and SDE are also taken into account in the National core curriculum for basic education (NCC, 2004).

This article aims to give an introduction of EE and OdE in Finland. First, we will present the EE models used in Finland and then a qualitative case study showing how different emotions are correlating with learning in a different learning environment. At the end of the article, it will be described how EE and OdE are included in NCC together with some examples.

Models in EE used in Finland

The most widely used EE models in Finland are (Cantell & Koskinen, 2004): the Environmental behaviour model (Hungerford & Volk, 1990), the Onion model (Käpylä, 1995), the Tree model (Palmer, 1998), and the House model (Jeronen & Kaikkonen, 2002).

In *the Environmental behaviour model*, Hungerford and Volk (1990) describe the development of an environmentally responsible citizen with three variables. The most important variable at the entry level is environmental sensitivity, which means an emphatic attitude towards nature. It develops based on experiences of nature. Ownership variables are the most important for the development of responsible behaviour. In-depth knowledge of environmental issues and the ecological and social consequences of human action promote environmentally responsible behaviour. Personal investment means that a person is ready to spend money or time or to take trouble to work for the environment. Minor variables are knowledge of the consequences of one's behaviour, and a personal commitment to issue resolution. Empowerment is a cornerstone in EE. It creates a feeling that environmental action is important. Knowledge of and skills in using environmental action strategies create the will to behave in an environmentally responsible way (Hungerford & Volk, 1990).

The Onion model is based on the Environmental behaviour model. Knowing and knowledge as ideological power factors are at the core of the model (Käpylä, 1995). The aim of EE is to support understanding of cultural meanings through emotions and affections. A person creates her or his own knowledge. Responsible environmental behaviour includes entry-level, ownership, and affective variables. Successful EE includes strategies for knowing, feeling, willing, and doing.

In *the Tree model*, implications for EE come from different ideologies or perspectives on the root causes of environmental problems (Palmer, 1998). Education about the environment, in the environment and for the environment should go alongside, interlinked with issue-based, action-orientated, and socially critical education.

The core idea in *the House model* is that the development of senses and emotions is crucial in EE (Jeronen & Kaikkonen, 2002). The main objectives are to foster environmental sensitivity, to learn environmental awareness and knowledge and to acquire a readiness and responsibility to solve environmental problems. The content covers nature, the built, social, aesthetic, and ethical environment. Nature studies include issues about ecology, environmental threats, and the relationship between human beings and nature. Studies of the built environment consist of economical, technical, and socio-cultural questions. In social environment studies, students think over the questions of environmental problems and an active citizenship. Aesthetic and ethical issues are discussed in cultural context including reflections on values and moral issues (Jeronen & Kaikkonen, 1994). Useful methods in EE are those related to sensitivity, science and values education. Sensitivity education is

based on experiential learning with outdoor activities. Science education includes inquiry-based learning. In values education, values clarification is a useful method. Product and process evaluation, based on the objectives, is emphasized and not only the teachers but also the pupils and parents should participate in the evaluation processes (Jeronen & Kaikkonen, 2001). In all situations, the unique differences between students should be taken into account (Jeronen et al., 2009).

All the models presented above have the same purpose: education for a sustainable future. Their main aim is to develop skills and qualifications important for nature conservation, such as sensitivity for the environment, knowledge about ecology, critical thinking skills, understanding of environmental questions, social action skills, and responsible environmental behaviour (Cantell & Koskinen, 2004).

A case study of outdoor education in rural settings

The following description on the OdE in the rural settings is based on the manuscript by Smeds et al. (2010).

Introduction

The linkage between emotions and learning is a complex issue. Pupils' knowledge is built up by concrete experiences, interests, emotions, and values (Bogner, 1998). OdE in rural and agricultural surroundings offers many possibilities for learning and studying subjects, as well as studying the relationship between affective and cognitive aspects.

McRae (1990) has divided OdE into knowledge focused outdoor teaching and learning, ecologically focused outdoor EE and outdoor leisure education focusing on personal growth. Advantages with OdE are its deductiveness (Dahlgren & Szczepanski, 1997) and hands-on activities (Kolb, 1999). Nundy (Dillon et al., 2003) explains activation of different senses as reinforcement between the affective and the cognitive domain where one influences the other and provides a bridge to higher learning.

First hand experiences and interactive learning situations are important in forming of personal opinions, attitudes, and values (Balschweid, 2002). Positive attitudes of urban and rural pupils towards environment have been found to increase in OdE (Mittelsteadt et al., 1999; Frick et al., 1995). Urban and rural pupils (McCormack, 2002) and girls and boys (Wandersee, 2006) have also been found to have a different view on agriculture. E.g. girls show more "hot" emotions and boys "cool" towards agriculture (Alsop, in Dillon et al., 2003).

OdE is a component of the basic education in Finland in form of field trips and camp schools (NCC, 2004). Camp schools are most popular in the grades 5 and 6 (12-13 years old pupils). They are not compulsory but are found to be encouraged by school traditions and teachers' personal experience on the benefits of camp schools. Typical themes for camp schools are nature and environment and the building of pupils' social competence. Adventure, physical, and cultural activities are also seen important. (Miemois, 2005)

Some reports on OdE in rural settings has been published (Krogh et al., 2005), but studies on pupils' expectations and experiences are diverse (Dillon et al., 2003). To be able to investigate the phenomenon a project called Eco Learn was established. The theme of the project was chosen to be the route of food as people are living to a greater extent in cities and a diminishing number of pupils' have personal experiences of nature or life in the countryside. This can be shown pupils' low knowledge on agriculture (Trexler, 2000) and differences in the knowledge between urban and rural pupils (Frick et al., 1995). Especially urban pupils' image of human-nature interaction is often based on television and other media (Palmer, 1998). Eco Learn as a concept is viewed as OdE by Knapp (1996) and based on the constructivist learning conception by Davis et al. (1993), EE theory by Palmer and Neal (1994) and by Palmer (1998) and experiential learning theory by Kolb (1984). The aim of

Eco Learn was to clarify for pupils the route of food, to foster understanding and respect of nature by demonstrating a sustainable relation between man and nature in agriculture, and to offer a personal, positive, genuine and realistic image of the countryside. (Eco Learn - a Model for..., 2006)

The aim of the study was to investigate pupils' expectations and experience on learning in a farm environment. Following research questions guided this study:

1. What kinds of expectations do pupils have on studying and learning in outdoor rural settings?
 - a. Do urban and rural pupils have any differences?
 - b. Do girls and boys have any differences?
2. What kinds of experiences do pupils have on studying and learning in outdoor rural settings?
 - a. Do urban and rural pupils have any differences?
 - b. Do girls and boys have any differences?

Material and methods

The material was gathered during 2003–2005 in Southern Finland. In total, 161 pupils in the grades 5 and 6 participated in the study (76 girls, 78 boys, 7 pupils did not mention their sex). 85 urban pupils were from Helsinki region and 76 rural pupils from Häme region. The urban pupils had seldom or never visited a farm and the rural ones had visited farms before.

Mixed methods approach (Johnson & Onwuegbuzie, 2004) with qualitative and quantitative methods was used (questionnaires with closed Likert-scaled questions based on mood research, open-ended questions, observation diary and interviews). The qualitative results were analyzed by inductive content analysis methods (Graneheim & Lundman, 2004).

Main findings

About 70% of all pupils had general positive expectations of rural environment, but there were differences between the groups. About 45% of the pupils brought up positive affective values and about 10% negative values. The urban pupils expected to see countryside/agriculture, variation, and peace and quiet and the rural pupils learning by doing and learning new knowledge. The girls expressed stronger affective values as love and the boys expected more to be away from school.

Concerning the pupils' experiences about 80% of all pupils had a general positive opinion. There is no big difference between the urban and the rural girls or the urban and the rural boys. The boys expressed more positive values than the girls. The girls were more indecisive than the boys and the boys had more negative opinions than the girls. More than 50% of all pupils brought up learning as a quality of rural settings, among the rural girls 80%. The pupils told that rural settings are a better learning environment than an ordinary classroom and offer a combination of fun and learning. The girls brought up learning, including better learning environment and countryside/agriculture more than the boys and the boys brought up animals, free time and affective values more than the girls.

Conclusion of the study

These results reveal the positive educational value of Ode in rural settings and the linkage between affective and cognitive values. The pupils brought up values that support Ode. Similar tendencies in experiences and increase in general positive attitudes towards Ode in rural settings can be identified among the urban and the rural pupils, as well as among the girls and the boys. Learning was brought up as an important quality, as did a better learning environment. Differences between the urban and the rural pupils can be explained by cultural and geographical background and preparatory activities that the pupils have or have not participated in.

Studying and learning processes are personal experiences that involve emotions, cultural and geographical background. Pupils various backgrounds need to be taken into account when planning Ode in rural settings, but more important is preparing the pupils for learning by appropriate activities.

Ode in rural settings can be seen to have cognitive values that are linked to affective values, but affective values do not explain the experienced educational use of outdoor rural settings amongst pupils.

EE and Ode in the Finnish NCC and at schools

EE and Ode in the Finnish NCC

In the comprehensive schools (pupils aged 7–16); the environmental theme of NCC is “Responsibility for the environment, well-being, and sustainable future”.

It should be taught using a spiral principle where knowledge and skills of pupils will be broadened and deepened year by year. The main objective is (NCC, 2004, 39):

“...to raise environmentally conscious citizens who are committed to a sustainable way of life. The schools must teach future-oriented thinking and building the future on ecologically, economically, socially, and culturally sustainable premises.”

The pupils should (NCC, 2004, 39):

- understand the prerequisites for human well-being, the necessity of environmental protection, and relationships between the two;
- learn to observe changes taking place in the environment and human well-being, to clarify the causes and consequences of these changes and to act for the good of the living environment and enhanced well-being;
- learn to evaluate the impacts of their consumption and daily practices, and adopt the courses of action required by SD;
- learn to promote well-being in their own communities and to understand threats to, and potential for, well-being at a global level;
- come to understand that, through their choices, individuals construct both their own futures and our common future; learn to act constructively for a sustainable future.

The local and school curricula are based on the NCC.

International EE projects in Finnish comprehensive schools

Many of the Finnish comprehensive schools have participated in international EE projects in the last years. GLOBE (Global Learning and Observations to Benefit the Environment) is a worldwide hands-on, primary and secondary school-based education and science program. It trains teachers to help pupils improve their achievement in science and mathematics, and in the use of information and communication technology. It also supports teachers and pupils achieve education objectives. In addition, it develops environmental awareness. The content includes climate, vegetation, water systems, soil, and global positioning system (GPS).

Schools from the Baltic countries take part in the Baltic Sea Project. The purpose of the project is to awaken pupils' interest in environmental issues and protection, and to develop their responsibility for environments.

OECD/CERI ENSI project (Environment and School Initiatives) has an important role when developing the “Ecoschool” idea, learning environments and teacher education. “Ecoschool” means that schools stress ecological solutions in their own everyday life. E.g. in the theme called “Learning environments”, pupils and teachers have developed classrooms and school backyards.

In The Northern forest ecosystems and education project (Pohjoiset metsäekosysteemit ja koulutus); students learn to solve environmental problems focusing on biodiversity (Salmio, 2001, 224).

EE at the teacher training school of the University of Oulu

At the primary level of the teacher training school of the University of Oulu, three different EE themes have been put into practice during the school year. In the first theme “Immediate surroundings”, pupils investigate local environments biogeographically. In the end of summer, they reflect on how organisms prepare for winter. In autumn and winter, pupils investigate cultural and social environment. In spring, they observe actual changes in nature. In the second theme “I and environmental conservation”, pupils familiarize themselves with biodiversity and study the concept of SD. The third theme is “Finland and Northern Countries”. During the autumn term, pupils acquaint with biogeography in Fennoscandia. In winter, they learn issues dealing with relationships between man and nature. They also cooperate with foreign schools via distance learning systems. Recycling and improvements in close environments are long-lasting projects in studying personal and collaborative responsibility. (Oulun normaalikoulun...2004)

At the lower secondary level, the aim is that pupils adopt relevant environmental knowledge, and develop their skills, readiness and responsibility in environmental issues. The 7th grade pupils investigate weather, water, and soil in different ecosystems. They acquaint with the cultural environment discussing locations of buildings and roads, social and economical questions, and effects of human beings on ecosystems. The 8th grade pupils investigate physical, chemical and biological factors in nature. The 9th grade pupils study e.g. endangered species and everyman's rights including ethical questions. Laboratory work, map and journal analyses, role games, junk markets, trips, excursions, visits, and camp schools are examples of the used methods. (Oulun normaalikoulun...2004)

Conclusions

In Finland, both the curricula and the ideas of teachers include active approaches to learning, encouraging to manage studying and learning processes rather than merely to lecture in the classroom. It has been described as the use of discussions, visits, role-plays, games, experimentation, and practical activities in outdoors. However, the teaching styles compared with the ideas, are not as open as they could be. Teaching strategies exploring pupils personal values and responses, are not as frequently used as they could be. Instead, traditional teacher-centered learning is often preferred. According teachers, the reason is lack of time and of knowledge of new environmental issues and educational methods.

The emphasis on routine learning can lead to pupils accepting any fixed knowledge. It deters students from becoming independent, innovative, critical thinkers and decision-makers, all vital components of EE. Common environmental activities used are recycling and learning of ecological information. In many schools, teachers and pupils also clean near-surroundings, plant trees, and take care of composts and school gardens. This all is a good thing, but teachers should also encourage pupils to critical thinking supporting the pupils to question the norms and values of society. Valuation could include direct reflection about pleasure or suffering. These are elements present in the notion of quality of life and are acknowledged in EE. The point is to evaluate pragmatic abilities in construction of one's own happiness that should take into account the need for an appropriate self-control in the interaction with the environment. Meta domain includes moral values. It is about a person's acknowledgement of duties. If we want to study and learn a new life style, it is important to take environmental values into account and make schools places where we can live after them.

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A Research Summer Camps as an Effective Way for Comprehensive Development of Adolescents' Personalities and Environmental Consciousness: A Case Study from Slovenia

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Abstract

The purpose of this paper is to discuss how youth can benefit from variety of different experiences organised on summer camps. We use the case study from our practice to show how outdoor educational programmes can contribute to the overall development of adolescents' personalities and environmental consciousness. Summer camps were organised at the end of a one year long pilot environmental programme named Drops of Science. The goals of the programme were to educate pupils and students about protection of freshwater ecosystems, water cycle, water use, water footprint and to promote science amongst youth. We were cooperating closely with 25 schools and had access to more than 300 ecoschools in the Slovenia. By developing educational materials and activities for different age groups – from preschools to universities – we have tried to raise awareness and knowledge about the issue. This paper is divided into three sections. First, the educational programme “Drops of Science” and the educational goals of the summer camps are presented. Next, philosophy, organisation and different activities of the summer camps are described. In the last section, evaluation of the camps is presented, using qualitative (analysis of participants posters, focus groups) and quantitative (structured questionnaire) methods. Results show that adolescents highly enjoyed attending the camps. The responses reported that they learned much about animals and plants, freshwater ecosystems, the research methods and dealing with research equipment. They had plenty of opportunities for experiential learning about animal species. They also had the opportunity to learn about different professions in science and to talk to established scientists. The model of outdoor education presented here may be very useful to other institutions interested in working towards motivating more young people for sciences and research work.

Key words: outdoor education, camp, adolescents, raising awareness, personal development

Introduction

Smith, Reynold, Donaldson and Masters (1972) suggest that outdoor education is unique because it maximises the use of the natural physical environment as a learning laboratory. A growing body of literature is now available which reports investigations of participants' personal gains from outdoor education or wilderness experiences (e.g. Hattie, Marsh, Neill & Richards, 1997; Hopkins & Putnam, 1993; Stott & Hall, 2003). The purpose of this paper is to discuss how youth can benefit from variety of different experiences organised on summer research camps “Drops of Science” in Slovenia.

In order for experiences to be meaningful to individuals, Palmer (2004) suggested bringing us back to our whole selves. Palmer suggested, meaningful learning experiences go beyond just learning something; they guide people's perceptions of who they really are and what are they capable of. Orr (1994, p. 6) suggests that "we experience nature mostly through sight, sound, smell touch and taste —

through a medley of sensations that play upon us in complex ways". In another paper Orr (1993, p. 17) wrote that experiential knowing is based on the assumption that "there is no way to separate feeling from knowledge, or object from subject; there is no good way to separate mind and body from its ecological and emotional context".

We use the case study from our practice to show how outdoor educational programmes can contribute to the experiential learning, overall development of adolescents' personalities and environmental consciousness. One of the primary goals of the camps presented in the paper is to promote science and research work among youth. This paper is divided into three sections. First, the educational programme "Drops of Science" and the educational goals are presented. Next, philosophy, organisation and different activities of the research summer camps are described. In the last section, evaluation of the camps is presented, using qualitative and quantitative methods.

Educational programme "Drops of Science"

Two key elements of the programme are hidden in the name of the programme: *water* and *science*. Educational programme "Drops of Science" was a one year long pilot environmental programme. The programme emphasises holistic educational approach in learning about water and water resources.

We were closely cooperating with 25 schools and kindergartens from Slovenia. Additionally, more than 300 Slovenian eco- schools and eco- kindergartens were involved by getting our educational materials; we developed educational materials and activities for different age groups – from preschool to university level. The goals of the programme were to educate pupils and students about protection of freshwater ecosystems, water cycle, water use, water footprint and to promote science amongst youth. The latter was an important educational goal of the camps.

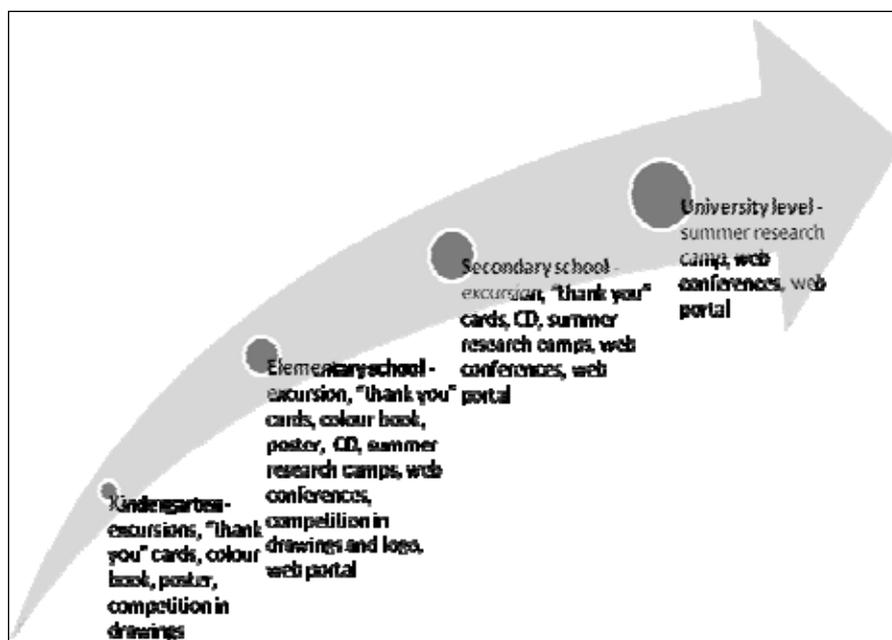


Figure 1. Education activities and educational materials developed in the programme "Drops of Science"

For all details about educational activities and materials visit web portal <http://izobrazevanje.lutra.si>. The programme was co financed by Ministry of Higher Education, Science and Technology.

Research summer camps: how do we work?

At the end of the programme, we organized four research summer camps for youth. Main goals of the research summer camps were to inform youth about different research methods, educate them about animals, plants and other elements of freshwater ecosystems and surrounding environments, and to present the different researchers and their research work in order to promote science and research work.

The camps were attended by 55 pupils and students from all over Slovenia. Camps were held in Fokovci on Goričko, in Fara near river Kolpa, in Tolmin near river Soča and in Rakov Škocjan where karst river Rak is floating.

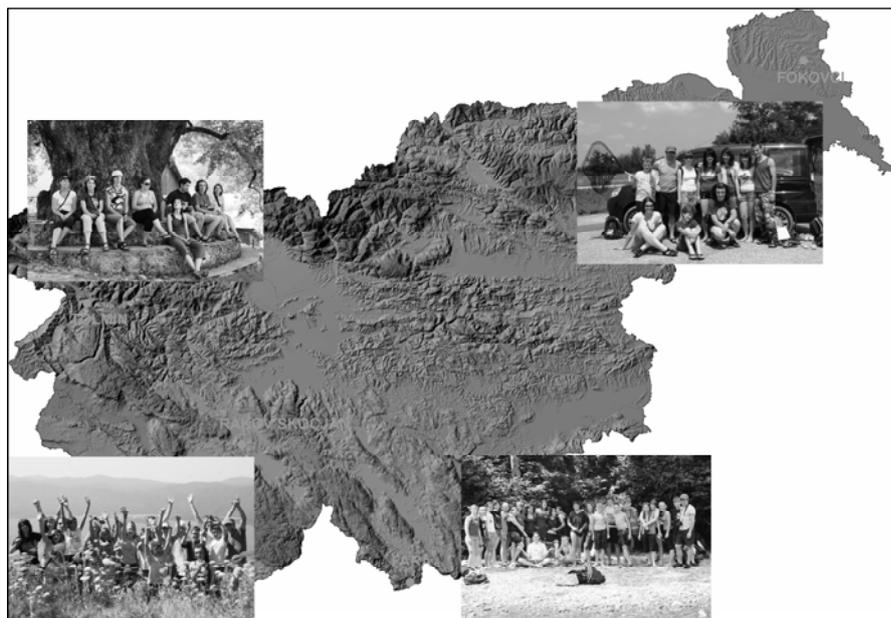


Figure 2. Map of Slovenia with locations of summer research camps

Research activities. Participants of the summer camps were studying marsh and other aquatic plants, tracking animals, watching birds, analyzing chemical and ecological condition of freshwater ecosystems, catching and determining species of amphibians and butterflies etc. Details on work of different research groups were summed up in research reports published in proceedings of Drops of science (in Slovene language) (Torkar, Mohar, Gregorc, Nekrep & Hönigsfeld Adamič 2009).

Workshops and games. The camps were abundant in artistic workshops, orientation and sport games, which enriched afternoons of the camps. A wide selection of workshops and games, attended by all the participants, has offered young people an opportunity to develop and discover their talents and to establish themselves among their peers and mentors. The purpose of the games was also to improve team spirit and group dynamics among the participants.

Evening guests – recognized researchers. The participants spent the evenings in the company of guests, renowned researchers who have presented their own life paths that have led them to work in scientific research. We hosted researchers from various scientific fields such as forestry, nature conservation, ornithology, entomology, botany and geography.

Adventure trail. At each camp we organized a long hike to a location of a natural or cultural heritage (waterfall, castle, hill). We usually organized it on the fifth day of the camp when the participants have already got the chance to know each other and mutual trust and respect have been established. We used the hike to discuss further education and careers, collecting impressions of the camp, singing, etc.

Step-by-step. Realization of a week long camp requires a consideration of gradual development of mutual relations and respect among youth and between youth and mentors. In this context, a group dynamics “builds” and develops from first to last day of camp. Accordingly, it is also necessary to adjust planned educational activities. In the first days we pay more attention to building a collective spirit and mutual understanding. It should be noted that much attention and time is devoted to order and mutual respect, which are prerequisites for safe and efficient completion of the camp. The more we approach the end of the camp, more autonomy and responsibility for the actions are assumed by the participants themselves.

Evaluation of summer research camp activities

Methodologies

Sample. In total 55 pupils and students participated in the 6-days long research summer camps. Three out of four camps were designed for pupils and students of primary and secondary schools (Fokovci, Fara, Rakov Škocjan), one camp was designed for university students (Tolmin). Only the results of the camps designed for pupils and students of primary and secondary schools are presented in this paper. Participants were not selected, but they themselves signed up to attend the camp. The summer camps were organised in June and July 2009.

Quantitative methods. A structured questionnaire was developed based on educational goals of the programme. For each statement respondents were asked to score their personal opinion on a scale ranging from strongly disagree (1); disagree (2); cannot say (3); agree (4); strongly agree (5). A prototype of the questionnaire was tested with two 11 and 13-year old girls who, being in the same age class as the participants, were thought to represent a reasonable match with the sample population of participants. The questionnaire was completed on the last day of the 6-days long camp. Altogether 42 pupils and students completed the questionnaires, 15 males and 27 females aged 11 to 18.

Qualitative methods. An analysis of participants' posters and group discussions (focus groups) were used to evaluate the camps' activities. On the fifth day each participant made a poster expressing their impressions of the activities that were organized in the camp. When making posters, the students could use images and texts from various magazines, catalogues, calendars and newspapers (all provided), and different coloured pens. Posters were exhibited and a group discussion followed in which participated from 7 to 15 participants, who presented their posters. This was the starting point for discussion that was developed on the activities that took place at the camp. The discussion was moderated by experienced researcher and tape recorded.

Results and discussion

The descriptive analysis of the results of a structured questionnaire shows that participants were satisfied with the realization of the camps. Most (97.6%) were satisfied with the work in research groups. Participants also mostly agree that they learned a lot of new plant (92.8%) and animal species (92.9%) and the main characteristics of freshwater ecosystems (71.4%). The vast majority (97.6%) also agrees they are more familiar with the role of rivers, lakes and streams in the wild. They all agree that they could empirically experience animals and touch them (animals like frogs, snakes, lizards, dragonflies, butterflies etc.).

Next we were interested in how satisfied they were with the applied research methods. After completion of the camp, most participants (92.9%) feel more competent in observing and handling animals and plants, can better handle research equipment (92.9%), understands better different methods of research (90.5%) and can better analyze and process field data (92.9%).

Participants generally agree that they have learned many new things about nature and nature conservation (90.5%) by talking to evening guests. They were impressed by researchers' dedication to scientific work (69%) and they want to try to be like them in their future profession (90.5%).

The fifth day of the summer camps, the participants prepared posters to express their impressions, concerns for and perceptions of nature they have accumulated during the week. At their disposal, there were different magazines, newspapers, catalogues and calendars with different content not linked only to nature. The purpose of creating posters was to present their new knowledge, acquired at the camps, through the creativity and imagination and also to present their view of events to other participants.

We analyzed the pictures used for making the posters and classified them into five categories: *animals*, *plants*, *environment*, *research* and *other activities*. Within the categories were determined individual elements or groups of elements that occur in the posters more than five times. We analyzed 39 posters, with a total of 415 images or photographs and texts. Despite the wide range of offered options most pictures appearing on posters represented animals (48.43%), followed by plants (17.83%), environment (14.22%), research (6.02%) and other activities (2.41%). Among the *animals* the prevailing groups that have pictures appearing more than five times were birds (26.87%), butterflies (7.96%), flies (6.97%) and frogs (5.97%). Of all the animals, 11.94% represented carnivores, 8.96% domesticated animals, and marine animals with 5.48% of images. *Plants* represented 17.83% of all pictures used, of those 20.72% represented aquatic plants, 9.46% trees and 6.76% orchids. In the category of *environment* occurred pictures of natural environments (lake, forest, rocks, rivers, sea, marsh) as well as man-made environments (field, orchard, vineyard, city). Most of the images encountered represented lakes (20.34%), grassland (13.56%), rocky masses (13.56%) and forests (13.56%). To the category of *research activities* were assigned images that illustrated nature observation, hunting, research equipment and computer. The category *other activities* contains pictures of games, singing, hiking, eating and pictures of workshops. The remaining 9.40% pictures we could not categorize (e.g. pictures of pregnancy, heart, clouds, feet, umbrella).



Figure 3. An example of a poster

We also analyzed the text on posters and participants' poster presentations. Mostly they reflect the impressions of the camps' activities and the nature - the beauty of nature, miracles of nature, colours of nature, friendship at the camp, loyalty, food chain, camp activities, animals seen at the camp etc. Adolescents highly enjoyed attending the camps. The responses reported that they learned much about animals and plants, freshwater ecosystems and environment, the research methods and dealing with research equipment. They had plenty of opportunities for experiential learning about animal species. They also had the opportunity to learn about different professions in science and to talk to established scientists.

Youth always surprises us again with its enthusiasm and reasonable yet childlike view of the world in which we live. This view is a natural, direct and honest look at the good and bad, the true and quasi-decision. Adults often underestimate youngsters and do not impose upon them proper burdens of life. Conversations with participants showed that experience of such camps inspire them with certain degree of confidence in themselves and their abilities.

Conclusions

The purpose of this paper has been to explore whether outdoor education serves to adolescents as meaningful real life experiences that can contribute to their personal development and environmental awareness. To explore these potentials we evaluated research summer camps named "Drops of Science". Using different qualitative and quantitative methods we were able to come to next conclusions.

- (1) The responses reported that they learned much about animal and plant species in freshwater ecosystems and surrounding environments.
- (2) They had plenty of opportunities for experiential learning about animal species that were discovered.
- (3) They learned much about research methods and dealing with research equipment.
- (4) They also reported having the opportunity to learn about different professions in science and to talk to established scientists. Majority of participants would like to follow their steps in life.

Following Palmer's suggestions (2004) we have provided meaningful learning experiences to participants that go beyond just learning something; they guide people's perceptions of who they really are and what are they capable of. By giving them more opportunities, autonomy and responsibility for exploring natural physical environment we positively influenced on their confidence in personal abilities and motivation to experience nature in more complex and ecological context. The model of outdoor education presented here may be very useful to other institutions interested in working towards motivating more young people for sciences and research work.

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Outdoor Learning, Environment and Sustainability- Seeing the big picture

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Abstract

There are many educational advantages in working with young people in the outdoors and through practical, first-hand experiences we can inspire learning, personal and social skills and challenge values. As practitioners we do not always realise the full potential of our work and how it can encourage understanding and actions for a more sustainable existence.

The workshop will consider the links between a personal connection to Nature and some of the wider issues of sustainability and global awareness. Two projects which have been developed in Britain, the John Muir Award and the Global Outdoors project will be presented as contributing to this bigger picture. These will be demonstrated through some simple outdoor activities designed to raise awareness and question our values.

Beyond Environmental Education- the British context

The term environmental education was introduced in the 1960's in Britain but its development can be traced to earlier environmental thinking in natural science, rural studies, fieldwork, countryside conservation and urban studies. It is commonly accepted that environmental education should include opportunities for learning *about*, learning *in* or *through* and learning *for* the environment.

Most definitions now consider it as a process of learning that raises *awareness*, develops *understanding and skills*, clarifies *attitudes and values* and crucially leads to *action* for the environment.

I have argued for some time that outdoor learning is a powerful means of promoting environmental education (see for example, Cooper, 1994). For decades many outdoor and environmental organizations tried, with limited success, to gain recognition for environmental education in the formal school curriculum. Its acceptance has suffered further from the introduction of the National Curriculum, the decline of topic-based work and the concentration on literacy and numeracy.

Sustainable development- a broader concept

The term **sustainable development** has become increasingly important as a concept since the United Nations Earth Summit in Rio in 1992, when governments throughout the world drew up priorities for action on environment and development. Education for Sustainable Development has received government support in Britain for a number of years and it is now a cross-curriculum dimension in schools in England, Wales and Scotland.

There have been many attempts to define sustainable development. An early definition and one often quoted is: "development that meets the needs of the present without compromising the ability of future generations to meet their needs" (Brundtland Report, 1987). More recent definitions have stressed the importance of improving the quality of our lives without harming the ecosystems we depend upon.

Sustainable development is not just about conserving environments and maintaining biodiversity. It is also about the relationships between people on the planet and the term **global dimension** (England) or **global citizenship** (Wales) has been added to encompass the bigger picture of the world we live in and help schools make connections between the natural, social, economic and political domains. This area

of learning includes understanding the arguments for sharing resources more equitably and for improving the quality of our lives in terms of access to health care, education, justice, work, leisure and democracy. It is about caring for people from all sections of society and countries of the world. It is concerned with both present and future generations. It implies the need for an ethic based on co-operation rather than competition, quality of life rather than standard of living and community rather than individual interest. I believe outdoor educators can play a key role in presenting this ethic and in challenging some of the excesses of our consumer society.

Education for sustainable development is therefore a broader concept than environmental education and includes aspects of personal and social education, citizenship, economic understanding, global awareness and ethical considerations.

What we can offer through Outdoor Learning

Whilst it is fairly obvious how outdoor learning can contribute to environmental education, the links with sustainable development and global awareness are less apparent. Nevertheless, I believe outdoor learning can play a critical role in this process. The outdoors is an extremely powerful focus for learning through direct experience using the hand, heart and head. It places young people in real situations and it encourages them to take responsibility and reflect on their actions. Motivation and learning comes easy when you need to keep your boat afloat, cook a meal or build a shelter. This experiential approach has long been recognised as a powerful means of learning, especially when it is processed through a learning cycle of “plan, do and review”.

The outdoors allows for different learning styles. It offers possibilities to all types of learners, those with visual, auditory or kinaesthetic learning preferences. Young people who underachieve in more formal situations such as classrooms can often benefit from the flexibility of outdoor learning methods. This encourages motivation, confidence and more positive attitudes to learning which are fundamental to education for sustainable development.

Outdoor education is not restricted by subject boundaries but can adopt an interdisciplinary approach making use of knowledge from the arts and sciences. It lends itself to systemic thinking where the understanding of interrelationships becomes more important than the analysis of one part of the system. So for example, through the outdoors it is possible to appreciate the intricate links in a food web or how land use patterns have emerged through the interplay of geology, vegetation and human activities rather than taking the more usual, “bookish” linear analysis that looks at the structure of an animal or the chemical composition of a rock. This way of thinking is particularly important to education for sustainable development with its emphasis on connections; how we relate to other species on the planet and how we interact as local, national and global communities.

Outdoor learning, whether through adventurous activities, fieldwork, nature study or conservation work, lends itself to issue-based approaches or philosophical enquiry which help to focus systemic thinking, allowing us to keep a big picture framework. To take an example, we can pose the question- “What is the future of our uplands in Britain?” or more contentiously, “Should we leave the uplands to re-wild?” These simple questions raise a host of issues and debating points. Do we want our uplands to provide more food or trees for fuel? Or do we want them for conservation and biodiversity? If the latter is the case are we happy for heather moorland to be managed for grouse shooting? Should our uplands be managed as a carbon sink or for renewable energy in the form of wind farms? And what about the wonderful opportunities the mountains and moorlands give us for recreation and outdoor education and the mental and physical benefits that follow? These are simple questions but they lead to complex choices and repercussions. It takes us into the realm of considering our society's existing values and determining the values we need to adopt for more sustainable lifestyles.

I believe that our work in outdoor education is about values and that we should look for opportunities to question our beliefs and help young people clarify their own attitudes and values. If we ignore this then we lose sight of the big picture and the potential for outdoor education to contribute to more sustainable living.

Core Values

Values can be considered as underlying beliefs and principles that shape our attitudes and behaviour. The dominant value system in Western countries is based largely on social position as indicated by external appearance and material possessions.

There are, however, higher “core” values recognised by many different cultures throughout the world that form the basis for a more peaceful and fulfilling life. The key point is that these same values underpin the concept of sustainability.

Writers from the time of the ancient philosophers have considered the importance of higher values in guiding our lives. Plato, for example, argued that the three deepest values were goodness, truth and beauty and that by adopting these values people can transcend self-interest. In Buddhist teachings nature and people are inseparable, so that a decline in ethics leads to a deterioration in the environment. Other writers suggest that we can learn from direct experience of nature. David Orr (1994), for example, believes that the earth can teach us essential values such as silence, humility, holiness, connectedness, courtesy, celebration, giving, restoration, obligation and wildness. Similarly, in his recent book, “Spirit of Adventure”, Colin Mortlock identifies five pillars of wisdom from nature. He goes on to define a set of virtues and values and presents these as a creed for individuals and organisations to adopt.

Writings such as these provide a valuable structure or guidance for us to explore our own beliefs and principles. They show alternatives to a value system based on consumerism, greed and selfishness. Although some outdoor leaders may enjoy the conformity of an ideology or code of values, others will be more comfortable in providing opportunities for young people to reflect on and clarify their own values.

Contribution of outdoor leaders

Outdoor leaders have several advantages when working with young people. They often work with small, well-motivated groups in informal situations. Unlike classroom teachers they do not face the constraints of the formal curriculum, exams, timetables or the bell. They have novelty, enthusiasm and work in interesting and challenging environments. As a result their actions can be influential and inspiring.

Outdoor leaders have for many years recognised the value of their work in personal and social development. These skills are fundamental and form the basis of good citizenship. However, there may be an even more important area of work concerned with encouraging young people to explore their own values. This may lead to commitment in changing personal and social behaviour towards more sustainable lifestyles.

It should be possible for leaders to address many core values through their work but clearly some may be easier to explore in outdoor education. I would like to suggest a few examples:

1. Reconnection

The outdoors provides opportunities to experience freedom, happiness and humility through contacts with the natural world. We can respond to the elements – wind, water, rock, sky – and the natural rhythms and begin to appreciate the interdependency of life on the planet. This may help to rebuild our connections with the earth, we can see ourselves **as part of** nature rather than **apart** from it. For some this could be the key to gaining commitment for the environment.

2. Co-operation

Learning in schools is often based on competition. This may be appropriate to train a top class athlete or a university professor but it is totally inadequate for educating for community living in a rapidly changing society. Teamwork and co-operation can be developed in many ways in the outdoors, for example through problem solving activities, group fieldwork and expeditions. Trust and empathy can result from living and working together in a small group. Such values are transferable and of fundamental importance to sustainable living.

3. Responsibility

Outdoor education often places young people in situations where they have to take responsibility for their own actions. They may experience real situations where failure to act responsibly will have unfortunate consequences for themselves and others in their group. Peter Higgins (2006) has argued that taking responsibility is a more worthwhile aim for outdoor learning than developing self-esteem. In Western countries, we all need to take more responsibility for our lifestyles if we wish to sustain the earth's resources and distribute them more fairly.

4. Tolerance

Being in the outdoors we confront real issues, for example there may be land use conflicts such as the need to protect an ancient woodland threatened by a new road or the impact of a wind farm on a small community weighed against the benefits of renewable energy. Through investigation, critical thinking and role-play we can begin to explore the complexities of such issues, appreciate the underlying social, economic and political pressures and make our own judgements. Exploring real issues helps to clarify our own values and may lead to more tolerant attitudes to other points of view.

5. Simplicity

In a classic article in 1996, Chris Loynes argued that outdoor adventure is being packaged and commercialised and this process dissociates people from their experience of community and place. There is, however, the opportunity in the outdoors to experience a simpler, healthier and less commercialised existence. Wild or quiet places can provide an antidote to a screen culture that emphasises speed, glamour and glitz. The outdoors allows us to step outside of our everyday existence. There is time to reflect, to put our lives into perspective, to consider our values. Outdoor leaders are in a position to address the differences between needs and wants. They can introduce young people to the idea of 'quality of life' as opposed to the quantity of income and material possessions. This concept may be a key mechanism with which to discuss and challenge values.

6. Reflection

Experiences in the outdoors provide many opportunities for reflection. In a society based on constant noise and action there is a fundamental need to have time and space for reflection. This is vital to our mental and physical health and allows us to develop our sense of values. Reflection is relevant to all aspects of our lives and constant reviewing and planning helps us to cope with change.

These are just a few examples of how outdoor leaders can help young people address their own values and encourage appropriate attitudes for sustainability. It should be stressed, that when it comes to influencing others attitudes and values; *our actions* as leaders and how *we demonstrate* our own values may be as important, if not more important than the activities themselves.

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Some of this work was written up in a book I co-authored for WWF. In Britain he has been involved in setting up Eco Centres, running the John Muir Environmental Award, several Global Outdoor Education projects and he's a Leading Practitioner of the Institute for Outdoor Learning. He's author of "Outdoors with Young People- A leaders' guide to Outdoor activities, the Environment and Sustainability".

Orienteering: A Case Study in Legitimising Educational Goals through a Holistic Approach

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Abstract

The school curriculum has succeeded in compartmentalising education. The pressure on students to succeed and get good results in order to continue on to third level has encouraged students to "specialise" in aspects of each curriculum. This has led to compartmentalised learning. Hence, there are limited opportunities for interdisciplinary learning. Enabling students as part of the school curriculum to deliver outdoor activities breaks down some of these constructed barriers potentially developing more holistic learners.

This presentation will focus on a pilot module developed and delivered in the West of Ireland based around second level students delivering orienteering courses to primary level students in the community. The module was based within the transition year programme in the school. The module was initiated by parents in the local community. This bottom-up community approach has succeeded in legitimizing and fulfilling most of the educational goals for the transition year programme, while utilising a more holistic educational approach.

1.0 Introduction

Outdoor education within the school curriculum, suffers from being compromised, adapted and modified to fit the various subjects within the school curricula. The intention of incorporating outdoor learning into the curriculum is to utilise more experiential approaches and more applied ways of bringing aspects of the curriculum to life, much of this is 'just tampering around the edges'. Sometimes it never goes beyond this tampering around the edges as educators become comfortable at having stretched the curricula boundaries.

If one looks at some of the adventurous activities that comprise which are components of traditional outdoor education within the British Isles, such as mountaineering, kayaking, orienteering, caving, etc. they are often regarded as recreational or simply activities, something to partake in, to get everyone involved, hence they often aligned within the remit of Physical Education (PE). Other activities such as orienteering or hillwalking which have more 'academic' / technical components such as navigation are sometimes incorporated or adapted to fit part of the geography curriculum. Therefore Outdoor Education is subordinated to the demands of other 'mainstream subjects'. What is missing is any sense that the activities are so much more and may be a more genuine holistic curriculum in their own right. Mortlock (1998) addressed this issue directly while addressing the launch of the new Irish Junior Cycle PE (JCPE) curriculum in 1998. He thought it appalling that educationalists were happy at the inclusion of the then new 'adventure activities' module within the new Junior Cycle PE curriculum, his argument was that PE was after all just a small component of outdoor education.

This paper is an exploration of how outdoor education (oe) can be included in the curriculum without being confined / compromised within a 'main stream' subject. A case study is presented on how an orienteering programme undertaken with a transition year group of post-primary students maybe utilised to achieve the learning objectives of a mainstream programme of study. This is a case study to

develop a methodology of how oe may be incorporated into main stream education to deliver a more holistic curriculum experience.

In this paper the author will look at utilising orienteering as a means of delivering a more holistic curriculum within the context of the transition year in Irish post primary education.

2.0 Outdoor Education in an Irish Context

In Ireland outdoor education has a slightly anomalous position. There are 12 state funded Outdoor Education Centres which fall under the auspices of each of their respective local Vocational Educational Committees (VECs). These VECs are organised primarily on a county basis and are in turn funded by the Department of Education and Science.

There is no centrally defined policy for outdoor education in Ireland. Within the post-primary curriculum there are modules of adventure activities in the JCPE syllabus, however these are not compulsory. Some schools do operate extensive OE programmes, but these are usually driven by individual members of staff, rather than a coherently developed ethos or policy from the school. In addition the OE centres each operate as autonomous units.

The outdoor sector as a whole in Ireland is a lot larger, with in excess of 280 operators. While many of the schools utilise the OE centres for their programmes, many do not differentiate between the private operators and the state centres, though there is often a price differentiation. Hence many participants do not and cannot differentiate between outdoor education and adventure activities for purely recreational purposes.

2.1 The transition year

Post-primary education in Ireland usually is of 5 years duration. It is divided into a junior cycle programme of three years duration at the end of which is a state examination. Following on from this is a two year senior cycle of two years duration. Schools have the option of offering a transition year between the junior and senior cycles. Hence “*..Transition Year is an optional one-year, school-based programme between Junior Cycle and Senior Cycle. It is designed to act as a bridge between the two by facilitating the smooth transition from the more dependent learning of the Junior Cycle to the more independent self-directed learning required for the Senior Cycle*”, (www.curriculumonline.ie).

The transition year (TY) programme in Ireland is available to all schools and is currently offered in approximately 75% of schools and is optional for students in most schools, (www.NCCA.ie). The mission of the TY programme is:

“To promote the personal, social, educational and vocational development of pupils and to prepare them for their role as autonomous, participative and responsible members of society.”

While the overall aims of the TY programme are:

- (1) Education for maturity with the emphasis on personal development including social awareness and increased social competence.*
- (2) The promotion of general, technical and academic skills with an emphasis on interdisciplinary and selfdirected learning.*

(3) Education through experience of adult and working life as a basis for personal development and maturity.

The aims and philosophy of Transition Year should permeate the entire school.

<http://ty.slss.ie/resources/guidelines.pdf>

The school guidelines go on to recommend that the goals and objectives of the programme are best achieved by:

- _ negotiated learning;
- _ personal responsibility in learning;
- _ activity-based learning;
- _ integration of appropriate areas of learning;
- _ team teaching approaches;
- _ group work: discussion, debate, interview, role play;
- _ project work and research;
- _ visiting speakers and seminars;
- _ study visits and field trips;
- _ work experience, work simulation, community service.

Schools have the flexibility to develop their own TY programme, within guidelines. In developing their programmes the schools are expected to be cognisant of the student's needs and possibilities offered by local communities. While there is no state examination at the end of TY, assessments are carried out on an on-going basis and tend to utilise assessments methodologies other than terminal written examinations. As part of an on-going review of the senior cycle in Irish post primary education, there has been a move by the National Council for Curriculum and Assessment (NCCA) to develop 'transition units', which are 45 hour courses which may be delivered within the TY.

3.0 The Project

The author was approached by representatives of a local post primary school about the feasibility of delivering an outdoor component as part of the TY programme. Prior to this, the author was already engaged in trying to introduce orienteering to primary schools within the area. Hence, a TY programme was developed around the rich task of '*the TY students delivering orienteering programmes to the primary schools within the locality*'.

The reason the author was approached was due to a prior involvement with an existing community based adventure club (The GOYA Gang). The initiative to start the club came from an initiative of a former PE teacher and representatives of the parents committee within the same school.

In addition to creating an opportunity to utilising the delivery of an adventure activity as both a rich task and educational opportunity for the students it was also seen as an opportunistic service learning experience for the school.

3.1 Rich Tasks

The rich task "...is a reconceptualisation of the notion of outcome as demonstration or display of mastery; that is, students display their understandings, knowledge and skills through performance on transdisciplinary activities that have an obvious connection to the wide world", ([Http://education.qld.gov.au](http://education.qld.gov.au)). Rich tasks usually includes communication, interpersonal development,

thinking, integration of different learning, collaboration and the task ought to be relevant and useful. The rich task of getting the TY students to deliver an orienteering module to the local primary school students appeared to be an ideal match and would also augment work already underway.

In setting the rich task in this project, it overcomes the possible compartmentalisation and fragmentation of OE within subject boundaries by designing a challenge that is trans-disciplinary. While the pedagogy is quiet outcomes focussed it allows for a wide range of outcomes to be identified across many disciplines. The realisation of a conceptual understanding is at the heart of Rich tasks.

In educational work the term 'integrated teaching' is sometimes used in connection with rich tasks. Some authors (Virtue *et al* 2009, Kesson & Oyler 1999) advocate parallel integration, for teachers not willing to take the initial full plunge when using rich tasks. Much of this begins to suggest that mainstream education is rationalising the OE approach but using its own nomenclature.

The aim of the project was...”to provide the transition year students with an outdoor learning opportunity that could be facilitated within the school and would created outdoor learning opportunities for other students”.

The Rich Task for the project was to have the TY students delivering orienteering programmes to primary students within the locality. The outcomes of the rich task developed were for the TY students to:-

- Be able to work in groups and allocate tasks within the groups
- Be able to orienteer proficiently themselves
- Plan and structure a suitable beginners orienteering programme for each school
- Be capable to delivering components of the primary school orienteering curriculum
- Be competent at organising and managing groups of younger students
- Liase and organise dates with both students and parents supporting the programme

3.2 The Sample Group

The sample group were eight female TY students between the ages of 15 and 16. The target students for the rich task were primarily 5th class students (usually aged between 10 and 11), however due to the small numbers within some of the more rural schools the groups sometimes incorporated 4th / 5th and 6th classes, spanning an age range from 9 to 12 years of age.

3.3 The Programme

The programme had six stages. These were as follows:

Stage 1. Developing proficiency

This stage involved the author delivering an orienteering programme to the TY students in their school over the course of a day. This programme covered all of the post primary syllabus and culminated in a number of different types of event in the school grounds.

Stage 2. Developing the trainer

A week later a day was spent teaching the students how to use session planners, how to manage groups, giving presentations and speaking in front of groups. A work plan was then devised and agreed with the students.

Stage 3. Consolidation

The TY students estimated that they required a month to prepare, develop their own resources and plan the programmes. At the end of this period, they undertook a pilot delivery to the first year students within their own school. This was supervised by two parents. A review was conducted and some areas for improvement were identified.

Stage 4. Mapping

In tandem with the first four stages the author mapped the primary schools within the local area, which would be involved in the project. In all eight primary schools were mapped. In advance of the mapping the students contacted schools within the local areas and identified which schools would be interested in partaking in the project. This is how the schools were identified. Most of these schools were where the TY students had attended primary school.

Stage 5. The deliveries

Six weeks later the TY students began their deliveries over a four week period. The TY group were split into two groups of four and each allocated four schools. Two parents supported this and in addition to providing logistical support, they also provided feedback to each group following each delivery.

Stage 6. The event

At the end of the programme the schools were invited to an event in a local park. While not all schools could attend due to various commitments, 140 students competed on the day. The event was planned by the author, but run and supported by the TY students.

4.0 Review of the project

The project will be reviewed from both a TY student perspective and the authors perspective. After the last delivery the author met with the TY students to conduct a review of the programme, within the context of the TY programme.

4.1 Student perspective on the programme

Following the delivery to the last school a brief oral and written review was conducted with the students. This review utilised a simple Facts-Feelings-Findings-Futures review model.

The facts part of the review utilised an oral discussion format with the group, while the remaining Feelings / Findings /Futures part of the review utilised a written response sheets, which the students completed. A brief summation of the points raised during this review are presented.

4.1.1 Facts

This part of the review was run as a chronological narrative of the project which the author began and each TY students added a sentence detailing what happened next. This took four rounds of the group and invoked a series of comments, sighs, and guffaws of laughter at various places within the narrative.

Following on from this oral narrative the Feelings – Findings – Futures part of the review was conducted using structured questionnaire, in which the TY students all wrote their replies. These were then collected by the author. The results collated and are presented under the following three headings Feelings – Facts and Futures.

4.1.2 Feelings

'Enjoyment', 'Going to the primary schools and teaching'(x4), 'visiting the primary schools and teaching', 'playing games with the children, i.e. symbol relay, etc.', 'Doing the events with the kids and helping them when they were lost', 'At the first school I was a bit nervous when explaining to the children. I felt happy when I saw they were enjoying it. I felt confusion and tension if I made a mistake when doing the games with them.', 'Helping the kids individually while doing activities', 'Sometimes a little nervous but more excited about teaching them'.

Feelings experienced: 'Nervous at first school to feeling satisfied and happy after', 'happiness and satisfaction (I had successfully delivered a piece of information which the children were able to understand and act upon)', 'Happiness, sense of achievement', 'Nervousness but after I felt satisfaction and happiness'(x2), Confidence, satisfaction, nervous', '

Positive aspects of the programme: 'teaching'(x5), 'talking with the kids', 'smooth organisation', 'working as a group', 'working outside', 'satisfaction when finished teaching', 'Speaking in front of a group', 'Playing games with the children' (x2), 'taking initiative', 'school visits', 'doing the training', 'when everything worked out', 'when the kids enjoyed it', 'feedback', 'being organised enough to teach younger children', 'the satisfaction in knowing you can manage / control a group', 'having a group of children pay attention to you'.

Regrets: 'Not being organised enough'(x4), 'Missing the first day', 'Getting our delivery timing incorrect', 'not being able to put friends together in the school groups', 'Not enough games', 'Not putting in enough work'

The least positive aspects of the programme were: 'Dealing with rowdy school'(x2), 'Having to do a plan', 'Organising ourselves', 'a designated teacher from the school and designated class time would have been better', 'some feedback was harsh, I would have preferred to have received it in a more helpful way'

4.1.3 Findings

All thought the teaching in the schools to be the most successful part of the programme with other than two TY students. One of these identified the symbol relay as the most successful part of the programme with the other identifying the events in the school grounds as the most successful part of the programme. In identifying why it was the most successful they said, '*because the children enjoyed being outside, it brought all their knowledge together and they worked competitively.*'

Some key experiences for the TY students during the programme were:

'Doing the course myself and really enjoying it', 'Working with a girl with a learning disability', 'Developing a comfort with working with a student with a disability', 'Dealing with children', 'Teaching orienteering in the primary schools, learned how to deal with and treat younger children. First time to be put in a teaching role in front of kids', 'Seeing the kids enjoying doing the activities', 'In first school when some of children actually came up to me and thanked me personally', 'One kid showed us his art notepad and his other drawings. It was like he liked us enough to show off his other interests'. 'Enjoyment and sense of achievement', 'In visiting schools I realised it had to be fast paced to keep the children focussed', 'Some children didn't grasp what was to be done, you had to explain it in an easier way the second time.'

During the programme the TY students identified the following learning when:

i. Working with a group of peers

'You have to help each other when you feel they need it', 'It helps to have your peers as moral support', 'That everybody need to be constantly looking out to see if anyone needs help', 'If we're organised well it can be very easy to work alongside a group of peers', 'Need to talk everything through so everyone is on the same page and knows what is happening'

ii. Working with young people

'You have to keep things simple. Make it fun and fast paced to keep them focussed', 'They learn best through fun', 'I really enjoyed it as I love young people and teaching them', 'You need to relate to them and use terms they understand', 'learnt ho to keep control, how to treat them, and that they must be kept occupied so they don't get bored', 'You need to treat them with respect, but keep your authority', 'its' interesting and enjoyable and I now know how important it is to explain everything clearly with a sense of fun to it', 'Think from their point of view, it is important when it comes to teaching them.

iii. Relating and working with

a. Adults

'They helped a lot. Gave us a lot of pointers in where to improve', 'Frustration, it is hard to deal with as you cannot be cheeky when telling them something', 'Very helpful and that discussing things gives a better result next time around', 'They know the kids better than you, but you know orienteering better than them', 'They trust you so have confidence', '... was brilliant with us, she let us do our lesson and was always there if there was a pause or any uncertainty'

b. teachers

'Almost all teachers helped or also participated in the orienteering. I found them easy to work with', 'The teachers were very helpful in organising the class and helping with the delivery', 'It helps when teachers are more involved in the lessons', 'Some were more enthusiastic than others which made it easier to work with them'

iv. What else have you learnt

'That you need to be very patient and not become frustrated as it messes the delivery up', 'As long as you are confident the kids will love you. You just got to keep up with their pace', 'To always think ahead so everything runs smoothly', 'There are huge variations in the teaching styles needed for different age groups'

The TY student students were asked to rate any change they thought had occurred specific skills. A summary of these changes are outlined in the table below. On rating the change on a scale of 1 to 5, 1 was no change, while 5 was a dramatic change.

Area of change	Average change
How you address groups	3.625
How you would go an organise and event in the community	3.75
How you negotiate within a group	3.5
How to deal and address issues of non-participation	4
Your presentation skills	4.125
Your Orienteering skills	4.375

Other skill areas

All of the students identified a number of different subject areas they had to draw upon. These are outlined in the table below:

Subject area	No. of mentions
Maths	4
Public Speaking / Drama	4
Geography	6
Art	2
Computer skills	1
PE	2
CSPE	1
Summarising & Simplifying	1

4.1.4 Futures

All TY students if given the opportunity would participate in a similar type programme again. The reasons being *..I enjoy teaching and I love outdoor sports, its' something I am good at.*, *'It was really enjoyable and I liked presenting to the younger kids, and it was a great experience that was truly invaluable'*, *'because you learn a lot through teaching, its' fun and rewarding'*, *'because I really enjoyed doing the programme, and it helped me loads'*, *'I thoroughly enjoyed orienteering with the children and am very sad it is over'*, *'I really enjoyed this programme and it was very successful'*, *'I thoroughly enjoyed the programme and felt it was beneficial'*.

In how you could organise yourselves to work better in the future: *'prepare well in advance'*, *More games, quicker transitions to the sections, more events'*, *'Really think things through and test them in advance'*, *'By giving each person a certain job, rather than giving a task to the group'*, *'make sure every student is able to deliver each of the modules'*, *'listen and pay attention'*.

Asked about what would you like to change in how you interacted with class peers, the comments were: *'share the workload in delivering to primary schools, even though I feel it was evenly distributed in our group'*, *'more supportive'*, *'take more notes so everybody is sure about what they are doing'*, *'Take part more in the other lessons'*, *'we got more in tune with each other as it went on, but we need that from the beginning'*.

4.2 Authors reflection on the programme

Following the first two stages of the programme the author only had one opportunity to observe one group at the conclusion of stage 5 of the programme. Overall it was felt that the programme was moderately successful in that:

1. Over 180 primary school students received an introduction to orienteering
2. Nine schools, eight of them primary received an orienteering map and had a chance to observe how to run an orienteering programme within the school grounds
3. One hundred and forty students who had previously only orienteered within their school grounds took part in an event at a local park, with only four candidates requiring substantial help.

While the TY students did not have the depth or spread of experience of a professionally qualified orienteering instructor, they taught correctly and at a level suitable to the needs of the group.

5.0 Discussion

The discussion will address three different areas, the TY students' comments from the review, the author's reflection on the project and on overview of the project.

5.1 Discussion of the TY students comments

The comments offered by the TY students in the feelings section was almost all positive. '*One of the best aspects of the programme was going away from their own school to a different school environment and working outside*'. The other positive aspects were from close experiences with others, '*working as a group, playing games...*', '*teaching, talking with kids*', etc. Some of this was due to a sense of empowerment '*... being organised enough to teach.....*', '*the satisfaction of knowing that you can manage.....*'. while other was due to positive feedback received indirectly through body language from the participants to the more direct feedback, '*some of children actually came up to me and thanked me personally*'.

The other factor that appears to be at play is a sense of empathy the TY students feel with the children. This is particularly evident in the comments on regrets... *not being able to put friends together in the school groups*.

The least positive aspects invoked some interesting responses. The comment on harsh feedback will be addressed later as will the comment on designated staff which is structural issue. Putting structure on things for the TY students is an issue, '*..having to do a plan...*', '*.. organising ourselves..*'. Similarly tied in with this is having to sanction / deal with rowdy behaviour. Again this involves the TY student having to assert both themselves and their authority, which will inevitably break the relationship they perceived to be building with the students, this sense of relationship is evident in the following: '*One kid showed us his art notepad and his other drawings. It was like he liked us enough to show off his other interests*'.

In the finding section of the TY students review, a number of items were identified.

When working in groups the respondents comments reflected an awareness of being cognisant of what was happening with others within the group and the need to support one another. Similarly the learning expressed in relation to dealing with young people was astute and accurate: '*its' interesting and enjoyable and I now know how important it is to explain everything clearly with a sense of fun to it*', '*Think from their point of view, it is important when it comes to teaching them*', '*You have to keep things simple. Make it fun and fast paced to keep them focussed*'. These observations are interesting as no teaching principles or theory were covered during the programme, It may be that the unique role reversal which these students experienced for this project made them the real and experienced expert through first hand experience!

Similarly when one examines their other learning it could easily read as a list of top tips for any outdoor instructor going to work with a group of minors.

In terms of the participant's personal learning / skills, the area that they believe to have improved upon most during the project was their orienteering skills, followed by their presentation skills and how to deal with issues of non-participation. This last area is vague and should be explored more as it could be interpreted as non participation within the TY group or non-participation in the primary school children.

Similarly the following question regarding the subject areas that they drew upon during the project is leading as it suggests some of the subject areas which they inevitably mention. Hence the data from this is questionable.

The futures part of the review was designed to get some feedback on how to alter the programme if run in the future. Most of comments centred on how the TY group itself interacted. There is some variance within the comments between all three written areas.

Some want the organiser to delegate more of the tasks to specific individuals (*By giving each person a certain job, rather than giving a task to the group*) and also want the organiser to ensure that they are adequately prepared (*make sure every student is able to deliver each of the module, Set strict deadlines to ensure the students are always prepared*). This may suggest that some are unhappy with the participation of some individuals and think that utilising a more authoritative figure to delegate tasks may have better results by getting other to take more responsibility. To have the organiser intervene this much will result in less ownership of the programme and could dilute the learning they have achieved. Most have already acknowledged that they didn't prepare enough with four TY students identifying in the regrets section regretting '*Not being organised enough*' and another one regretting '*not putting in enough work*'.

One of the outcomes of the rich task was to:

- Be able to work in groups and allocate tasks within the groups

For one of the adults involved in the programme to have allocated tasks more specifically would definitely have undermined this outcome. From the TY student comments it is evident that there is a recognition that there are issues in this area, however in view of the fact that they carried out the rich task they must have achieved the learning outcome with some level of success.

Within all group work people slacking is an issue. The earlier people realise this and develop mechanisms to address it the better. Most even at a much later stage in life often many will not address the issues of slackers or of non-delegation of tasks within groups and more importantly developing a back-up plan.

Two earlier structural issues regarding the programme were highlighted in the respondents' replies. One of these was over harsh feedback, while the other was over a designated teacher.

The feedback issue may be addressed by providing training to the observers. Both of the parents utilised for this role were both experienced facilitators and one of the earlier comments reflected this, '*... was brilliant with us, she let us do our lesson and was always there if there was a pause or any uncertainty*'. While it is not possible to explore this issue further, it may be as simple as someone taking something too much to heart.

In an ideal scenario there would be a designated teacher or expert within the school, to facilitate this programme, however, such a resource may also have a disempowering influence as the TY students do not have to negotiate time and could come to rely on the person as a crutch and may abdicate some of their decision making and other negotiations that occur within the group.

5.2 The author's reflection

The success of the exercise in getting students orienteering in their school environs is indisputable. Neither is there an issue with the applying the train the pedagogical approach utilised. However as this was the pilot the project and some outcomes evolved over time, hence there is a case for putting more

structure on the programme hence, there is no ambiguity with the TY students as regards boundaries of responsibility and expectations of the different parties.

The review conducted at the end of the initial programme was designed and conducted in haste, therefore a new method and review for the project need to be developed.

5.3 Overview of the project

This project was initiated to develop an outdoor component to the transition year programme in a local post primary school. The programme was designed around utilising the TY students to increase orienteering participation levels in the community. In so doing the TY students developed a practical orienteering competency which fulfilled the schools requirement in terms of having an outdoor component in their transition year. In addition eight local schools also benefited by having an orienteering programme delivered to them and had the additional benefit of receiving a specific orienteering map for their school grounds.

On the outside it appears as a standard outdoor activity, however from the brief review conducted with the TY students, it was a lot more. It readily fulfils the three overall aims of the TY programme.

While the overall aims of the TY curriculum are:

- (1) Education for maturity with the emphasis on personal development including social awareness and increased social competence.
- (2) The promotion of general, technical and academic skills with an emphasis on interdisciplinary and self directed learning.
- (3) Education through experience of adult and working life as a basis for personal development and maturity.

In the curriculum goes on to recommend that these aims and objectives may be met by:

- _ negotiated learning;
- _ personal responsibility in learning;
- _ activity-based learning;
- _ integration of appropriate areas of learning;
- _ team teaching approaches;
- _ group work: discussion, debate, interview, role play;
- _ project work and research;
- _ visiting speakers and seminars;
- _ study visits and field trips;
- _ work experience, work simulation, community service.

All of the above bar negotiated learning were explicit in the orienteering project.

6.0 Conclusion

Reviewing the findings of the TY students and their observation on the programme, it is evident that the programme while conducted within the formal setting of the school and within allocated time slots drew on diverse areas of the curriculum, both directly and indirectly. Therefore it would appear that an outdoor programme can offer a more holistic means of education within a formal programme of study.

More importantly the outdoor learning set in this case study was not compromised to meet the needs and outcomes of the curriculum. One of the key requirements to achieve a holistic approach is have the outdoor element as end product rather than compromising the potential of outdoor learning by fragmenting and compartmentalising it.

The utilisation of rich tasks within the curriculum suggests that main stream education is adopting an outdoor education approach but utilising their own nomenclature for the process. Hence adopting this new nomenclature may offer the potential of maintaining the holistic approach of outdoor education which we as practitioners cherish, as long as we become *au fait* with the new vocabulary.

As educators begin implementing these 'new' approaches, caution is urged as developing holistic experiences in an outdoor context requires substantial planning, some infrastructural input in addition to other more informal supports. If these 'minor' issues are not addressed we may come full circle once more with a fragmented and compartmentalised curriculum.

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Pedagogies in the Outdoors: A Tale of Two(?) Places

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Abstract

How do adults and children interact with places in co-constructing the teaching and learning that happen in them? This presentation will explore some pedagogical practices drawing on two research projects from the South West of England.

The first study is set in a mainstream primary school (with pupils aged 4-6 years) located in an urban environment where children engage in outdoor learning in a variety of contexts. The second study focuses on a special curriculum (for pupils aged between 9 and 14 years) developed in a middle school located in a National Park, which deliberately attempts to connect children with their local environment.

Research methods include observation, focus group interviews with the children, and interviews with the teachers and documentary analysis. In the first study, unusual insight into the micro-context of pedagogy is gained through audio-recordings from digital recorders worn by children as they go about their play and work in primary school.

In this paper I will make some initial comparisons between the two places and the pedagogies we have observed and reflect upon the role of culture in shaping these. I welcome feedback from the perspectives of other cultures and experiences on our tentative exploration.

A story of pedagogy and places

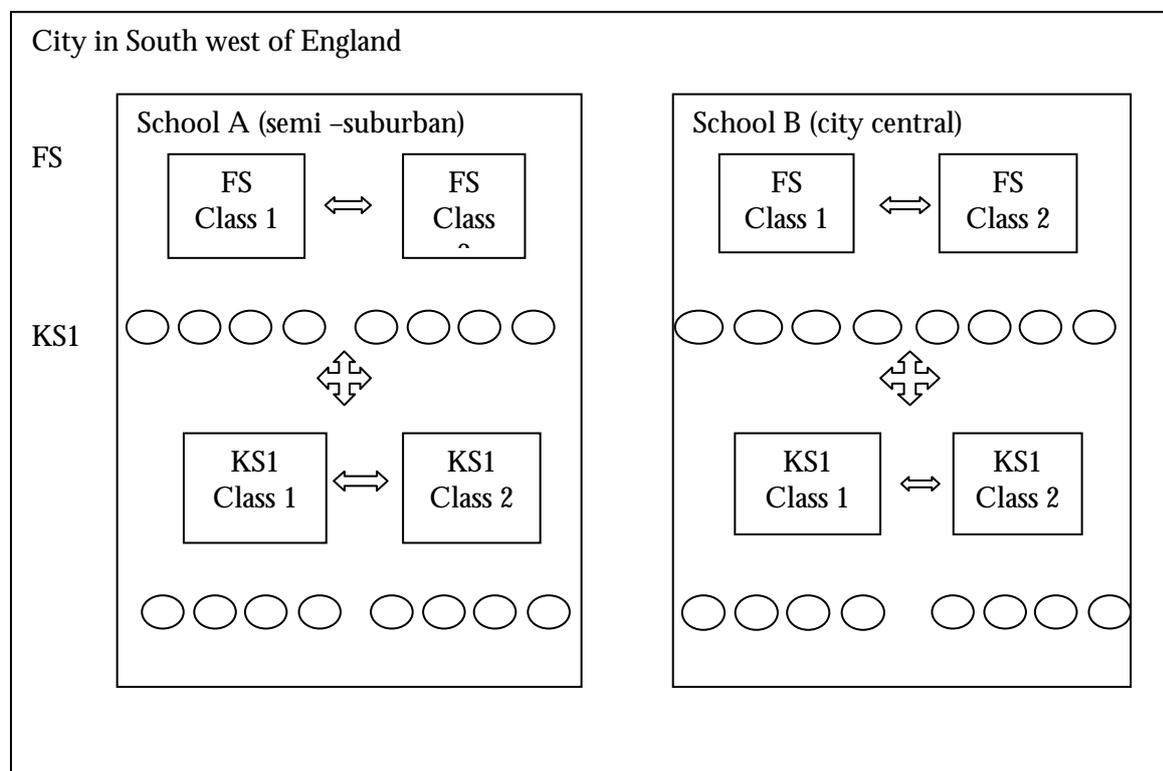
This paper explores some pedagogical practices drawing on two research projects from the South West of England. Cultural practices appear to shape the sorts of pedagogies that are prevalent in different contexts. 'Outdoors' is far from a homogeneous entity; furthermore meaning and significance of different spaces vary for people and therefore afford different opportunities. Our two places are not only geographically placed but also placed within the methodological frames for our research studies and, like Russian dolls, they are nested within multiple understandings of place and further positions nest inside them.

My title raises the contentious issue of what might properly be considered as 'place'. Tuan (1977) argues that space is converted to 'place' by the meanings attributed to it by individuals. In these two studies, the concept of 'place' has fine distinctions related to the cultural meaning that different areas have for people. The concept of 'Outside' is infused with cultural and historical meaning but this meaning is often not a singular shared understanding but encompasses multiple, shifting and complex positions. For example, the functional purpose of an area for children (Fjortoft, 2001) leads to certain expectations from it, which can then be complicated by adults' alternative cultural overlay of schooling but this is also refracted through the mediation of different roles and histories of facilitators. Thus, the two 'places' that are the notional sites for the research are in fact complex and composite places informed by the positioning of participants who bring other 'places' from their past and present to them. Details of the methods used in the two studies described here are available in Waite, Nichols and Evans (2009) and Waite (2010). In this paper I consider aspects of 'place' at macro, mediating and micro levels.

Introducing Place(s) 1

The first project is examining the transition between foundation stage and year 1 in these two schools and whether pedagogies used in outdoor spaces might smooth that transition. The target children are therefore between 4 and 6 years of age. In Figure 1, the nested ‘places’ of the first study are depicted. The complexity of the concept of place is highlighted by the apparent simplicity and uniformity of this diagram, which was used to describe the study’s design and the comparisons that would be made. Each target child in our study has a place that is home to them, the basis of their family history and tradition that they carry with them into the school and that is (usually) part of the wider community of the catchment area of the school. The schools themselves are places with established patterns of behaviour, regulated as part of a larger macro-community of national standards and guidance. Each school has a distinct geographical and socioeconomic context. School A is in a suburban area in a greenfield site on a hill which looks out over the fields and housing surrounding the city. The school site itself is attractive and has different zones of activity. But it is not an affluent area; the school was rebuilt following an arson attack a few years ago and the school still experiences vandalism from its local estates. School B is near the city centre in a deep valley within an area of disadvantage with housing stock of flats and houses clinging to the surrounding steep hills and the school, a secondary school and a small park occupying the only local green space in the valley bottom. The school site has different zones, such as upper school and lower school playgrounds. Its outdoor spaces are invested in by the school (including buddy seats, shelter and a sleeping dragon in construction) but it has to have a secure outer border to reduce damage to property. The two school communities are part of a single unitary authority (single city local authority) which includes some of the most deprived areas in England. Yet this city is also in a beautiful part of the south-west peninsula of England and is surrounded by fields, woods, moor and coastline, rich with outdoor learning opportunities.

Figure 1: The ‘Places’ in study 1 -macro, mediating and micro contexts



In relation to Place(s) 1, the mediating contexts are the teachers' views and values expressed in interviews and the micro-level is the interactions between children, facilitators and places.

Mediating context – intentions for pedagogy

The macro context in this case is the national policy context which is discussed in more detail in Waite, Nichols and Evans (2009). The school here as 'place' sets out intentions for learning that mediate between their knowledge of local contexts and individual needs and the macro level national guidance and standards. In school A, a foundation stage teacher distinguishes between child-initiated and adult-directed to achieve their aim of broadening experiences for children. The Early Years Foundation Stage in England emphasises child-initiated play-based learning but she moderates this with the need to introduce new ideas and activities.

R: I think the balance for them for free choice is more than directed by the adult but I think that sometimes you can direct them because otherwise they won't know what it's like, they wouldn't have experienced it. I can think of one little boy who would just always go on the bikes and he'd never come and hang the washing or hold a peg unless I went 'come and help me I don't know how to use it', you just make yourself look stupid. Then they're experiencing that and they might really like it and then they might choose to go and do it again or they might choose to ... so sometimes there is a need for it; they need a bit of directing sometimes.

I: Yes.

R: It's supposed to be 80% child initiated and 20% adult-directed and it probably is actually but there is a place for directing it as well.

(FS Teacher 1, School A)

A pedagogical strategy of altering knowledge relations between child and adult by asking for children's help in order to engage them in learning is also evident here. The outdoors appears to afford a different possible cultural role for the teacher, which has been noted in previous studies (e.g. Waite and Davis, 2007).

In addition, freedom from some of the imposed agenda as mediated by the outdoor environment may liberate children's creative responses in ways that are readily anticipated by adults. A Year 1 teacher in the same school noted this departure from teacher's intentions as an adjunct of adult-planned outdoor activities. The co-construction of pedagogy is reinforced by her attribution to the way that children react rather than changes in the teacher's approach.

... I don't know just the general ethos within a classroom tends to be more constricted when you're working within the classroom than when you're working outside. I'm not saying necessarily that's the way I work because I like them to work in that sort of way within the classroom too but they seem to be less inhibited when they're outside doing things and maybe it's slightly different when we're talking outdoor play to organised things maybe that we are doing outside.

I: That's interesting.

R: You might want to do all your science outside but it's probably more teacher led than some of the outdoor play whereas I think an important thing of outdoor play is that you select the activities that you make available for children because you're hoping that they'll get something from it. So there is purpose it's not 'go out and play' so there's teaching involved

there and you sort of get an idea of what you'd like the children to get from that activity. But if they make it something different and develop it differently then that's fine too.

(Y1 Teacher 2, School A)

Micro-contexts – co-constructions

But these intentions are then refracted by the way in which they are received by the children. An interesting finding by Siraj-Blatchford *et al* (2002) in their REPEY study was that most observations of learning deemed to be high challenge did not include adults at all. Yet, this finding is rarely commented upon, while 'sustained shared thinking' is widely advocated as a particularly effective pedagogy. When to engage with children in their playful learning seems to require high levels of sensitivity from adults. By not acting on children's invitations to join in, children's learning can be devalued; yet insensitive or non-stimulating interactions may discourage children's desire to engage adults in their discoveries. This underlines the importance of understanding the cultural contexts children bring to their learning rather than always attempting to impose that of the school (Kalliaha, 2006). Place in learning is not just the here and now but suffused with imported meaning brought to it by participants. In this example from the Foundation Stage in School B, the child has temporarily placed a snail in a letter cube and shows an adult.

C: That's his little house?

T: What in there?

C: I've got a snail in here.

T: Do you think the snail likes living in a box? Do you think the snail likes living in a box though?

The adult tries to encourage the adoption of her own (and the school's) cultural attitude towards animals.

C: Yes.

But the child sees provision of 'a little house' as a positive thing.

T: If you close it, Simon, it's not going to get any air is it?

She gives a reason why it will not like being in the cube.

C: Yes. I've leaved a little hole. Look, look, there's a little hole.

But the child has made provision for breathing. He knows that this living creature needs air.

T: Simon, why don't you climb into that box and I'll close the door?

...

T: If you climbed into a box and I put a lid on it, would you like that?

The adult tries to get the child to imagine themselves in similarly confined space. This is an extension of 'putting oneself into another's situation' witnessed elsewhere, where rather than the adult expressing how they would feel they ask the child to do so.

C: I got, I got ...

C: I got stuck in there ...????

...

The child begins to see that it would not be nice to be kept in a box – Is this the beginnings of empathy or coercion by unpleasant association?

T: I don't think the slug wants to be left in there, it wants its freedom.

The adult follows up a potentially rather scary idea with what it is that makes it important not to shut creatures away in anthropomorphic terms.

T: He wants his freedom.

Is the use of a personal pronoun significant here?

C: I'm letting him free. See.

The child complies.

(Digital audio recording, observation and video, FS, School B, *our commentary in italics*)

Meaningful dialogue (Tovey, 2007) supports children's thinking and learning, but relies on sharing meaning. In the extract above, the adult declines to take on the children's understanding of 'home', i.e. as a place of security and shelter for the snail as she is concerned for the snail's welfare! However, contingent and flexible responses may create richer opportunities for experiential learning and encourage interest and motivation for learning as the Year 1 teacher from School A suggested above.

Thus Early Years Foundation Stage guidance supports play-based pedagogy but for many children entering Year 1 in England, the contrast in pedagogy is marked as opportunities to play and make choices are reduced (Fisher, 2009). Another Year 1 teacher in School A told us, 'they need to have so much structure in lessons or they're not going to achieve.' But extending the culture of early years pedagogy would permit more playful approaches to learning to continue to engage children's interest.

However, playful pedagogy, which was previously held in high regard by early years educators such as Froebel, Isaacs and McMillan (Tovey 2007: 51) has been questioned. Now even early years settings often refer to 'structured', 'directed' and 'purposeful play' (Tovey 2007: 114) as if planning per se adds value. The distinctions between these planned forms are not unambiguous, however, and run somewhat counter to understandings of play characterised by flow and lack of imposed structure (Bruce 1991). We have observed substantial amounts of monitorial pedagogy, where the children's playful exploration is arrested either because it differs from the planned intentions of the adult or through an exaggerated perception of risk in the outdoors. It needs to be acknowledged that structure does not just exist in adult agenda; children too structure their play through negotiation within their own social and cultural norms (Garvey 1991; Trawick-Smith 1998).

Introducing Place(s) 2

In the second study too, place is a nested concept partly by virtue of the research design adopted. The study was an independent evaluation of a four year place-based outdoor learning curriculum. Children from Years 5–8 engage in weekly 2 hour activities planned to offer progression in various educational themes connected to their local environment, including studies of habitats, map work and water skills. Firsthand experience in an English National Park is used to establish a sense of connection with the community, relevant and interesting education and develop self-esteem. 'Place' therefore in one sense was the middle school which ran the scheme but the National Park in which the school was geographically located formed the 'place-base' for the curriculum. Other 'places' were used for comparison and these overlapped through geographical proximity and through the single community college that eventually received all the pupils. The cross-sectional study sampled the place-based curriculum school and comparison school community in year 5, year 7 and year 9/10, i.e. pupils aged between 9 and 15.

The three schools were as follows:

Place-based Curriculum School is the smallest middle school in Somerset with only 160 students on roll. It is situated on the edge of the National Park. The school has a large, mostly rural catchment area, with some areas of social disadvantage, and its wide catchment area means that many pupils have long journeys to school. The percentage of pupils with learning difficulties and/or disabilities is above average and the vast majority of pupils are of White British background. The school holds an Activities Adventure Licence as part of its work for the place-based curriculum (10% of total teaching time), which is designed to develop pupils' life skills and their understanding of their environmental and cultural heritage. (Source: OFSTED, June 2008)

Comparison Middle School is a larger than average middle school with nearly 600 pupils on roll. The proportion of pupils eligible for free school meals is in line with the national average and the percentage of pupils with learning difficulties and disabilities is lower than seen nationally. Attendance is higher than in most schools. Most of the pupils are of White British background. The school also serves a large catchment area with some isolated rural areas and areas of social disadvantage, so pupils may also be travelling some distance to attend. (Source: OFSTED, December 2007)

Receiving Community College is a specialist technology college of over 1,000 students located in the same seaside town as Comparison. It is a larger than average size upper college receiving students from three middle schools, the two mentioned above and another Middle School. Students are thus also drawn from a wide catchment area including both the town and surrounding villages. Most are from White British backgrounds and almost all are fluent in English. The proportion of students who have learning difficulties and/or disabilities is average, although a few have quite complex needs associated with emotional and behavioural difficulties or an autistic spectrum disorder. While the percentage of students eligible for free college meals is lower than the national average, the college's catchment area includes areas of significant deprivation. The college has its own farm unit and has recently begun offering a range of other vocational courses. (Source: OFSTED, April 2009)

Within these schools, the year groups can be understood as 'places' that position the responses of the pupils and from these focus groups of children and young people selected by staff at the school represented the views of their peers. Individuals within the groups brought different home backgrounds with them. They were interviewed sometimes out in the field and sometimes in the classroom.

Macro context – the aims of the place-based curriculum and national policy

The place-based curriculum aims:

- To deepen pupils' understanding of the world around them leading to the development of responsible and caring attitudes to the environment by gaining knowledge of the moor, its landscape, its wildlife, its history and how its people earn a living.
- To develop physical and practical skills through a structured programme of activities on the land and water.
- To acquire and apply decision-making, communication and problem-solving skills through exposure to problems and situations beyond the school environs.
- To develop citizenship through personal and social skills and qualities through individual and shared experiences.

Although some of these aims echo national policy frameworks such as citizenship, personal, social and health education and environmental awareness, the focus is very much on developing these within the particular place in which they live. In order for learning outside the classroom to be effective and

sustained, Peacock (2009) argues that a Collaborative Engagement approach is required. This approach calls for partnerships with outside agencies in all stages of the learning experience: planning, teaching and evaluating of learning. Extended and repeated involvement rather than one-off events is also regarded as helpful, which includes good communication between partners, staff and children and an acceptance that all involved are learning. In this case most instruction is provided by members of staff, so the place-based curriculum engages well with the school's culture. However, interviews showed that there were shifts in views of the curriculum over time.

Mediating contexts – changing perceptions of the received offer

In Table 1 we see how the different places impact over time through the cross section of time within the study. When the pupils begin the place-based curriculum they are enthusiastic and proud of the opportunity it represents. Learning outside the classroom is seen as more important for PSHE by pupils at both year 5 and 7 in the place-based curriculum middle school but by year 10 the differences are not apparent. However wider environmental awareness is strongly featured in both middle schools but only pupils from the other feeder middle schools seem to retain this by Year 10.

Table 1

Text fragment coding frequency showing personal and interpersonal development and wider environmental awareness

School: Identity:	Pupil						Teacher			
	PBM S		CMS		RCC		PB MS	PB MS	CMS	RCC
	Y5	Y7	Y5	Y7	Y10 ex- PBM S	Y10 not ex- PBMS	T1	T2	T3	T4
Personal and interpersonal development	3	4	1	1	2	2	5	8		1
Environmental awareness	8	1	8	5		3			6	1

Source: NVivo 8 coding frequency analyses for study 2

In interviews, pupils from both groups and the teacher at the Receiving Community College spoke of how the Place-Based curriculum Middle School pupils found it more difficult to integrate with the other pupils and tended to stick together. The community development and interpersonal skills seemed to keep them isolated in the new environment. The teacher questioned whether that curriculum offer prepared them well for other places. Our findings indicated that there was strong staff and pupil commitment to the curriculum while at the middle school. Pupils identified strongly with their school and considered themselves lucky to have this unique curriculum offer. There were particular situational factors (for example, a more circumscribed and rural catchment area and closer involvement of the National Park Authority) regarding the school running this curriculum, which appeared subtly different from those in the comparator middle school. Although both valued learning outside the classroom, the link to national curriculum subjects was more pronounced in the comparator school. Strong cultural identification within the Exmoor curriculum school appeared to conflict somewhat with new cultural expectations when the children transferred to secondary school, where

attainment in subjects was privileged by macro context of the national standards agenda. Teachers talked of different life trajectories and cultural expectations that impacted on the schools' curricula. This strongly suggests that careful interrogation and alignment of purpose, pedagogy and place needs to be embedded to maximise the value of tailored curriculum offers for populations of pupils for their future lives. Relationships interact with places over time and bend and refract stated intentions and how they are received and retained.

Discussion

It may be that flexibility to respond to changes in place, time and relationships is a key aspect of how pedagogies, including those in the outdoors, need to be framed. Although some studies (Dillon *et al.*, 2006) suggest carefully designed learning activities and assessment of students' outdoor learning is essential, Ballantyne and Packer (2002: 228) warn against over-structuring activities and suggest that touching and interacting with wildlife is a more effective strategy than 'the use of worksheets, note-taking and reports'. Importing indoor teaching techniques to the outdoors can reduce its capacity for motivation through 'hands on' experiences (Openshaw and Whittle, 1993; Waite, 2011). Emmons' (1997) study of a five-day field course in Belize also found that students' learning was facilitated by their shared and direct experience of the surroundings, although their teachers' role-modelling of their interests and likes about the forest environment contributed to the success of the programme. Consequently, enthusiasm of staff and opportunities for children's direct engagement may be more vital to successful pedagogies than structure through macro-level policies for knowledge acquisition that may not be relevant to pupils now or in the future. We have argued earlier that structured play needs to acknowledge the role of children and place in that co-construction. We should add that time and the metamorphosis of relationships between teachers and learners also contribute to that process.

However, although evidence for cognitive benefits from outdoor learning is more patchy compared to class-based activities, Eaton (2000) has found that outdoor learning experiences were more effective for developing cognitive skills than classroom-based learning. For example, schools which maintained sustained cultures of active learning in the environment were studied in comparison with traditional schools in the US (SEER, 2000). The Environment as an Integrating Concept (EIC)-based programmes 'typically employ the environment as a comprehensive focus for learning in all areas: general and disciplinary knowledge, thinking and problem-solving skills, basic life skills, such as cooperation and interpersonal relations as well as understanding of one's relationship to the environment –community and natural surroundings' (SEER, 2000:iii). Paired school comparisons of schools, either implementing EIC or not, found EIC students performed better in 77% of the academic assessments analysed, and 84% better in combined discipline and attendance assessments.

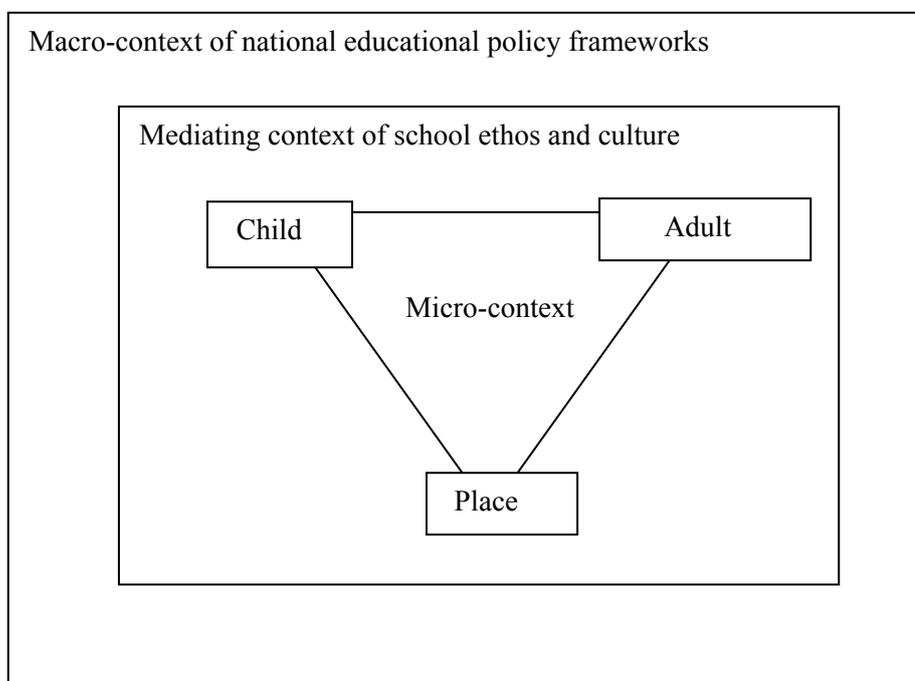
Successful EIC settings for learning had the following features:

- Natural and community settings, the local environment as a context for learning
- Integrated interdisciplinary instruction
- Problem-, issue-based instruction
- Collaborative instruction
- Learner centred constructivist methods
- Independent and cooperative learning.

A possible explanation of this is that the outdoor contexts provide a less constrained environment to allow co-construction. So from these and our own studies in two places, we might conclude that a

progression in pedagogies appropriate to temporal and spatial and relational factors is desirable. This can best be enacted through the sensitive micro-contextualisation culturally mediated by schools' local knowledge of community and individual changing needs and interests.

Figure 2: Cultural mediations



Indeed, Brookes (2003) argues that outdoor education should no longer be understood in terms of inherent internal traits that were positively affected by challenge in extreme outdoor experiences (the 'character building' school of thought such as Outward Bound, for example) but from a situational perspective that recognises that our behaviour, feelings and learning depend on where we are (temporally and spatially). A conceptualisation of different situational identities has the consequence that education *in* different situations might help individuals to a greater understanding of themselves, thereby increasing their adaptability, and help them to make better choices and responses in their lives. Therefore, the *process* of re(constructing) relationships between individuals, communities and places (Straker, 2003) is a more vital element of successful teaching and learning than novel experiences per se.

Conclusion

It is hoped that this paper will stimulate discussion about complex, multiple and shifting concepts of 'place' and their contribution to successful pedagogical practice to meet current and future needs.

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Note: *This paper is based upon two studies previously separately reported at conferences.*

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Educating Pre-service Biology Teachers in Informal Teaching Environments - A Case of a Local ZOO

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Abstract

Educating good science teachers is the main goal of all science teacher programmes. Teachers today should be trained to carry out both classroom and outdoor activities for children. In addition, they should be able to convey modern socio-scientific issues to the general public. Informal environments such as zoos, botanical gardens and various other nature centres present an ideal opportunity for pre-service teachers to learn about different teaching activities, gain pedagogical and scientific (biological) knowledge, and develop attitudes and skills necessary for teaching. This paper presents students' self-evaluation and the evaluation of the workshops that they organised in the spring of 2010 at the local zoo (ZOO Ljubljana). The workshops focused on endangered large carnivores and amphibians of Slovenia. Students were generally eager to carry out workshops and are willing to participate in the similar activities in the future. Implications for teacher education programmes and co-operation with other nature education centres are discussed.

Introduction

According to the IUCN Red List of Threatened Species (*The IUCN Red List of Threatened Species*, 2010), in the past century many animals, plants and other species have undergone severe decline or are facing worldwide extinction. The main reason for such declines can be contributed to human actions. Habitat destruction and exploitation, climate change, increasing levels of ultraviolet radiation, environmental contamination, disease, and the introduction of non-native species are all possible causes for which species numbers are in decline. To address these issues and to raise awareness about loss of biodiversity, the year 2010 has been declared by the United Nations as the *International year of biodiversity* (United Nations, 2010).

In the year 2004, the Society for Conservation Biology published Conservation literacy guidelines (Trombulak et al., 2004). In their opinion, education plays an important role through which biologists can present novel environmental problems to the general public. Through education people can be informed about those problems and motivated to take actions for preserving healthy environments. Their main arguments are that educators should seek to develop a deeper understanding of the importance and tools of conservation biology in people; they propose that education is the most effective when people develop knowledge, skills, and attitudes through direct experience and that conservation biologists have a unique set of knowledge, skills, and concerns to share with others.

We have found ourselves in a position, where we found that biology (environmental) education often does not provide knowledge according to which people would be willing to act pro-environmentally. Slingsby and Barker (2004) therefore believe that we must design teaching methods that will be more efficient. Teaching must go beyond achieving only factual understanding of subject matter.

Learning through fieldwork seems to be a promising method to educate environmentally responsible people (for literature review of see, Barker, Slingsby & Tilling, 2002; Bogner, 1999; Lock, 1998). In

spite of mentioned fact, there are reports that fieldwork is in decline (Tilling, 2004). Also, the trend for a decline in fieldwork is evident in initial teacher training (Kendall et al., 2006).

There are many reasons for the decline but that should be reversed by: *□making fieldwork a requirement rather than an option in the biology curriculum; developing and presenting a strong case for biology fieldwork; supporting innovative curriculum development; providing support for trainee and experienced teachers; encouraging scientists to take a much broader view of the world around them* □ (Barker, Slingsby & Tilling, 2002).

Zoological gardens can be treated as one form of fieldwork (informal education setting), with a lot of learning possibilities (Lock, 1998). They are the place where students can for example learn about animal behaviour (Tunncliffe, 1996) and can directly experience indigenous and endangered species (see Lock, 1998). Emphasis on students acquiring experience through direct contact with nature and organisms is also one of the basic innovations of the science and biology curricula of the reformed Slovenian school system (Verčkovnik, 2000). But for that, teachers must be equipped with proper knowledge, skills and attitudes with which they are able to convey biology topics appropriately to the students.

For that purpose I have prepared a half semester activities for pre-service student teachers, where they gained knowledge in a form of lectures about several endangered animal groups, experienced animals at the local ZOO, where they have been learning from live animals and preserved parts of animals. Following their own learning, workshops at the local ZOO were organised, where students had the opportunity to present animals to the general public with the purpose to raise awareness of people about those animals. All of the above activities were followed by students' evaluation of the programme.

Methods

Slovenian school system

Slovenian education system has in the past two decades gone through an extensive reform. Primary school was prolonged from eight to nine years and the whole primary schooling is divided into three parts called triads. Science is taught from the beginning of primary school, but is not standalone subject until eighth grade. In the eighth and ninth grade it is divided into three separate subjects, biology, chemistry and physics. Teachers that can teach science are usually two subject primary school teachers or one subject teachers that were further qualified in one or two missing subjects. Only teachers with background in science are allowed to teach science.

The biological content structure of science and biology curricula is as follows. In sixth grade the students are learning about anthropogenic ecosystems in order to get familiar with their everyday surroundings and meet as many organisms and interactions between them and environment as possible. In the seventh grade, students get to know natural ecosystems and organisms living in them. Both in sixth and seventh grade students are also learning about basic structure and function of organisms. In eighth grade, students are learning about systematics, ecology and evolution and in ninth grade about human biology with basic genetics.

Participants

Participants of the activities were two-subject biology-chemistry and biology-home economics student teachers (N=85). The majority (N=71; 84%) of the students participated in the evaluation part of the activities (Table 1).

Table 1. Structure of the research sample

Biology-	INITIAL SAMPLE (<i>f</i>)		FINAL SAMPLE (<i>f</i>)	
	Chemistry	Home economics	Chemistry	Home economics
Second year students	17	21	16	20
Third year students	19	28	15	20

The programme

The programme consisted of six steps which were organized at the first several weeks of the semester.

(1) Lectures about several endangered animal groups (Figure 1; a)

Several experts were invited to prepare lectures for the students. A professor from Ecology department introduced carnivore species of Slovenia, their biology and their endangerment to the students. Three teaching assistants from the same department presented their research activities on carnivore biology and ecology and socio-biological aspects of carnivore protection to the students. Because carnivores are many times publicly controversial topic, students had to be informed about possible reactions of the ZOO visitors. And finally, from the Ministry of the Environment and Spatial Planning, The Environmental Agency of the Republic of Slovenia, I invited a colleague who is involved in state protection of large carnivores.

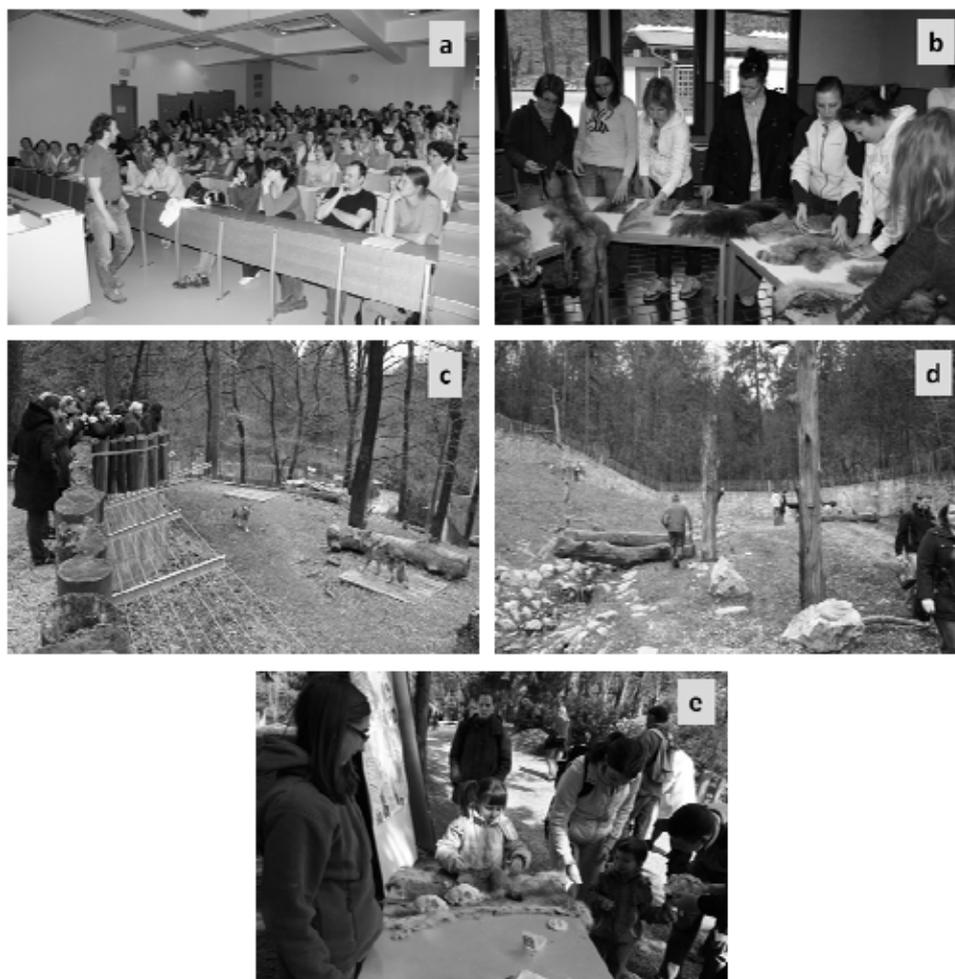


Figure 1: Student activities

(2) Learning about carnivores at the ZOO (Figure 1; b,c,d)

Students had the opportunity to come very close to the animals and were informed about individual animal history at the ZOO, about animal enclosures and animal care. Later on, students were learning from preserved parts of animals. They also had to be prepared for working with such materials.

(3) Learning about local amphibians at the Faculty

In this part students were learning about amphibians of Slovenia and had a chance to work with live animals kept at the Faculty. They gained experiences of handling live amphibian species.

(4) Work of students in teams - preparing for the workshops and making posters

Students were organised in teams of two to three students. They agreed that animals that they will be presenting at the ZOO workshops should be assigned to them by a lot (one to two carnivore species and one to two amphibian species). Then they were delivered literature about selected animals. In a form of a lecture, they were also informed about benefits and drawbacks of conducting fieldwork in biology (science) teaching (see the cited literature in the introduction).

(5) Workshops at the local ZOO

Workshops were organised for the purpose to participate in the EAZA (European Association of Zoos and Aquaria) yearly campaign. In this part of the programme, students were presenting animals to the general public with the purpose to raise awareness of people about those animals.

(6) Evaluations of the programme - *Instrument*

After the workshops, students had to evaluate the programme. A mixed methods approach was employed to collect both qualitative and quantitative data from written questionnaires and a written assignment (Creswell, 2008). The analysis of the data is still in progress, so only preliminary results are presented. Quantitative data were obtained by 5-point Likert type questionnaire that contained 36 questions. The meaning of the scale was as follows: 1 = "I completely disagree", 2 = "I disagree", 3 = "Undecided", 4 = "I agree" and 5 = "I agree completely". Students were asked about (1) their work with live animals and preserved materials; (2) their work with ZOO visitors; (3) usefulness of the individual step of their preparation for the workshops; (4) interest in workshops and (5) behaviour of ZOO visitors at the workstations.

Qualitative part of the survey consisted of 14 open-ended questions grouped in four categories: (1) comparison of teaching in classroom with teaching at the ZOO; (2) using animals in instruction (3) suitability of workshop theme for primary school students and (4) students' positive and negative experiences with ZOO workshops.

Students were also asked to grade their own presentations at the ZOO workshops. They graded their presentations of carnivores separately from amphibians.

Results with discussion

For the purpose of this article, the results from the Likert scale about students' interest in the workshops are presented. Additionally, answers on open-ended questions of two students about their positive and negative experiences with ZOO workshops are included.

Students interest in ZOO workshops

After items S3, S4 and S5 were reversed, factor and reliability (Cronbachs alpha) analysis were conducted. Cronbach's alpha for five items was 0.72, what is satisfactory for such a small sample and number of items. Factor analysis with varimax rotation produced only one factor when eigenvalue was set as greater than 1.1 and loadings above 0.40.

Third year students had already participated at the workshops the year before. So their experiences with such activities were not new. Students of both study years stated that they liked carrying out workshops at the ZOO and that they were interesting (Figure 2, S1 and S2). Students of the second study year liked workshops more (S2) and were less bored (S4) than their counterparts. That was probably because repeated activities didn't pose such a novelty for the third year students as they did for the second year students. The same reason might apply for the third statement (S3), where third year students felt more confident (but not statistically significant) in conducting workshops than did their counterparts. Students were generally not angry that they had to attend workshops at the ZOO (S5) what also shows that they were motivated to participate.

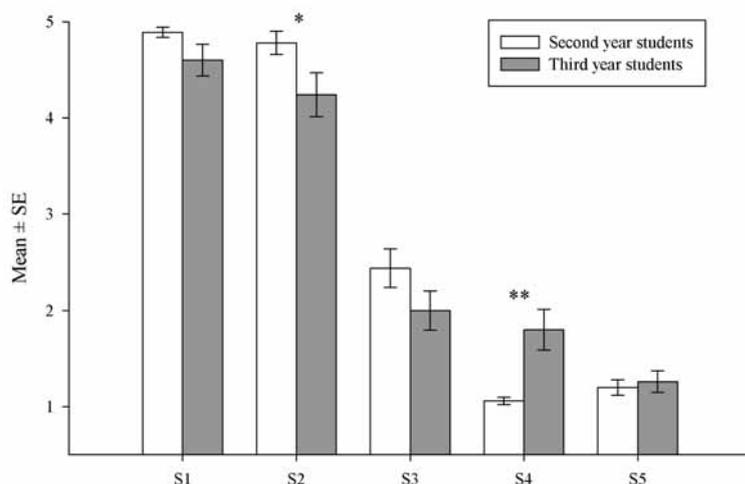


Figure 2: Students ratings of interest statements.

S1 - Conducting workshops was interesting ; S2 - I liked conducting workshops ; S3 - I didn't fill confident before conducting workshops ; S4 - Conducting workshops is boring ; S5 - I was angry because I had to conduct workshops . Meaning of asterisks: * $p < 0.05$; ** $p < 0.01$.

Students experiences at the ZOO

Describe any negative experiences that you might gained from the workshop at the ZOO

Student 1 (first time workshop): I don't have any unpleasant experiences. I admit that I wasn't so keen to sacrifice one Sunday to attend workshops at the ZOO, but I have changed my mind as soon as we started working. I was a little disappointed on account of older visitors, because I didn't expect that they wouldn't know many basic things about animals...

... It was also a little cold and we were freezing by the end of the workshop, but they were worth the effort.

Student 2 (second time workshop): Last year, it was more unpleasant because it was raining and there were only a few visitors. It was very difficult to motivate people to come to our place of presentation. This year it was different. People just kept coming and were gathering around our table. There are no other unpleasant things for me to mention.

Both students focused mainly on the logistical aspect of the workshop, i.e. weekend and possible bad weather. It is necessary to organize workshops at the weekend that students have the opportunity to encounter as many visitors as possible (different ages, prior knowledge, attitudes and values, ... of ZOO visitors).

Several students mentioned that knowledge of visitors is scarce and that many times visitors view animals in anthropomorphic or anthropocentric way.

Describe any positive experiences that you might gained from the workshop at the ZOO

Student 1 (first time workshop): *For me, everything was positive. I was in a very good mood, when I came home. I gathered a lot of new experiences. Children alone give me a lot of energy. I liked that they were listening to me and were with enthusiasm working with live animals (most of the time). Even an elephant on the other side of a path was no match for my animals. I got some kind of confirmation that I chose a right path, of my study I mean. I can draw attention of complete strangers and keep them as long as 10 minutes or more and what I do was interesting for them. I am also pleased that I knew the answers to all questions that visitors have been asking. Truly a great day and excellent experiences.*

Student 2 (second time workshop): *It was positive that this year there were a lot more visitors than in the last year and that there were not only children but visitors of different ages. You are forced to communicate with all of them (it is not that it is hard, but you are reluctant to and you have to, which is good). In this way we got skills in communicating with people, and in working with organisms. And we are in fresh air. It is a change; we are not in a classroom all the time. The main thing is, that it is fun.*

The first student was in her description focusing more on working with people and was glad that her insecurity about her decision for the teaching profession was not wrong. She was also satisfied with her knowledge about the topic of the workshop. On the other hand, second student was not so eager to work with people, but realizes that it is a "need to" for her future profession. She also sees benefits of activities beyond classroom. This student focused more on the didactic value of the workshops.

Conclusion

Cooperation with institution such as ZOO proved to be a promising way of preparing pre-service biology teachers. Students reported that they liked to work at local ZOO and gained several positive experiences, e.g. communication with people of different ages, working with teaching materials. Students not only gained experiences they will need as teachers but they also got knowledge about certain endangered animal species and experiences of introducing such topics to the general public. Because they participated in every step of preparing the workshops, they were gaining knowledge and skills in organising informal learning activities. Later on as teachers, they should be able to prepare learning environments where their students will gain knowledge, form positive attitudes toward organisms and nature and develop a plethora of necessary skills.

Acknowledgements

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Examples of Successful Practice, Principles of Successful Practice

The Highland Adventures School Journeys

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Abstract

The overall objective of the research “End of Adventure” (ice. Úti er ævintýri) is to describe the experiences of pupils and staff members participating in Smáraskóli’s Highland Adventures Journeys and to evaluate the impact of those trips on the pupils; as individuals and as a group. Another goal is to describe the methodology of those travels and to take a closer look at the theoretical and ideological background of Outdoor Education (OE).

The research questions are:

- *How do the pupils and staff members experience the trips?*
- *How do participants communicate with each other during the trips?*
- *How do the trips influence the individuals and the group?*
- *Are adventure based outdoor journeys making suitable conditions for giving and receiving care?*

The Highland Adventures Journeys are based on the theories of Adventure Education, which belong to the field of OE. The research explores the field of OE as a separate field of educational and environmental theory, and links it to theory and research in the field of Adventure- and Experiential Education. I also use Nel Nodding’s theory of Ethics of Care in the analyses of the journeys.

Little research on “learning out of doors” has been done in Iceland and the development of concepts and theoretical anchoring is still in its early stages.

The scientific value of the research lies in:

- *Documenting the procedures and methods developed in Smáraskóli regarding travels with pupils.*
- *Describing the ideological and theoretical foundations of OE and the journeys.*
- *Describing the experiences of pupils and staff during these travels, and to analyse possible effect on the pupils.*
- *Developing the discourse on concepts and theory of OE and Experiential Learning in Icelandic.*

The research is based on interviews, field observations, diaries and surveys to investigate the experiences of the pupils and staff. Field observations are based on the highland adventures undertaken by classes 8 – 10 in the autumn of 2007.

Jakob F Thorsteinsson (male born in 1969) is a teacher by education and is now finishing a MA in Teaching Studies. Jakob has a 7 years teaching experience in primary school and universities and a 12 years experience in social and leisure work for the Department of Sports and Leisure in Reykjavík (ÍTR). Jakob has been working in a various experiential programs for the last 10 years; as a trainer for The Challenge Ltd, and as an adjunct at the [University of Iceland \(leisure studies\)](http://www.hi.is/is/simaskra/enska/4249) and [Department of tourism at Holar University](http://www.hi.is/is/simaskra/enska/4249). More information about Jakob at: <http://www.hi.is/is/simaskra/enska/4249>
Jakob is in the spring 2010 finishing a research on the Highland Adventures School Journeys – an adventure education school program taking place in the Highlands of Iceland. It is a systematically designed adventure program that starts in 1st grade and is gradual up to the 10th grade. The research is focused on three journeys that take place when the students are at the age from 13-15. The journeys are a four day hiking journey through the highlands of Iceland and two bicycle trips also in the highlands.

What Qualifications are Needed to Become an Outdoor Teacher and What is the Teacher's Role?

Dr Robbie Nicol

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Abstract

This lecture explores the nature of outdoor learning by looking at models, definitions and theories. It explores the curricular potential of outdoor learning whilst acknowledging the barriers that teachers often face when developing programmes. It suggests that school based approaches represent the greatest potential for the development and growth of outdoor learning throughout Europe. It will challenge the view that the concept of adventure is limited to 'high thrill' activities.

Instead consideration will be given to how curricular subjects that teachers are already familiar with can address issues such as health, well-being and environmental sustainability particularly because of the joy, inspiration and curiosity often encountered in outdoor settings.

The main point is that school teachers need not be afraid of having to be highly qualified in the sorts of outdoor adventurous activities that take place in remote areas. When outdoor learning is perceived as starting in the classroom and making local journeys then the qualifications that teachers already possess are sufficient for high quality outdoor learning. Some empirical research will be used to inform the sorts of qualities that school teachers may require to make the leap from indoor teacher to outdoor teacher.

Robbie Nicol is a lecturer in the outdoor and environmental education section at the University of Edinburgh. He has worked as an outdoor educator within the public, commercial, charitable and voluntary sectors. He holds a wide range of national governing body awards in canoeing/kayaking, mountaineering and skiing and maintains an active participation in these activities through journeying.

In his current post he is responsible for a range of undergraduate and postgraduate outdoor education programmes. He is responsible for the supervision of MSc and PhD students covering a range of topics including child development, emotional intelligences, the use and application of learning models, and cross-cultural education. His own PhD is titled 'Outdoor Education for Sustainable Living?: An investigation into the potential of Scottish local authority residential outdoor education centres to deliver programmes relating to sustainable living'. This investigation looked at the meaning of personal and social education in relation to theoretical, policy and operational perspectives.

He is involved in Continuing Professional Development through involvement with a European Union funded Socrates programme titled 'Outdoor Education: Authentic Learning in the Context of Landscapes'. He is also a Board member of the European Institute for Outdoor Adventure Education and Experiential Learning.

His research interests are directed towards the theoretical development and practical implementation of environmental education, sustainability education and epistemological diversity (different ways of knowing) particularly in the outdoors.

Learning in Nature: Exploring the Value of Residential Learning Experiences Within Scotland's New School Curriculum

Dr Beth Christie

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Abstract

This paper considers the potential role of residential outdoor learning experiences within the mainstream educational framework of Scotland. It begins by reviewing the outcomes of the Aiming Higher with Outward Bound evaluation (an educational initiative developed in 1998 and introduced into 26 secondary schools in North Lanarkshire, Scotland). It then considers where we are now, by highlighting recent changes within the Scottish education system, such as the new 'Curriculum for Excellence through Outdoor Learning' document and the structure and nature of the new educational framework, and explores whether past research findings can be used to inform progress in these stimulating times. Finally, the paper concludes by considering where we can go next by offering some suggestions for the potential direction of future research in this area.

Background

Over ten years ago Bentley (1998: 6) stated that 'conventional school-based learning' within the UK failed to 'mesh the knowledge in the curriculum with the contours of wider experience'. He suggested that we should be concerned with the 'development of understanding' which 'can be applied and extended by taking it into the spheres of thought and action which, in the real world, demand intelligent behaviour'. This notion places a high value upon the integration of subject matter both within the curriculum and beyond the classroom. This is reinforced by his suggestion that there is a need to develop students' knowledge and understanding to enable them to behave intelligently in a variety of situations. This resonates with the Scottish Governments keenness to ensure that 'all our children and young people in Scotland develop the knowledge, skills and attributes they will need if they are to flourish in life, learning and work, now and in the future. (LTS website; 2010).

There is a substantial literature concerning residential experiences, their possible benefits and their unexploited potential (Amos & Reiss, 2006; Dillon et al., 2006; O'Donnell et al., 2006; Rickinson et al., 2004; The House of Commons Education and Skills Committee, 2005), much of it is also concerned with outdoor learning. As Rickinson et al. (2004: 56) note in their recent review, much of the literature is not UK based despite the importance of understanding such teaching and learning in a local context (ibid.:57), and that there are 'blank spots' in the literature, including teachers' understandings of what is happening, educationally, in these educational episodes (ibid.:56).

Whilst there have been positive developments throughout the UK at policy level (Department for Education and Skills, 2005; Learning and Teaching Scotland, 2007) the overall picture is poor. Provision of such experiences is declining. O'Donnell et al. (2006) reviewed provision in England recently and described possible decreases in activity in both residential and day-length excursions (any increase seemed to be in activities within school grounds). There have also been reduced opportunities for trainee teachers to develop outdoor learning skills and understanding (Kendall et al., 2006).

There are less widely reported but significant inequities in access to these kinds of educational experiences. These apply between and within schools, in England, Wales and Scotland, and in relation to indicators of social inequality (such as proportion of free school meals), key stages, and proportions of pupils with special educational needs (Mannion et al., 2007; Power et al., 2009; Morris & O'Donnell, 2006).

The reasons for this picture are complex but the general tenor refers to “wholehearted support” however there are still issues surrounding “crowded curriculum and a rigid assessment system” and “increased perception of the risks” (Rickinson et al., 2004: 9). In Scotland, Ross et al (2007) conducted research with teachers and revealed that “effort and cost” were being weighted against the same idea of “curriculum”. Therefore, although there is some research evidence to support the links between outdoor experiential learning experiences and formal education the breadth, depth and philosophical rationale of those links needs to be established in order that it transcends the political educational framework that is adopted at that time. This paper attempts to do this in part by identifying the relevance of the recommendations from the Aiming Higher with Outward Bound study in the context of the new Curriculum for Excellence (which has recently been introduced in Scotland). With the aim of reinforcing, the universal central tenets of outdoor experiential learning that could exist within the new approaches to teaching, and learning.

Aiming Higher with Outward Bound

The Aiming Higher with Outward Bound evaluation spanned just over five years from 1998 – 2004 and formed the basis of a doctoral study (Christie, 2004). At that time, North Lanarkshire Council's Aiming Higher with Outward Bound programme provided an original example of an outdoor experiential approach to learning as part of a mainstream secondary education and so it provided a significant opportunity for conducting original evaluative research. The initiative was introduced in response to the Local Authority Education Department's belief that the detrimental impact of severe socio-economic deprivation, had lowered the aspirations of its young people, leaving many with limited prospects (North Lanarkshire Council, 1998).

The Aiming Higher programme specifically intended to help raise achievement levels in 14–16 year-old students through their participation in a five-day residential programme. Each year, over a period of 15 weeks from October to February, around 25 percent of fourth year students in the North Lanarkshire Council area attended the Outward Bound centre at Loch Eil.

The evaluation of the programme demanded a combination of quantitative and qualitative methods. A 'Life Effectiveness Questionnaire' (LEQ) (Neill, 1997) was administered to all 14-16 year old students in six mainstream secondary schools. The sampled schools were selected from the population of 27 mainstream secondary schools. The LEQ was administered on three occasions (one month pre-, one month post- and again three months post- Outward Bound). This procedure was followed over two consecutive years of the programme, and involved over 800 pupils. Group interviews were conducted with a sample of students who had taken part in the residential programme. (n=53). At that time the Scottish Education system followed the 5-14 National Curriculum Guidelines (LTS, 2000) and the concept of dispositions was used as a broad overall framework for the analysis.

The origins of the term dispositions can be traced back to the phrase ‘values’, which appeared in a publication from the Scottish Consultative Council on the Curriculum (now LTS) called ‘Heart of the Matter’:

...there are qualities or dispositions which will be generally acknowledged as fundamental to any recognisable form of moral life, as a sound guide on which to base personal choice and as central to the prospering of a just and democratic society. (SCCC, 1995: 3)

The agenda has not differed greatly since that publication but the terminology has.

The publication goes on to suggest that these five dispositions should not be considered as exclusive; instead they should be considered as a unified cluster that is non-hierarchical in structure as they are of equal importance and inter-related. The 5 -14 National Guidelines (LTS, 2000: 5) state that the dispositions help to “guide pupils in making decisions and taking action” by providing them with a “fundamental basis for a personally rewarding life and an effective community”. The dispositions encouraged and engendered were:

- ***A commitment to learning*** - Throughout schooling and to equip them for adult life, children need both to acquire new information and skills and to make new connections and meanings in what they have learned. Learning becomes an exciting and rewarding lifelong process.
- ***A respect and care for self*** - A sense of self-worth brings a capacity for autonomy and motivation. It is the basis from which care for others grows. It is strongly linked to achievement and attainment.
- ***A respect and care for others*** - Recognising that we are interdependent helps pupils develop qualities of co-operation, mutual support and respect for the diversity of people, cultures and beliefs.
- ***A sense of social responsibility*** - An awareness of positive social attitudes, principles and skills will help pupils become competent and positively disposed to participate in society. A commitment to the environment will be engendered.
- ***A sense of belonging*** - Being part of and committed to the life of the school is achieved when pupils feel valued, knowing that their opinions count and their concerns are addressed.

(LTS, 2000: 5)

It is stated that these dispositions would “find expression in the curriculum that pupils study, in the contexts in which their learning is structured and in the relationships that encompass both their learning environment and later life” (LTS, 2000: 5). It is hoped that through the development of these qualities and dispositions the students would develop skills necessary for an effective life, such as personal and interpersonal skills, a commitment to lifelong learning, the ability to communicate effectively, problem solving skills and the confidence to lead a successful life. There is a clear overlap between the claims made for outdoor learning and the dispositions framework and so by using this framework as the structure for the overall analysis it was possible to relate the findings to both the experiential outdoor approach and the mainstream approach to education.

The evaluation suggests that the course delivered by Outward Bound as part of the Aiming Higher programme provided an opportunity for personal and social development, consistent with the educational framework at that time. The overall outdoor experiential learning process from pre- to post- course work appeared to support positive development in this case. Although the results of the quantitative study showed no significant difference between the two groups in terms of their LEQ

scores, interviews with those who participated in the programme, pointed to positive overall effects in terms of the students' perception of their social and academic skills. The evaluation indicated that there is a link between an outdoor experiential approach to education and the rationale behind the concept of the 'dispositions'. This suggests that the Aiming Higher with Outward Bound programme is one way in which outdoor experiential learning can, in practice, successfully compliment the current education system in Scotland. The evidence suggests that the students felt that they had developed as a result of the programme, in terms of increased confidence and social skills, and in some cases the students reported that this has transferred into the classroom. For example some felt that they could perform better in speaking tests, that they could speak out in class and that they could ask for help from teachers and other students.

The experience and the extent of its effect was specific to each student however the majority felt that they had developed in some way as a result of their involvement in the programme. The group interview results correlate with the participant observation and individual interview data, however the LEQ does not demonstrate such a positive effect. This could suggest that either the LEQ is not 'sensitive' enough to give positive results or that this type of study does not lend itself to quantitative analysis. Further investigation into both the LEQ and general quantitative analysis in this field is necessary in order to clarify this issue.

In summary, the case study evaluation successfully combined approaches, drawing upon each technique individually, yet combining the findings through the dispositions framework. In other words the evaluation demonstrated that triangulation can be used to produce effective, original and reliable results. Importantly this study also has implications for future research within the field of outdoor experiential learning and within the broader field of education as a link has been established between outdoor experiential learning and mainstream education; an area of research that has been given little previous attention (Cason and Gillis, 1994; Hattie et al, 1997).

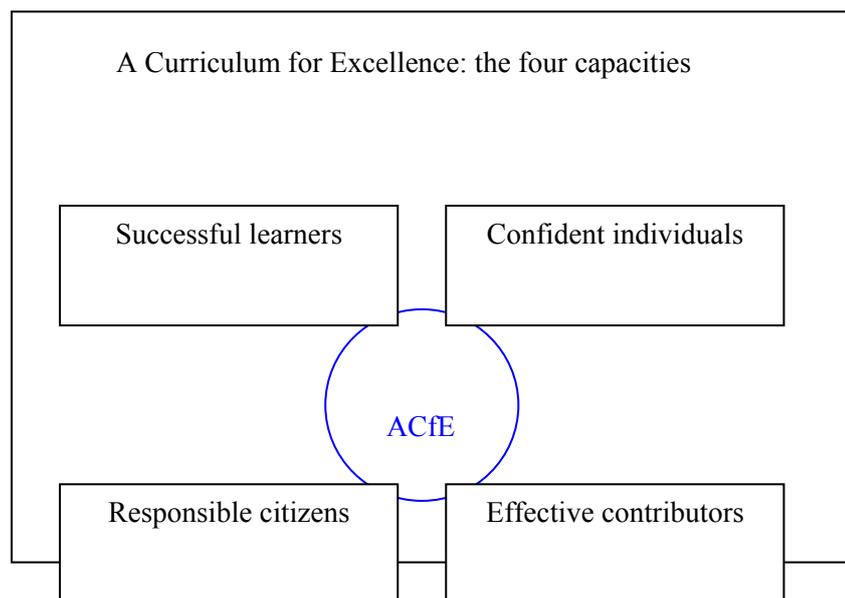
The recommendations that arose were used specifically to inform the development of the Aiming Higher with Outward Bound programme and, more generally, as a basis for considering the broader theoretical recommendations relating to the field of outdoor experiential learning in this context.

Since this research was conducted, the 5-14 National Curriculum guidelines have been superseded by the Curriculum for Excellence. However, the underpinning rationale behind the concept of dispositions is very evident throughout the new framework, particularly in relation to the 'four capacities'. Thus helping to reinforce the consistent role of outdoor learning and establish its' value within the Scottish education system.

Current context – Curriculum for Excellence

Following a recent national review of education the Scottish Parliament has through its educational advisory agency (Learning and Teaching Scotland) embarked on a major initiative – 'A Curriculum for Excellence'. In future much less emphasis will be placed on a subject-oriented curriculum and in preference the personal skills and attitudes of young people are to be the central theme, encouraging young people to develop the capacities of 'successful learners', 'confident individuals', 'responsible citizens' and 'effective contributors' (Learning and Teaching Scotland, 2008), see Figure 1.

Figure 1 The four capacities



These capacities are similar in structure and nature to the dispositions framework discussed earlier, and as was the case with the dispositions, the development of such capacities is clearly difficult for schools to deliver and demonstrate. There is a similarity between the claims made for outdoor learning and these 'capacities' and so the Scottish Government funded an initiative called 'Outdoor Connections' and a major research programme (which we at the University of Edinburgh and others) have recently completed (see University of Edinburgh Outdoor Education (2009) website for details and Nicol *et al.* (2007) for a summary). As part of the work of the 'Outdoor Connections' programme (Learning and Teaching Scotland, 2009) staff have, through analysis of this and other research identified ways in which outdoor learning might deliver these kinds of developmental outcomes. It is not clear how this will be encouraged, what the expectations of Government would be and what would constitute good practice. However, what is clear is that the flexibility of Curriculum for Excellence would allow schools to arrange much of their teaching outdoors if they wished to do so. This approach has been convincingly advocated by Beames *et al.* (in review) who argue that Curriculum for Excellence challenges the 'dominant, fragmented model of learning' and 'legitimises the kinds of cross-curricular, autonomous learning that may be offered by theoretically-driven educational opportunities outside the classroom'. Therefore, it is important to be clear about the evidenced links between outdoor learning and the Scottish education framework to ensure that past research is re-examined in relation to the new curriculum so that it can inform future practice.

Recent guidance documents published to support the delivery of outdoor learning as part of the Curriculum for Excellence state that 'outdoor learning offers many opportunities for learners to deepen and contextualise their understanding within curriculum areas, and for curriculum linking learning across the curriculum in different contexts and at all levels'. (LTS, 2010;9). The recent developments within the educational framework of Scotland coupled with an increased interest in, and awareness of, the potential benefits of exposure to nature means that there is increasing educational policy support for outdoor learning within Scotland.

Future research

When the Aiming Higher with Outward Bound is considered in relation to the four capacities and the rationale behind the Curriculum for Excellence, connections can be made between an outdoor experiential approach to education and its value in terms of mainstream education. The evaluation has provided an example of one way in which an outdoor experiential approach to teaching and learning can be successfully integrated into the Scottish education system. Therefore building upon current practice in schools by introducing an opportunity for students to bring their experience into the classroom and so benefit their overall education.

Reviewing past research, Hattie et al (1997: 85) noted that 'research and adventure programs can provide many insights which might inform regular educational contexts, however they were conducted as though they operated in isolation from the educational world'. This paper has provided the opportunity to go some way towards addressing this issue by reviewing research that provided a valuable insight into the links that can and do exist between outdoor experiential learning and mainstream education.

Other original empirical UK based studies (Beames et al. 2009, Nicol et al. 2007, Higgins et al 2006) have indicated that whilst young people clearly benefit from residential experiences this phenomenon is not well understood. However, the general lack of research investment makes it difficult to identify the relationship between the nature of the experience and activities, and any such benefits. This is not helped by the lack of expectation that residential providers and schools should evaluate their programmes. It is understandable that in a competitive market-place providers make claims for their programmes that are not supported by specific local evaluation, but instead draw on meta-analyses that are devoid of context.

Future research could consider a *triangulation of methods approach similar to the approach adopted in the Aiming Higher study*. For example, a self-report instrument or other form of psychometric instrument could be combined with group interviews or individual interviews. As was the case in the Aiming Higher study, the quantitative aspect of the evaluation produced some interesting results, however the value of that type of approach lay in the opportunity to combine findings to produce an overall understanding of a situation, as the results were of greatest use when they were used in conjunction with the qualitative findings. A multi-method approach could enhance future research, in similar areas.

Secondly, future research could be conducted in order to *establish how far the development of 'dispositions' or the four 'capacities' translates into all aspects curriculum*. This could be done to attempt to establish why and how these capacities are of benefit to a student during their time at school and for their life beyond formal education. In general, the old concept of dispositions has been understudied although it remains one of the core elements of the aims and objectives of mainstream education and has been carried through into the new Curriculum for Excellence within the spirit of the four capacities.

Finally this paper has taken steps towards highlighting that there are fundamental aspects of outdoor learning that have relevance beyond the educational framework of the time. The philosophical rationale of outdoor learning has a relevance to the way in which young people learn and develop within, between, and beyond the constructs of a formal educational setting. By providing an increased opportunity for residential outdoor learning experiences as part of mainstream schooling then we are adhering to the core values of curriculum for excellence and the long-standing key concepts of outdoor pedagogy; challenge, enjoyment, relevance, depth, development of the whole person and an adventurous approach to learning (LTS: 2010).

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Connection with Nature and Awareness as Primary Goals of Outdoor Education

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Abstract

Children have lost the connection with nature that was a given just a generation ago. To us playing with friends and running outside was taken for granted, just like watching TV or playing computer games is to today's children. For many children outdoor and environmental education centres are the first really close encounter with nature. In my opinion we can (and should) do much more than achieve attainment targets. We can do that successfully and should not neglect it, but we should also take advantage of our unique opportunity to bring children closer to nature and nature closer to children. Too structured and jam-packed a curriculum cannot do much for children's connection to nature and their desire to spend time outside. In my opinion we should build on positive experiences and systematically try to bridge the gap which modern life has inflicted not only on our children but on all of us.

“The best test of the quality of a civilization is the quality of its leisure” (Irwin Edman, Gardeners web page). Are we sure that TVs and computers are the highlights of our civilization? Is this is the best we can offer our children? Outdoor education teachers might have an opportunity to equip them with better ways to spend their time.

There are a number of benefits that outdoor and environmental education brings to students. Among these are: effective, hands-on learning, building a positive relationship with nature, enhancing awareness, empathy, teamwork, self-esteem, social skills, and others. All of these are important and give students tools to deal with their everyday tasks in and out of school.

Teachers in outdoor education settings try to accomplish all of these benefits and tailor them to different groups, but probably each of us has some aspects that we feel strongest about. In my case it is the positive relationship between children and nature. Other qualities, like teamwork, achieving good learning results, or social skills, can also be achieved in a number of other situations and environments, but the relationship with nature is something that can hardly be achieved in an indoor setting. Certainly I do work on other aspects through my teaching, but my main goal is to make sure that children go home with a positive attitude and an excitement for nature.

Just twenty years ago children spent a majority of their time playing with friends outside. In our parents' childhood that often meant playing in forests or fields, for us it was more a matter of biking or playing ball on the street, but at least we were outside. Children today spend most of their time inside. One aspect they are missing out on is a relationship with nature. All they know about nature is that it is this wall of green out there, probably scary, with all those spiders, bears and other terrifying animals. It is cold, wet, dangerous, and... well, boring, with nothing to really do outside.

Youth know all about disappearing rain forests, global warming and ozone holes. Consequently for many of them nature is either frightening or a sad, slowly vanishing environment which should be handled with kid gloves. But unless a person builds a relationship with nature, unless he (or she) feels

strongly about it, he will not do his best to protect it. Since most children today have a very distant notion of nature, there might be no one in the future to care for it.

We take deteriorating of the natural environment for granted, as something that just happens over time. Peter Kahn, a professor at University of Washington, said that “With each ensuing generation, the amount of environmental degradation increases, but each generation takes that degraded condition as the normal experience” (2002, p. 113). But even in our own lifetime, unless we know a patch of a forest or a field really well, we will not notice it change. Most people do not, because they do not give any thought to those forests over there. But if people spend time in a natural setting, they will notice every single tree being cut, they will care about it; they will notice animals disappearing, plant diseases spreading. Tom Brown Jr., one of US best known trackers, said in his autobiography, *The Tracker* (1978): “When somebody moves something in your house, you notice it. When somebody moves something in the woods, I notice it.” Who else but individuals like that will devote their lives to protecting nature? But there are less and less people with a deep appreciation for it. And we, teachers who work with children in the outdoors, have an opportunity to start a spark which just might bring a child to the forests over and over again.

Many naturalists and environmental enthusiasts agree that lack of interaction with nature and consequently lack of knowledge about it lead to not understanding and appreciating it and finally not caring. Naturalist Jon Young, the founder of Wilderness Awareness School in Washington State, describes this situation: “[The] condition and feeling of alienation from our own world, I refer to as the dreaded disease of 'Alienitis'. Its symptoms are a lack of knowledge about our world, and with that, a lack of appreciation, understanding and concern” (2001, p. 4). He believes that the only way to stop the rapid destroying of our natural surroundings is to provide people with opportunities to build a relationship with nature. He says that: “One of the most important parts of being in harmony with the natural world is a deep understanding and appreciation of nature, and that promotes the ability to solve current problems and to prevent future problems by care-taking the environment on behalf of the future generations. This comes quite naturally to people who are personally knowledgeable and spiritually bonded with the natural world, and who consider the other elements of Creation to be their honored relatives” (2001, p. 6).

I believe that a part of our job should be helping people, in our case mostly children, to understand and appreciate nature with the hope that this will eventually lead to healthy decisions when the environment is concerned.

How do we do that? By taking them out there, of course. Luckily children help us with this – they are easily motivated to play outdoors and are fascinated by nature. We need to make the effort to get them out-of-doors and to engage them. Children might not know what to do in nature; we need to give them ideas, to keep them busy. From there it is easy; climbing trees, catching grasshoppers and building secret shelters are always fun.

In my opinion 'wow-moments' and fun memories are at least as important as achieving attainment targets. It is true that learning by doing and with real objects in a natural setting significantly improves the quality of learning, but information and facts are still something we tend to forget over time. Concepts will stay in students' minds, terminology will probably not unless we repeat it over and over again. Many of us have experienced trying our best to be as vivid and explicit as we could in making sure that students would understand and retain certain piece of information. However some time later, usually not long after (in my case it was ten minutes), when we asked about the information and checked the knowledge, only a handful of students at the most knew the terminology we were looking for. This confirmed my belief that I cannot give students a lot of factual knowledge about different trees in an hour and expect them to absorb it all. What I can hope they will walk away with is a

memory of a fun and exciting hour they spent exploring trees, and I wish that maybe, when they come home, they might suggest to their parents or friends to go play in a forest or explore it more. "Playing in the forest is fun, remember what we found? Let's go out today instead of watching TV." If I start that spark of an interest in a child, I have done my job well, even if he did not remember the name of the seed we were looking at. If he continues to visit natural habitats, eventually he will learn the terminology as well.

It is very important that we are enthusiastic about what we do, about nature. For students, we are the link between them and the plants and animals. The kind of activities we carry out with them is not the only thing that matters. Unless they feel we are genuinely interested, engaged and excited, they will not feel so themselves. Therefore a big part of our role is to lead by example – show them that we are enjoying nature and are excited and curious about their discoveries. Rachel Carson, one of the prominent nature writers and environmentalists of the 20th century, said: "If a child is to keep alive his inborn sense of wonder, he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement and mystery of the world we live in" (About.com web page). Carson also said: "If I had influence with the good fairy who is supposed to preside over the christening of all children, I should ask that her gift to each child in the world be a sense of wonder so indestructible that it would last throughout life" (About.com). If parents do not have the interest, maybe we can help this good fairy. It is true that we only see children for a few days, but the beginning of a relationship child – nature can start. Evan McGown, a co-author of *Coyote's Guide to Connection with Nature*, said: "Mentoring people in nature connection requires a long-term practice. [But] we all know summer camps, weekends workshops, or even hour-long assembly programs do make a difference in a person's life. They do" (Young, Haas, McGown, 20008, p.21).

In outdoor and environmental education programs we have a fantastic opportunity to excite children about nature. I consider this as the main task which I should try to accomplish. At schools teachers usually hardly have enough time to cover all the topics they need to and do not have the time to enable students the needed amount of exposure to nature to form some type of a relationship with it. In the few days which children spend in an outdoor education setting there is more time for that, as well as a suitable environment. Also people working in outdoor education usually like spending time in natural settings which makes them appropriate role-models. One of the obstacles in breaching the gap between children and nature is, even in outdoor education, trying to achieve as many attainment targets as we can. Students can, after all, learn all these concepts in a hands-on way. But we should not forget the importance of nature play, awareness, respect for other living creatures, and other valuable aspects that children can learn. In chasing attainment targets we often run out of time for things that are not included in the curriculum but are just as important as science concepts are. Our work needs to be a balance between both and not a race for how many targets we can jam into a two hour period. The amount of attainment targets which we are trying to accomplish needs to be realistic to allow students to really get into work or exploration without the fear of being rushed or interrupted just as they got excited about the task. Allowing students enough time will not only make them enjoy their experience but will also ensure a more qualitative and long-lasting learning results.

In my opinion even allowing children time for free play or semi-structured play in nature is time well spent. It gives them an opportunity to explore in their own pace and to realize that this can be fun. Their imagination is let loose which helps with their creativity. This will hopefully give them an alternative to sitting indoors on all those weekends when they have no other obligations. Using outdoor education or school environment to show them that playing in natural settings is fun might provide children with a taste for something new and a wish to do it again. It might also show parents that this type of leisure time is valuable.

The results of outdoor environmental education cannot always be seen right away. Let us hope that it will have a long term effect on students in the years to come and will play a role in raising a generation which will care for nature and will be willing to do something to preserve natural habitats.

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Learning on and about the Water in the North-eastern Part of Germany

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Abstract

There are many striking phenotypes that define the image of the most north-eastern region of Germany. On the one hand there are various pristine natural spaces. You can see a huge number of linked rivers and lakes that form a large coherent net of waterways. On the other hand the region is characterized by its difficult socio-economic situation. It is named as a region with very high future risks, a region with a limited outlook for families, a region with far below average purchasing power, a region in economic decline with a residual population and a region which is shrinking.

This is the background for a youth work project that has been established in 2009 and that is called "Learning and Experimentation on a Swimming platform". This project tries to identify and underline the chances, the nativeness and the richness the natural spaces of the region are providing. The project offers short-term alternatives to the regular school education for children and youngsters. They are travelling with a Catamaran-Raft through the channels and waterways of the region, are stimulated by the natural environment and are dealing and experimenting with questions caused by the phenomena the children and youngsters are confronted with. The idea of the project is very simple: Learning should happen very close to the real natural world and inspired by real experiences. In this lecture the project and its results of the first year will be presented.

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Experience the Moving Culture of Bouldering in Nature

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Abstract

Bouldering is part of the climbing culture. Bouldering in nature is climbing in small rock walls or big boulders, as low as you can safely jump down. You get close to the natural shapes in the rock face – in slow motion. You get up from the ground, play with gravity, and increase your sensitivity, strength and balance. You increase your relationship of trust to your friends, and you make new friends. Moments of judgments, self adjustment, fear and happiness brings you close to yourself, your partners and your natural environment. You get emotionally involved. You learn to draw the safe line. A holistic view and approach is most appropriate, or even necessary. There is an obvious and absolute connection between physical and mental challenges – body and mind are one. In some lucky, magic moments you fell one with nature. By inviting people to this moving culture in nature, we may stimulate a sensitive awareness of shapes in nature, and for each others personality. Experiences brought together in a meaningful context may grow into an aesthetic experience.

A boulder is a free standing big stone. To boulder means to climb a boulder. Bouldering is to boulder a boulder. Bouldering today also takes place in small rock-walls and indoor climbing gyms. Moving in nature involves personal and cultural expressions. The steep climbing moves in bouldering are one way to express your self. This article will focus on bouldering in natural environment.

In bouldering you get close to the natural shapes in the rock face – in slow motion. In bouldering you have to care. If you don't care, you are not there. You get up from the ground, play with gravity, and increase your sensitivity, strength and balance. You increase your relationship of trust to your friends, and you make new friends. Moments of judgments, self adjustment, fear and happiness brings you close to yourself and your partners and your awareness of shapes in nature will increase. You get emotionally involved in the moment. You become fragile in a demanding situation.

The origins of bouldering, as a world wide moving culture, are found back in the 1870s in the Fontainebleau forest in France, just outside Paris, and in the Lake District, Peak District and Wales in the United Kingdom at the same time. Other places which influenced the development of bouldering are the Brisbane area in Australia from 1920s, and Connecticut and South Dakota in the USA from 1930s. Later on, in the 1950s and 60s, the so called Camp 4 in Yosemite Valley in California gathered a lot of the cutting edge climbers in the world and a strong culture for bouldering raised. In Norway we actually took up climbing, including bouldering, at an early stage of the sport. When climbers visited Kolsås, just outside Oslo, for the first time in 1904, they explored a tremendous place for rock-climbing. There were small and steep walls with tiny holds, and there were higher walls with mountain-like formations. Initially, climbing at Kolsås was meant for training for the real mountains, but after a while they could no longer avoid the feeling that climbing at Kolsås was great for its own sake. No one had to excuse that they simply loved the challenge that the small walls and boulders afforded. This experience is similar in other places; the bouldering was part of impact training for the big moves in the big mountains. At the same time bouldering was born by, and based on, the joy and satisfaction of playing with gravity in a cultivated manner.

But if we should pick out just one place and its culture to the rise and continuous dedication for bouldering, it is Fontainebleau. This is the definitive Mecca for bouldering. At the same time, everyone can find their own Mecca for bouldering.

It may seem strange to pick up a moving culture which includes potential danger and struggle to grab at tiny holds a few meters up on a big boulder when you can train muscle power in a fitness studio and walk with comfort and safety on the ground. In this article I argue that learning in motion, through a moving culture in nature like bouldering, has characteristics that stimulate intrinsic motivation through challenging personal power and reflection of your self in a cultural context. As pedagogical leaders an important premise is to avoid from focusing on issues like marks, measurable numbers, health arguments, competition rules, rankings or any other external aims. Experiencing, exploring and learning in motion are closely connected to the most basic and meaningful questions: who am I, where do I belong, and what Robert Fagen (1981) consider one of the most basic question in life; what can I do? The body's relationship to the environment is existential (Merleau-Ponty, 2002).

The climbing moves are as old as mankind, and as young as every newborn baby. Bouldering is connected to pure nature and a sophisticated global moving culture at the same time. The Norwegian climber and professor in philosophy, Arne Næss, were asked this question by a journalist: - When did you start to climb, Mr. Næss? Næss smiled and said; - I'm sorry, but I don't think I can answer that. You have to ask the question in another way. You see, you and I both climbed when we were children. Maybe you stopped, but I just continued to climb.

We are all natural born for bouldering. We are natural born for jumping too, and running, throwing and catching. Maybe some of us are actors, dancers and drawers too? We are natural born storytellers. We express ourselves using a huge variety of different languages. We can tell our story in moves or words, in music and singing, acting, dancing, by painting or drawing or by forming a sculpture. What we can't express in numbers, measurement or words, is still a great part of life, maybe the most important issues to be aware of? Where numbers and words end, music and motions starts. Learning and increasing competence in an individual and socially meaningful context connected to moving cultures in nature, like bouldering, is related to decorum of sensitive experiences and bodily learning processes. In learning processes like this, the tacit dimension is quite distinct (Polanyi, 1966) / Molander, 1993), and the reason for understanding is closely connected to practice. A holistic non-Cartesian view and approach is most appropriate. There is an obvious and absolute connection between physical and mental challenges in bouldering, like in other motions - body and mind are one (Johnson, 1987).

A variety of sensitive experiences brought together in a meaningful context may grow into an aesthetic experience (Dewey 1925/1934). Aesthetic experience is personal and relevant for a view into deep play and deep flow. Csikszentmihalyi (1983) contributes some guidelines on deep flow characteristics: complete involvement, constant challenge, full use of skills, merging of action and awareness, control of action and environment, coherent non-contradictory demand for action and clear feedback and autotelic nature. Hubert Dreyfus (1978/1992) reminds us that the art of moving is uniquely natural. Intuition and adjustments to the present situation overrule strict instructions from a lower to a higher level of performance. Long time practice due to bodily learning processes may give amazing levels of performance (Dreyfus & Dreyfus, 1986). A lot of bouldering today is done at a high level of performance. The level of performance has less to do with the steepness and the distance between the holds, the shapes and sizes of them, than it has to do with the personal dedication and involvement you put into the bouldering.

Self-Determination Theory connects intrinsic motivation to self-determination (Deci and Ryan, 2000). The need for competence, individual experience of meaningful context, and autonomy – the

experience of self determination and independence, are vital intrinsic human needs. Autonomy is about taking care of yourself and the importance of making your own choices, judging and being responsible for your own actions. The experience of confidence, trust in your self, increasing level of own performance and independence are the inner and satisfactory rewards and confirmations we need. Children often say; I want to do it on my own. As educators we don't have to control what they perfectly well control by them selves. We should stimulate autonomy and emphatic social relations. They have to make their own choices when the teacher is not there, make judgement of danger, judgements of approach to the playground, judgement on behalf of their way of living, judgement on behalf of their natural environment and values in the cultures they relate to. They inherit our moving cultures, and they create new ways to move.

Moving cultures in nature, like bouldering, may be one out of a numerous meaningful places for open-minded meetings, learning in motion and sensitive and social experiences in nature.

I draw on the Vygotskian notion of learning as sociocultural phenomena. Inspired by Vygotsky Bronfenbrenner developed the Ecological Systems Theory.

Bronfenbrenner (1985) contributes how childhood environments shape our psychological development. He seeks to understand the entirety in people's evolvment from child to adult. The social life is essential, and connections between different levels of action, from micro to macro level, are essential and may create meaning and psychological development at a personal level. Individual and social conditions and conditions in society at large should be balanced and connected. At different levels meetings among people have great impact on the involved parts, and may create development at one limited level or connections from one level to the other. I look upon this as relevant for at least two reasons: Firstly, the individual experience of meaning and entirety from a personal level to society levels. Secondly; on topics relevant for experiences and meaningful learning processes in nature, social-ecology in balance and a sustainable development in society, due to Bronfenbrenner's theoretical framework, may influence on ecological balance and sustainable development in nature in a long term. This is no less than our big time challenge for the future. United Nations Environmental programme (www.unep.org/) focuses on a great variety of challenges on this, and politicians, economists and educators should clarify common goals, and make clear impacts for education and practical life. Education in nature may play an important part of this, and outdoor educators are the most obvious participant in society to take care of the most important starting point; personal, social and cultural experiences and individual meaningful learning processes in nature.

From this point of view it's vital to hold on to the understanding of the intrinsic values and potential inner motivation due to the specific moving culture, and not use ecological arguments directly in our pedagogical practice as an external aim. This belongs to the discourse on the subject, even if it may affect our reflections, understanding, decisions, and later choices in our practical pedagogical work on education in nature. Motivation driven by intrinsic values in the moving culture and emotional involvement in nature at a personal level are assumptions for later involvement in environmental issues that affect our lives, which may involve some sacrifices in short term comfort, and really matters in a long term global scale.

Bouldering in nature often involves finding new areas. There are some simple, but important guidelines on this. Some places the boulder is clean from vegetation from the nature's side, but a lot of other places, especially in the forest, we have to clean and cultivate the boulder to stimulate safe and distinct bouldering. The ethical norm says to do nothing else but clean the rock from vegetation, and remove dangerous stones from the landing zone with muscle power. If the rock-wall in some way is too dangerous or too demanding for our level of performance, we have to leave it untouched and find another place. We should not by any circumstance shape the geological structures artificially. This is

against the ethical norm on traceless moves in nature and will ruin the treasure hunt for the next generation, and actually ruin bouldering in nature as a moving culture, transforming it into a park sport of manmade constructions.

In bouldering there is no climbing rope, no harness, no helmet, no belay devices or any other protection gear, except for the crash-pad which functions more like a nice base for harmless landings. There are no high altitude climbs, 1000 meter big walls or constant fear of serious accidents. Even so, the boulders might be high enough for you to take care, to sharpen your focus and to be a real challenge to your physical and mental strength. But it's never a matter of life and death. It's more like a matter of how we live our lives. This gives bouldering a lot of space for a playful approach. You still have to deal with fear and potential danger because of an increasing distance from the ground, even if this is not higher than two or three or four meters. We never force anyone to climb. In our pedagogical and emphatic leadership we have to be very sensitive for individual approaches to the steep moves, and be aware that bouldering might trigger fear and feeling of danger.

In our pedagogical practice we have to confirm the value of being present in the moment, rather than aiming for a later result. Presence in the moment gives valuable experiences for the future. Focusing on the present situation, facing the challenge and experiencing ones ability to solve the relevant task, increase our skills, confidence and understanding of bouldering.

Is it possible to unite the soul of bouldering and pedagogical practice? In the school system and other places it may happen that strict pedagogical practices overrule free moves. On the other hand, freedom is highly valued in bouldering and in the climbing culture in general. It's part of the intrinsic values in climbing. The soul of bouldering is hard to explain, it's quite mysterious. Magic moments are unexplainable. In some magic moments moves, awareness and the boulder are one. You feel what can't be spelt. You see what can't be said. These moments are creating your tacit knowledge. These moments are the source to understand the soul of bouldering. Tacit knowledge is a great part of life, like in moving cultures and art (Polanyi, 1966 / Dewey, 1934). Pedagogical practices in the school system are on the other hand often tightly connected to explanations in words. The unexplainable may loose the touch of magic in a stream of words from the teacher. At the same time distinct and well formulated explanations are gifts from the good teacher to stimulate useful understanding. In our pedagogical work we should stimulate a sense of the unexplainable and create curiosity more than killing all mysteries. As pedagogical leaders we should open the book of fairy tales with our students. We give guidelines, stimulate and invites for good experiences, and step by step curiosity emerge and they will learn to read by themselves, create own meaning, and add new chapters to their own personal stories. It's a magical, mysterious tour.

Where do we go to boulder? The last fifteen years there have been built hundreds of indoor rock gyms in a lot of cities and smaller places in different countries almost all over the world. It is possible to boulder on the lower part of these walls, and some of the best equipped climbing gyms even have their own special area or small rooms for bouldering. These facilities offer a good possibility to explore some of the moves and to have some experience with the joy of playing with gravity. The indoor rock gym is an artificial structure. That means some good possibilities, but it can never cope with the never ending variety we find in nature. When you are moving under the blue sky, you can smell the forest, hear the birds, taste the blueberries, feel the wind in your hair, and walk barefoot over the warm slabs. You will learn to know, and maybe love, the rich variety in different natural environment. And of course, if you are there for the boulders, you will learn to know and maybe love the bouldering. The boulders and the moving culture may be your way into a personal and deep relationship with nature.

The school system is the institution in our society with the clearest and strongest authority on learning. Learning processes is complex. In the school system we meet all children and a wide understanding of

intelligence due to personalities is important understandings in our pedagogical work (Gardner, 1993). In our pedagogical practice we should bear in mind the importance of meaningful relationships, meaningful learning processes and meaningful meeting-places.

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Camp Plečnik: Learning through Nature

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*Who cannot stop to wonder and totally fascinated stare,
seems dead, with eyes closed (Albert Einstein)*

Abstract

Total development of a young person for which school is meant to ensure is possible only through relationship with nature and the natural environment. Nowadays many young people live in an environment that is destroying. Some young people come in contact with nature through family life. For many of them, attending school in nature or nature camp is one of the rare opportunities to live in nature.

1. Introduction

Jože Plečnik High school is one of many high schools situated in the centre of Ljubljana. The only contact with nature they receive is The Zvezda park and its one hundred year old plane trees. In the last two years, it has become a building site for an underground parking lot. Consequently, we are now aware of how important the relationship between man and nature is.

Why organizing camps?

Our school has established camps as the answer to many dilemmas set to teachers of natural science while teaching in class or school in the centre of the town.

1. "How can we inspire students to think about the beauty, harmony, magnificence and the significance of nature and make them enthusiastic about it? Does it make sense to support teaching natural science with the observation, wonder and exploring the nature? Do we teach problem solving or do we open a broader view to the world? Do we dare to inform students that humankind does not have the answers to all the questions? (1), asks himself Boris Kham in one of his articles. He is the leader of nature camps at our school.

2. How can we make students enthusiastic about exploring nature, admire it and think about its laws?

3. How can we address point to the meaning of different subjects at school through living in nature?

The observation of different phenomena, from the viewpoint of various subjects, can help students to broaden and deepen their knowledge and weave connections among notions, which belong to a single subject only.

What are the aims of our school to be attained through camp Plečnik?

We provide students with the opportunity to live in nature for a few days, very often by the sea, far from the town and away from their daily routine. By the sea, students relax easily as they are away from school and their parents. Students also become close to each other and to nature. They make social contacts with old and new classmates, they choose the subject group by themselves and then they learn, socialize and explore while working together. They learn things, which are part of the

subjects, but they exceeded the limits of individual subjects. They learn to observe, explain and write natural laws from the point of a chemist, biologist, physicist, astronomer, writer and artist. They learn to look to the past, future and present and they can look at the micro and macro system of the nature. We want to open up to them the dimension of space above us – in the sky and beneath us – in the underground world.

What is my article about?

In the article I will discuss the development and improvement of the camp programme throughout the last six years. The camp has grown from a nature camp to a cross-curricular camp. I will talk about its aims; achievements, and the knowledge and impressions students and teachers leave the camp with.

2. The importance of cross - curricular research work in nature and its mission

"Youth research camps have been taking place in Europe since the sixties, while in Slovenia they have taken place regularly since 1967. They came into existence from a need to encourage and develop the exploration, understanding and respect of nature, using contemporary methods and processes by top experts in the role of mentors. The participants research the general characteristics and attractions of the earth, the natural and cultural heritage or they explore usually interdisciplinary (pollution, migration of inhabitants, cultural needs)." (2)

Camp Plečnik is a manner cross-curricular research camp and is one of the broad pallet of activities offered by our school. By organizing these camps, we give an answer to the challenges which pedagogy imposes on contemporary school and education for the future.

1. Introducing young people to research work

"Introducing youth to research work should bring up broad issues in schools and should reach a lot of young people, subjects and activities. What matters is not equipment ... but the things, which are not noticed at first glance, creating real research mood, which promotes research, inquiry and discovery"(3)

2. Young people solve life problems with the method of cross-curricular co-operation

"It is important that young people solve problems which make sense to them and touch them personally. Solemnly narrow specialized problems should be set to a broader frame.

Consequently, the monodisciplinary nature of problems falls apart. Vital, fundamental problems are rarely monodisciplinary. They reflect our point of view."(3)

In the continuation of the article, the author asserts that the problem in solving school or outdoor school work promotes the involved attitude of young people to actual problems of the contemporary world, protection of environment, health, culture, food sources, energy etc.

3. It introduces students and mentors to team work

»Group work increases potential and gives them the opportunity to make something in a short period of time. On the other hand, it has important pedagogical effects. The ability to cooperation is an important (but not always present) quality of each explorer.« (3) I would like to stress that the organization and realization of the camps is, for mentors a test of school teamwork. Though the success of the camp depends on many factors, (4) it is directly connected to successful cooperation between the leaders of the camp and mentors as well as the excellent teamwork of the camp-leading group.

4. It broadens the student's horizon with recognition of man and nature's correlation

Becoming a member of a research camp work enables young people to broaden their view of the world and life. "With the recognition of nature on one side and human needs on the other, young people can become aware of the conflicts of various issues in the world, which are reflected in the ecological and economical problems of life nowadays. When they recognize the involvement and the role of science in these issues the students can develop critical thinking and critical attitude towards the myth of "neutral, pure" science." (3)

Though, it is true that in the camp young people solve problems mostly set by the mentors, students can come to new conclusions and pose their own questions in this relaxed atmosphere.

3. Camp Plečnik from its inception to the present day

The idea and organization of the camp

In the school year 2004/05 three teachers of natural science decided to unite the terrene work of physicists, chemists and astronomic observation of the sky in a few days nature research camp by the sea. Attending classes at the end of the school year is difficult especially for well behaved, clever students who had already fulfilled their tasks beforehand. The camp is part of the obligatory, though voluntary programme of our school. At the camp, students creatively spend the last days of school in nature.

The idea of the camp is: bring nature and its life closer to the students, and help them learn from its beauty, laws and message. The idea was well received by students and the heads of our school. As we are members of UNESCO schools each year we invited other UNESCO school to cooperate with us. In the last three years the High school of Klagenfurt, and its mentor joined us. Up to the present day we have successfully completed the following programs:

- 1. Plečnik camp, Strunjan 2005: 26 students: astronomy, physics, chemistry,*
- 2. Plečnik camp, Strunjan 2006: 24 students: astronomy, physics, biology;*
- 3. Plečnik camp, Pacug 2007: 45 students: astronomy, biology, chemistry; English and Architecture drawing;*
- 4. Plečnikov camp Pacug 2008: 53 students: astronomy, biology, chemistry and English;*
- 5. Plečnik camp Pacug 2009: 50 students: astronomy, biology, chemistry, English and Improvisation play*
- 6. Plečnik camp: Pacug 2010: 64 students: astronomy, biology, chemistry, ethnology and Slovene;*

The content of the camps and a bit about the mentors

The first camps involved natural sciences and astronomy. In the following years other colleagues have joined us because of enthusiastic students who spread the word about the camps. We have to admit, that theoretically and practically the camp depends on the mentors. (4)

Above all, cooperation demands the mentor's willingness and wish to translate one's profession from the class to the camp. It also means thorough preparation of professional material for the days of research work. A mentor should observe the world through the eyes of the mentor's profession. It is good and desirable that for a mentor to be capable of feeling to feel the dimensions of the universe, wonder about it and respect it. A mentor should be professionally and vitally able to discover the properties, laws, facts and system of mentor's profession. A mentor should be creative and adaptable

in nature, in the improvised classroom, in the laboratory, to plan work exercises, the solving of tasks and the preparation of reports and about the work. Perhaps teachers of natural sciences are more enabled for such work or simply more enthusiastic about it. Consequently, we were very happy when teachers of English and art, an architect, a teacher of Slovene and an ethnologist joined us at the camp. Otherwise, the cooperation is limited by other obligations of our colleagues who would like to join us, though.

Through the years the camp has grown from the nature camp into a cross curriculum camp.

It follows that having more subjects involved guided us to the topic which can be treated, from the point of view of all subject groups involved.

The importance of the main topic of the camp

The main topic is the content that all subject groups deal with. It was introduced in the hope that students recognize the possibilities of using the knowledge they have in combination with new views, ideas and questions from the viewpoint of various subjects. The main topic covers at least one of three or four days of the camp.

At the fifth camp the main topic was the heart.

THE HEART

- Astronomy: the functioning of astronauts' heart, the universe (nature) should be discovered with openness to new challenges
- English: reading and creative writing on the topic: The heart and love.
Students shot a comic film about the topic of love.
- Biology: the role of heart in the body, reading a novel and solving the dilemma of offering body organs.
- Chemistry: healthy food, the role of fat, additives and preservatives in food which young people consume most frequently.
- Theatre- improvised play from the novel The Heart
- A workshop with the school psychologist: through the heart leads the way to love oneself, love for the others and love for work, which help students to think about internal factors in motivation.

The main topic of the sixth camp was light.

LIGHT and for a clearer presentation I will state other activities of the groups:

- Astronomy: astronomers measured the diameters of craters, the height of the mountains on the Moon, protuberances on the Sun and the distance between the Earth and the Sun. The Sun was also dealt with as a source of light energy
- English: reading and creative writing of poems about the topic of light. They discovered personalities and stories from English literature, dealt with sketches in comics (Peanuts or Snoopy) and history of Great Britain. For a presentation, they role-played scenes from English history in the form of comedy.

- **Biology:** they examined the light closely in waves and dealt with it as one of the conditions for life of plants and all living beings. They researched pigments and tissues of the plants, processes of photosynthesis and with the help of IKT they measured the activation which influences breathing of plants for three days. They researched cliffs on the gulf of Strunjan and vegetation by the lake of Fiesa.
- **Chemistry:** they researched the influence of sunbeams on the body and examined closely the structure of sun creams. They researched the structure of materials for wrapping and their role in the protection of our skin from the light. They produced ethereal oils by distillation and made several analyses of water and soil in the surroundings of the camp.
- **Slovene:** the ethnology group discovered the characteristics of Slovene Istria by means of literature and a guest speaker. They dealt with the novel of Marjan Tomšič: Šavrinke (women who sell eggs) and wrote poetry and prose about Slovenian Istria. They observed landscape architecture, the equipment of salt makers' houses and wrote down what they learned about the life of saline workers.

This group also issued a camp magazine.

It is clear from the description of activities that it is quite difficult to act in a totally cross-curricular manner. Some groups deal with the main topic more easily than others.

The importance of common activities

Students work in a single chosen group all days of the camp. But here the common activities attended by all students inspire the group they work in. These activities are meant to help them experience new environments, situations, observations and education. For common activities mentors either prepare excursions of ethnological and natural-science curiosities, guest speakers, experts, workshops with the school psychologist, possibly also watch a film and debate its content. For our common activities, we have in the past prepared the visit of the maritime biology station in Piran, research of the river Dragonja, Strunjan cliff, the Karst edge and Sečovlje.

All students observe the night sky during the camp and get acquainted with the most beautiful astronomic curiosities of the night sky.

The most important common activity is the presentation of group work at the end of the camp. Students gather, arrange and present the results of their research or their products.

In the presentation, all students take part. The presentation has a great didactic significance. Students should be well organized to make reports, finish the work, get the results and form conclusions. This part of the camp comprises all criteria of quality research work from which students profit for further schoolwork.

4. Conclusion

At our school, students have the chance to meet, experience and research nature at Camp Plečnik. It is unfortunate that the camp takes place only once a year and can be attended by fifty students, though the interest among students is much bigger.

I described the theoretical and practical experiences of the camp. What we really attain are students' comments at the end of the camp. Two things they consistently enjoy are socializing and professionalism.

Socializing: they want to get acquainted with new classmates especially from other schools and spend a few days in a new environment by the sea. Students often attend because they enjoy the previous camp, or because they heard from their classmates that the camp is good, fun and interesting.

Professionalism: they want to do as future experts, learn something new in their group, do experiments, observe and learn about planets and phenomena of the sky. They want to do practically what they lack the time to do in classes (speak, read, listen, observe, create) and do what they like in a relaxing environment.

I should underline that students prefer socialising to professionalism. This is the reason why they say that there is not enough free time at the camp and that they would change it to the point that they wouldn't be making conclusions or preparing reports and presentations. They find best experience observation in silence (The sun set in Mesečev zaliv - the Moon Gulf) or discussing life's questions and our relationship with it (donating of body organs, friendship, motherhood, love in the heart...)

What sort of education do students feel they receive during their time at the camp, students express their satisfaction with the chance they receive to make measurements and do experiments. They learn to observe, to handle instruments and learn work techniques. For their personal growth, they get a deeper friendship with their classmates, get acquainted with new people (which is sometimes difficult for them in life). They learn to cooperate in a group. Some students begin to like the subject of their chosen.

The mentors were also given a chance to comment on the students and their behaviour:

Are these really the same students from Šubičeva 1?

They are interested in everything. We do not need to push them and they do everything. They are unbelievably thoughtful and creative.

They are not demanding... why are they so enthusiastic?

For such students it is worth to prepare the camp.

The originality of the camp and the quality of results

Research work at Camp Plečnik is a combination of the transfer of existent knowledge, methods of measurement and original attitudes to solving problems. Students discover the methodology of research work on the terrene and understand the natural laws and extensions in nature.

By observing of natural and technological processes and making measurements in the terrene, students understand processes in nature better and more easily. Other activities such as art, literary creativity the use of a foreign language, ethnological research, thinking, observing, developing the inner potential and happiness of young people towards nature and the world takes place. The main, key results of the camp are in the deepening and broadening of knowledge by their experiences in the terrene and environment. Results, which cannot be measured, are hidden in the inner world of the students. If the experiences at the camp touch them on within, they leave traces that often determine the path of the young human.

To conclude this article, I must quote one otherwise problematic student who attended one of the camps. At night, when the sky cleared to the extent that a full observation was possible, he yelled out into the silence of the night: "It is a fantastic day. It is unbelievable! Bellissimo!" (1)

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Mathematics on an Orientation Hike

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Abstract

In this paper I will present how to combine physical exercise with mathematical tasks performed during an orientation hike. Pupils have some time at their disposal to find the checkpoints with a map where they can solve the required tasks. I am aware of the fact that a pupil can permanently acquire knowledge only on his/her own experience. Teachers want to encourage gifted pupils in many ways. That is why we have started to organize award camps at our school for pupils who achieve silver or gold awards or who are successful in competitions. We shape the camp content so that pupils and teachers can develop a good relationship which enhances the inner motivation and academic achievements, respect for different-minded people, assistance of older pupils aimed at the younger ones, and most of all, the exploration of nature. Learning in nature and for nature is important for the cognitive, social and physical development of a teenager. The focus is on group work (making agreements, work distribution, coordination, communication), presentation of arguments and one's own ideas. When carrying out these activities, pupils integrate different fields of knowledge into a whole and develop the sense of belonging and responsibility towards their own group. The variety of outdoor activities includes the development of motor abilities, because we know that successful pupils do not have enough time for these activities during school time.

Key words: award camp, orientation hike, mathematics in nature

Award camp for pupils with achievements

Pupils under the guidance of various teachers are involved in the life and work of their native town or village and the wider surroundings. They perform at many events – in their hometown, wider area or neighbouring countries. They participate in various contests and competitions where they win bronze, silver and gold awards.

Pupils put a lot of effort in their work, so the teachers of mathematics have decided to award their effort and achievements with an award camp. The idea of the camp, intended for pupils from sixth to ninth class, who win silver and gold awards and are otherwise active in other fields, such as contests, various events, etc. Our idea was well received and supported by the school support service and the school administration. We wanted to reward successful and active pupils and then use them to get those pupils who are talented, but do not show their abilities. So six years ago, we organized the first camp, which is always free of charge. During these years, we have been noticing that pupils started to show more interest for cooperation in various competitions, so they are willing to invest more time to prepare themselves by encouraging and helping one another, and gathering information related to participation at the award camp.

When we were preparing the camps, we derived from the objectives written in various curricula and which are the general objectives of the outdoor school.



Picture 1: View from Mala Planina Mountain

We want our camps to facilitate learning in natural circumstances, with as many outdoor classes as possible to contribute to the development of environmental consciousness. Therefore, we choose those places where pupils can relieve and relax. There is no usual city bustle with disturbing elements, such as computer and TV. They get in touch with nature and develop a genuine mutual contact. They have many possibilities to get to know one another, take account of different-minded people, develop cooperation among different-aged pupils. We have set a goal to develop a relaxing camp which actively involves pupils into exploration and sports at the same time.

Orientation hike with various tasks

Part of our camp is also an orientation hike during which pupils have to carry out different tasks. This hike takes place in nature, forests or meadows. Pupils have to, in the shortest possible time, run or walk their path with the help of a map and a compass. The path is marked in nature with the checkpoints. The order of the checkpoints is pre-determined, but each pupil chooses his/her path among the checkpoints. At the checkpoints pupils have to solve the tasks. Pupils are divided into groups using a social game. We take special care to mix older and younger pupils. Each group gets a map with the checkpoints and tasks. Pupils must show the orientation knowledge, organize and distribute the group work. They have to gather the acquired knowledge and apply it creatively for a particular task. The orientation hike enables physical exercise in nature, and pupils have to use their head for orientation and solving specific tasks, which is generally done with pleasure.



Pictures 2 in 3: Fox hunt is teamwork based game

The tasks used for the game Fox Hunt:

<p>Social sciences field:</p> <ul style="list-style-type: none"> - compilation of haiku poems - gathering thoughts in Slovenian, English and Italian for Baci-Perugina - dramatization of children's poems - preparation of TV shows - composing songs about assessment - writing sentences on the selected letter - finding as many words as possible starting with a given group of letters 	<p>Nature sciences and technical field:</p> <ul style="list-style-type: none"> - decrypting messages - establishing the age of a tree, the size of the crown's surface - building a construction which will preserve an uncooked egg from a fall from height - composing a menu with a tree diagram - building a tower out of straws - finding the centre of gravity of a given irregular shape - building a construction containing a
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	<p>bottle, two cork stoppers, two pins and two forks; they use the listed devices to balance a pin on the other pin</p> <ul style="list-style-type: none">- establishing the height of a tree- finding the centre of the circle- Football World Cup- making polyhedra- making rotational bodies- estimating the width of the river
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Although all the pupils who accomplish the tasks are winners, they are highly motivated and the work is well done. The tasks and written contributions are presented in the school newsletter.

Mathematics and the orientation hike

The orientation hike can be associated with various subjects, such as P.E., geography, mathematics, art and design, Slovenian and foreign languages, science, history.

During the orientation hike, pupils are mentally active all the time. They rely on different mathematical skills: determining the distance among points on the surface when they consider the choice of the most economical path, measuring the distance among contours, converting distances in the scale for specific lengths.

The problem solving tasks are essential. They develop a logical component of thinking and these kinds of tasks encourage pupils to seek different ways of solving problems. They have to face open-ended problem situations.

Examples of mathematical tasks

1. Polygons in nature

TASK: During the hike, pay attention to the surrounding and find as many polygons as possible.



Pictures 4 - 7: Examples of polygons

2.1. How high is a tree?

TASK: Use the listed devices to measure the height of a tree: a pencil, stick, ruler or metre, paper.

Procedure:

- Stand against a tree. Hold a pencil in your stretched hand so that you can see the pencil and the tree at the same time. Ask a friend to come under the tree.
- Adjust the pencil so that its tip is aligned with the tree's top. Move your thumb down the pencil so that the tip of your thumbnail is aligned with the tree's base.

- c) Rotate your arm so that the pencil is horizontal (parallel to the ground) and make sure your thumbnail is still aligned with the tree's base. Ask your friend to move away from the tree and to stop when your friend's feet are aligned with the pencil's tip.
- d) Have your friend remain in the place and mark the spot with a stick. Measure the distance between the stick and the tree. This distance equals the height of the tree.

2.2. How high is a tree?

TASK: Use the listed devices to measure the height of a tree: a 2-meter stick, metre, paper, pencil.

Procedure:

- a) Take 27 steps in a straight line away from the base of a tree. The length of steps is not important, but all steps must be equally long.
- b) At the 27th step place a stick. Your friend should hold it upright.
- c) Take tree more steps in the same direction and mark the spot.
- d) Lie on the floor and look directly at the top of the tree.
- e) Ask your friend to move a finger up and down the stick, until it is aligned with the tree's top
- f) The tree is 10 times farther than the stick (the tree for 30 steps, the stick for 3 steps). The height of the tree will be 10 times the height of the marked spot on the stick.
- g) If you measure trees which are higher than 20 metres, you need a longer stick.

2.3. How high is a tree?

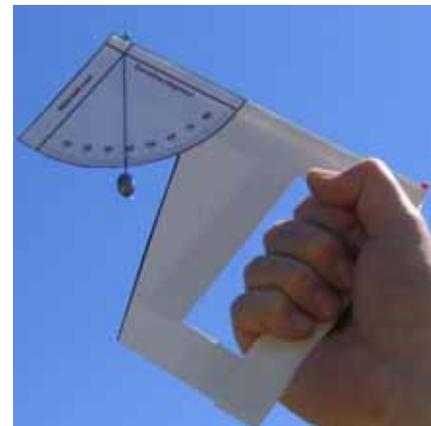
TASK: Use the listed devices to measure the height of a tree: a metre, clinometre, paper, pencil.

Procedure:

- a) This method is more complex than the first two, but it is more accurate.
- b) A clinometre consists of a protractor and a string attached on a piece of wood or plastic. You can observe through the viewing tube on the top.
- c) Move away from a tree until you have the clinometre angle measuring 45 degrees and you can observe the treetop through the viewing tube.
- d) The distance between you and the tree is the same as the distance from the trunk of the tree at eye level to the top of the tree.
- e) Secondary school pupils should be able to calculate the height of the tree from any spot. If a is the distance between the observer and the tree, b is the angle on the clinometre and c is the distance between the observer's eye and the ground, the height of the tree equals $c + (a \times \tan b)$.



Picture 8: Tree



Picture 9: Clinometre

b). The value of $\tan b$ for angle 45° always equals 1. That is why we (have) advised you to move away from the tree until the clinometre angle measures 45 degrees.

2.4. How high is a tree?

TASK: Use the listed devices to measure the height of a tree: a metre, 10 cm- diameter can, water, soil, paper, pencil.

Procedure:

- Fill the can with water to five cm below the edge and add some soil, so that the light reflects from the water surface.
- Place the can on the ground and move it so long, until you can see the mirror image of the treetop on the water surface right over the front edge of the can.
- The light falls from the treetop on the water surface at 45 degrees and forms with the trunk and the ground an isosceles right-angled triangle.
- The height of the tree and the distance between the can and the trunk are the same.



3. Building a tower out of straws

TASK: You have got 50 straws, a pair of scissors and some tape at your disposal. Build the highest possible standing and stable construction.

4. The path to school and the speedometer

TASK: You ride to school (3 km far from your home) every day and you always use the same bicycle path. One day you come home and realize that you have ridden a 270-metre longer path than usual. How can this be possible?

Explanation:

- The real reason for this is the leaking wheel valve.
- In the morning before going to school, the wheel was full, but during the ride it has lost so much air that its diameter is no longer 50 cm but only 46 cm.
- Because its circumference is approximately 13 times smaller, it had to rotate 172 times more than usual during the ride.
- That is why the speedometer, calibrated for the normal wheel circumference, indicated a longer distance.



Picture 11: Speedometer

Picture 10: The tower

5. Menu Composition

TASK: Write all the different menus which will be proposed for the school lunch. You can choose between two types of meat, two side dishes, two salads, two desserts and two drinks? How many different lunches can you create?

6. Football World Cup

TASK: There are different polygons before you (squares, pentagons, triangles, and hexagons), adhesive tape and scissors. Make a football and see how many different shapes it is composed of. Note the number of each separate shape, as well as the number of vertices each part has.



Picture 12: Making a football

Explanation:

- The ball is made of 20 hexagons and 12 pentagons.
- Arrange 5 hexagons around every pentagon with equally long edges
- If there were only uniform shapes, we would get a flat surface and not a sphere.

7. Finding the centre of a circle

TASK: Without a compass or/and a ruler find the centre of a circle. Tools: a glass, paper, pencil.

Procedure:

- Place a sheet a paper on the circle so that one corner touches it.
- Mark the points where the paper edges cut the circle A and B.
- The straight line connecting points A and B is the diameter of the circle.
- If you draw a second line C and D, the intersection of the two lines forms the centre of the circle.

8. Rotational Bodies

TASK: Rok was spinning and observing a coin on the table for a bet. For a moment it seemed that the coin turned into a ball. What geometrical bodies can we see, if we spin objects of different shapes?

9. Determining the width of a river

TASK: Use watch hands, pencils and some paper to determine the width of a river.

Procedure:

- Find two exactly opposite points A and B on the river banks.
- Walk along a bank until you see both points at a 45-degree angle (this is point C).
- The watch hands determine the angle by showing a 7.5-minute interval on the dial.



Picture 13: Young researchers

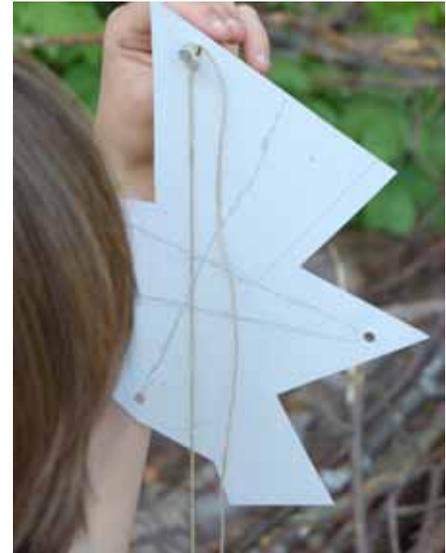
- If you count the steps from point A to C, you can determine the width of the river as well.
- The number of steps from A to C equals the width of the river from A to B, because both distances form equally long sides of a right-angled triangle.

10. Finding the Centre of Gravity

TASK: Use an irregular shape, needles, strings and weights to define the shape's centre of gravity.

Procedure:

- Hang a weight on a string.
- Attach the string with the weight on a shape. Then attach the items on a solid surface, so that the shape with the string hangs on a needle.
- The centre of gravity is somewhere vertically below.
- Draw a line along the string with the weight.
- Repeat the entire procedure by hanging a piece of cardboard on the other end.
- The centre of gravity lies at the intersection of two lines.



Picture 14: Way of thinking

11.1. Finding the centre of Gravity

TASK: Use a bottle, two cork stoppers, two metal head pins and two forks to balance one pin on the other.

Procedure:

- Stick one pin into a cork stopper then plug the other stopper and stick into it the second, inverted pin.
- Stick the two forks into the second stopper so that their handles stick out like hands.
- Carefully place the tip of one pin on the head of the lower one.
- The construction's centre of gravity transfers far below the pin's head due to the weight of forks' handles, so that balance is created. The pin's tip has enough support on the head, because it is not as smooth as it seems.

11.2. Finding the centre of Gravity

TASK: Use a cup, a button and two forks.

Procedure:

- Stick the two forks over a button.
- Place the button on the edge of the cup.
- The bent forks' handles, particularly heavy at the ends and extended over the cup, move the button's centre of gravity exactly over the edge of the cup, so that the entire construction is in balance.



Picture 15: One of the solutions

12. Tangram

TASK: Assemble the drawn shapes. Assemble your own form.



13. Symmetry in nature

TASK: In the 7th class, pupils learn about different types of symmetry. Your task is to find as many different forms of symmetry as possible. Name the symmetry.

Device: camera



Pictures 17 – 19: Examples of symmetry

14. The Circumference of a Circle

TASK: Use a metre stick, longer strings and a mountain bike to measure an unknown distance.

Procedure:

- Ride a bike and count the number of wheel revolutions.
- Measure the radius of the wheel and calculate the circumference of the circle.
- Multiply the circumference of the circle by the number of wheel revolutions. The final result equals the unknown distance.

15. The centre of a circumscribed circle

TASK: Four pupils were playing with a ball on a playground. Metka was standing among her friends and passing the ball, so that they could not catch it easily, because each error meant a penalty point. Jernej was complaining all the time that Špela was very close to him and threw him the most powerful balls. Where should have Metka stood so that the game would have been equal for all players?

Procedure:

- Three friends represent the triangle vertices.
- Metka must stand at the intersection of the triangle sides' symmetry lines.

16. Fibonacci and nature

TASK: Observe nature on the way and find a plant representing the Fibonacci sequence.

Find flowers in which the number of petals is one of the numbers of the Fibonacci sequence.



Picture 20: The flowers of different flowering plants in which the number of petals is one the following numbers of the Fibonacci sequence 1, 2, 3, 5, 8, 13, 21, 34, 55, ... However, it might happen that not all petals are developed, therefore the number of petals is different.

Conclusion

When children are in nature, they explore it and through various activities get to know its dimensions. Spontaneous learning together with physical exercise have a positive impact on a child's intellect, they broaden his/her horizon, because exercise increases the blood flow in brains, which gives him/her the possibility of perception of the world and nature around him/her. However, a pupil needs a mentor to guide him/her in observing the surroundings and cultivating the aesthetic sense of nature, which gives rise to aesthetic pleasure. It is this very feeling that summons us to visit nature again and again. Through outdoor activities we develop independence, resourcefulness, creativity, as well as work habits and collective consciousness. Various activities in nature encourage man to become more relaxed, which is of utmost importance in developing creativity.

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On a Walk with Mathematics

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Abstract

Mathematics is a science developed as a consequence of human needs in defined time and place. A good environmental expertise helps to understand how mathematics intertwines with different aspects in human lives and how it can be used for general well-being.

In this article, some topics and activities are presented, with which pupils of the third three-year cycle are learning where to recognize mathematical regularities in nature, and how this knowledge helps to keep the environment.

Keywords: *mathematics, three-year cycle, nature, environmental education*

1 INTRODUCTION

Elementary school mathematics shows a tendency to be used in different situations in our everyday lives, also in nature. Such a relation stimulates conscience in pupils that mathematics is connected with environment, and it also enables higher motivation for learning and exploring the mathematical knowledge. Better knowledge of environment is achieved through empirical teaching during the classes of mathematics, everyday activities, writing research tasks, work in courses, nature classes etc.

In performing the activities, we can come across certain obstacles such as level of current pupil's knowledge, time needed for performing longer experiments, weather and other problems. In spite of these, we adapt the work in such a way that pupils are still motivated by desire to explore mathematics and environment, and we enable interesting learning.

It is a matter of teachers' judgement as to when and in what way they offer a mathematical model to pupils for searching answers to set questions. Observing the happening in nature, the pupils can set up mathematical models themselves or just examine them in certain occurrences. Hereby, we teach the pupils to develop a critical relation to using mathematical structures, because numerous occurrences do not have a real mathematical background. The pupils consider in which way they would practically use results of their investigation, and they test suitable suggestions.

It is good that the pupils are directed also in learning how such problems were solved in the past. While they get to know the work of mathematicians, who researched the discussed themes, they easily give meaning to this knowledge in practice. The more they know the intertwinement and connection of occurrences the easier they take responsibility for environment and their behaviour in it.

2 MATHEMATICAL WALKS

In course syllabus for mathematics in the last three-year cycle, we can find themes which can be sensibly intergraded in research of environment.

In direct contact with natural and urban environment, we find that certain occurrences should be given our attention merely because of the variety of forms; in others, we can search connections with different mathematical models. In such a way, the teachers and the pupils together explore the

meaning of normal distribution of occurrences, sense of covering a flat surface with polygons in insects' homes, predict the probability of happening, check the existence of cycles or paths across forest paths and admire the fractals. In the same way, we can examine the meaning of constant relations between certain occurrences, the use of numerological sequences, search symmetries and search for meaning of other occurrences.

During examining and exploring, the pupils learn to observe life in nature. A good knowledge of environment enables them to understand connections between natural occurrences and offer them an insight into activities that keep the balance in nature.

In continuation, some mathematical knowledge is presented, which can be explained to the pupils through the research of environment.

2.1 GRAPH

In our broader environment, we can find a whole variety of different connections, which we call ways. These are footpaths, roads for vehicles, railways, airways and seaways and also migration paths of different animal species. In certain environments, it is hard to practically perform the research of the animal migration paths with the pupils; therefore, we search an existence of connections between objects near our home. To research different connections in mathematics, we use the theory of graphs.

Near our homes or forest nearby, we can search all passable or transportable ways of this area and draw them onto a map. Next to these ways, we also mark bridges or natural passes over streams or rivers, and try to find out the possible connections between ways and chosen objects. We define also the mathematical walks and rounds.

The pupils research usable values of found ways, such as the shortest or the safest way from home to school, tourist circular way in town, naturalistic learning path across forest, economical and at the same time environmentally friendly ways of post officers and communal workers etc.

We present also the work of the renowned mathematician Leonhard Euler and the Bridges of Königsberg Problem.

Themes are not always performable in the field, because there can be obstacles such as weather or the surroundings itself. In such cases, we prepare suitable maps in advance and solve tasks in class. Our findings can be checked in the field later as well.

2.2 GEOMETRICAL SHAPES

We can come across many different shapes and patterns in nature, which remind us of geometrical shapes. Such examples can be found in animate as well as in inanimate nature.

a) Clouds, snowflakes, trees, ferns, cauliflowers and many other plants represent good illustration of fractals.

While observing the fractals in nature, it is sensible to make some photos, which can be enlarged and analysed later. With help of photos and sensible arranging of geometrical shapes, we try to draw fractals to the certain level of branching (step). The patterns, which originate during this procedure, can be a good starting point for interesting calculating. In each individual step, we calculate the perimeter, surface area or even volume of patterns. We find out how the received values change from step to step. The pupils are also directed in research of this field of mathematics (Dürer, Koch, Julia, and Mandelbort).

b) Many plants or animals draw our attention because of its beautiful colours and shapes. We have a feeling that patterns and shapes are symmetrical. Only a precise observation shows that perfect symmetry is almost impossible.

During walks, the pupils found out symmetry of whole plants or their parts. For precise finding of the symmetry, different samples of plants must be collected (leaves, flowers, fruits ...) or photographed. By measuring, folding or printing, we can define their axial, central, rotational symmetry or movement. We also find out the number of symmetrical axes. We research on patterns what influences the number of symmetry axes.

By using different transformations in the same drawing or with shaping procedures of surface crystallographic groups, we form new patterns and shapes.

c) Some insects and spiders build their homes by using simple mathematical shapes. Bee honeycombs are made up of regular hexagons only. Webs of some spiders remind of different polygons or even of circle.

The pupils research the meaning of connected arranging of cells in honeycombs. They check which figures could be used to build honeycombs. They draw circles into the chosen figures. By comparing the size of radii of in-drawn circles, they demonstrate the sense of choice for elementary building part in honeycombs. The pupils are shown the economical behaviour of animals and plants.

We inform them about possibilities for covering surface with different figures and about important article by M. C. Escher for development of this field of mathematics.

d) The amount of food produced by plants for their growth depends also on the surface of their leaves, which absorb sunlight. The surface of a leaf is compared to an area of figure with which we can cover the chosen leaf. Questions and tasks, with which we direct pupils to use mathematical models, are applied to calculations of surface area of one leaf and surface of covering with all leaves on the chosen plant. To measure the surface, we can use the picked leaf or its photo. We must be careful when choosing leaves, because their shape defines the difficulty level of the task.

During the food production, the plants release oxygen. According to the known information of approximate amount of oxygen produced by certain tree species and amount of oxygen required by a person, we calculate how many trees we need to satisfy the oxygen needs of one person annually.

2.3 PROPORTIONS AND SIMILARITY

a) Through the history, people helped themselves with simple tools. Distances between observed objects were measured by feet, steps, placing a stick etc. For measuring height they had to use more creativity. One of the best known ways for measuring height is measuring with help of rotation. Measuring height with use of similar triangles (measuring length of the observed object's shadow) is also one of better procedures known, which was used already by Tales. If weather allows, it makes sense to measure height of a chosen tree in both ways. The received results can be compared and reasons for eventual deviations are determined. According to the measured height of the observed tree and receiving other information needed (tree trunk diameter), we can calculate the volume of wood in the trunk. The pupils are told that results, gained in such a way, are only approximate.

The pupils can be directed also in observing measuring height by Tales, and in researching old units for measuring length.

b) There are different constant ratios in nature. Researching many well-known relations is a too demanding task for pupils (relations between body surface and volume of an organism, Mendel proportions ...). However, we are familiar with some ratios that can be quickly checked with simple mathematical operations. These are ratios between sizes of individual parts of human body. The pupils choose certain measures of their bodies and calculate the ratios. The gained results are compared to the da Vinci or Dürer ratios. Leonardo da Vinci and Albrecht Dürer used different ratios in their works to illustrate the ideal human body.

The pupils are also taught a special relation, named the golden ratio.

2.4 NORMAL OR GAUSS DISTRIBUTION

The flower petal length, fruit mass, plant height and other information about plants represent nice examples of normal distribution of data. Different data about animals and humans are interesting for processing as well. The majority of occurrences in nature are normally distributed, that is in form of the Gaussian function or bell curve.

The tasks which show this distribution can be very simple. We can pick a simple flower as, for example, a golden daisy to observe, which one of the most common Slovene meadow flowers is. We systematically count white flower petals or measure flower petal length. The information is logically arranged in charts and presented in coordinate system.

The golden daisy is used as announcer of love destiny in the game Loves me – loves me not. It is interesting to know whether we can predict the outcome of this game and which are the factors which influence the result. The pupils mostly like to research into this problem.

Arranged and presented information is analysed and compared to the bell curve. We search useful value of information received in such a way (example: recognizing the changes in nature).

The bell curve is named after Carl Friedrich Gauss; therefore, this renowned mathematician can be presented to the pupils. We should also mention other mathematicians who contributed to the development of this theory.

2.5 SEQUENCES OF NATURAL NUMBERS

Nature can be unpredictable sometimes and so forming of rules from observing some occurrences is a demanding and responsible work. If we are able to ignore certain unimportant details among received information, we can find interesting generally valid rules. This is also the case with sequences of natural numbers, which can also be found in nature.

a) A special form of multiplication exists among bacteria. A cell simply separates – splits in a very short time. In optimal conditions, one bacterium multiplies according to the sequence values of potency for number two.

The pupils are given all the necessary details with which they observe the exuberance of the number of bacteria in different time periods, and they write down the links of this sequence. They also calculate how large surface or volume would bacteria fill in a certain period of time. We also consider where to use this knowledge.

b) The sequence of natural numbers, which can be found in many different situations and connections with other sciences, is called the Fibonacci sequence. This sequence is interesting, because it often occurs in nature (in arrangement of sunflower seeds and cone scales, in number of flower petals ...).

Sometimes, it is hard to find suitable samples to prove the existence of the Fibonacci sequence. Lack of such samples can be replaced by good photos of samples, in which we can observe the curiosity of connection between nature and mathematics.

One of very convincing cases of the Fibonacci sequence of numbers existing in nature can be found in bee families, more precisely, in number of drone ancestors in each generation. The pupils use tree diagram to help them count drone ancestors in individual generation, or they form a rule to calculate the number of ancestors.

The pupils are taught also the work of mathematician Leonardo Fibonacci.

3 CHOSEN CONTENTS FROM SOME LEARNING SHEETS

The pupils need clear instructions for their research. It often occurs that oral instructions are better for the pupils than the written ones. Their feeling for work organisation is very different; therefore, a learning sheet is a good helping tool, because it represents support in searching the solution to the task. In continuation, parts of some learning sheets are presented which I use in performing a certain topic.

3.1 TOPIC: GRAPH

1. Find all passable or transportable ways in agreed area and draw them onto a map. Mark also bridges and other possible passes over streams or rivers.
2. Mark object A and object B on the map.

Your task is to find different ways between these two objects. You can use only existing ways (drawn on the map).

a) How many different ways lead from object A to object B?

Draw (write down) courses of these ways.

b) Draw the longest and the shortest way between objects A and B on the map.

c) Find such a way between objects A and B that will correspond to the conditions written below:

- circular way;
- the way starts by object A, continues past object B and returns to object A across other ways;
- every part of the way is used only once.

Is there such a way?

d) If the answer to the previous task is 'no', then try to write down sensible changes that would enable existence of the searched way.

3. Find an applicable value to the found ways.

3.2 TOPIC: GEOMETRICAL SHAPES – HONEYCOMBS

1.
 - a) Look at bee honeycomb. Draw a part of the honeycomb in ground plan.
 - b) Which geometrical shape is represented by individual cells in the honeycomb?

- c) How many cells are on one part of the comb?
 - d) Think about why are cells arranged one next to the other?
2. a) Could the honeycomb be composed of regular pentagons? Explain your answer.
 b) Find all figures that could be used to build a honeycomb. Draw the possibilities and give argumentation for chosen figures.
 3. Why do bees use only a specific shape to build their homes? Give argumentation to your answer also with a calculation. Use in-drawn circles to help yourself by calculation.

3.3 TOPIC: PROPORTIONS AND SIMILARITY – RATIOS AND HUMAN

1. Fill in the table with your measures, rounded up to centimetres.

(Body) height	Leg length	Head size	Leg length up to knee	Body height up to navel

2. Leonardo da Vinci and Albrecht Dürer used different ratios to illustrate the ideal human body. Find out if their measures comply with yours too.

	Leg length vs. body height	Head size vs. body height	Leg length up to knee vs. leg length	Body height up to navel vs. body height
A. Dürer	1 : 2	1 : 8	---	---
L. da Vinci	---	---	1: 1.618	1: 1.618
Your measures				

3. Which of your measures complied most with the known ratios?
4. Why are there deviations among ratios?
5. Why is it sensible to collect and analyse such information?

3.4 TOPIC: NORMAL OR GAUSS DISTRIBUTION – GOLDEN DAISY

1. Pick ten flowers of a golden daisy on a meadow. Pick undamaged flowers, because you will count the number and measure length of white flower petals.
2. In this part, handle each golden daisy individually. Write down the information in tables and use them in coordinate system.
 - a) Count the number of white flower petals.
 - b) Measure the length of each white flower petal to millimetre exact.
 - c) Calculate the average length of flower petal of individual golden daisy.
3. According to information from tasks 2a and 2b, try to solve the following tasks.
 - a) Write down the lowest and the highest number of flower petals.
 - b) Is the number of flower petals mostly odd or even?
 - c) Which number of flower petals came up the most?
 - d) Calculate the average number of golden daisy flower petals.
 - e) Which length of flower petal was mostly written?
 - f) Write down the minimum and the maximum length of flower petal.
 - g) Calculate the average length of golden daisy flower petal.
4. Are you familiar with the game Loves me – loves me not? The golden daisy is used as announcer of love destiny in this game.

Can we predict the outcome of the game without pulling out the flower petals?
Search for possible outcomes of the game. Maybe the next two tips will help you.

 - a) There are two outcomes, obtained through more ways.
 - b) Use the 3b task.

3.5 TOPIC: SEQUENCES OF NATURAL NUMBERS – FIBONACCI SEQUENCE BY DRONES

1. The bee family consists of a queen bee, worker bees and drones. Queen bee and worker bees develop from fertilized eggs, drones from unfertilized ones.
 - a) How many parents do a queen bee and a worker bee have?
 - b) How many parents does a drone have?
 - c) How many grandparents does a queen bee have and how many a drone?
2.
 - a) Continue with a search of a drone ancestor number and draw its family tree up to the eighth generation.
 - b) Write down the number of drone ancestors in each previous generation.
3.
 - a) A drone and the number of its ancestors in each generation form a sequence, named the Fibonacci sequence. Research this sequence.

- b) With the help of a mathematical model define the number of drone ancestors in the twelfth generation.

4 CONCLUSION

There are numerous possibilities to connect education place with real life and nature. If we wish to stimulate a desire for environmental conscience in children, we must educate them together with and in nature itself. This is how they can feel the pulse of nature and see themselves as a part of it. The pupils spend less and less time in nature; therefore, it makes sense to replace the school learning place by a natural one and perform different activities in it, which are connected with mathematics too. In this way, we enable empirical learning, which gives opportunities of inter-subject connectivity and forming of broader and lasting knowledge.

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Mathematics in Nature – Learning through Experience

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Abstract

As a mathematics teacher, pupils often ask me why they need a specific mathematical knowledge in life. I have to convince them constantly that mathematics is not only science, but part of life around us. Every day pupils find themselves in situations where they have to solve mathematical problems, but they do not link them to the school knowledge of mathematics, they try to solve it on the basis of their own experience.

In this article I will try to show that experiential learning in nature is very important for a more lasting knowledge of pupils. In mathematics, activity hours are part of the curriculum. These hours can be carried out at the outdoor school. A problem, which is routinely addressed by pupils in the classroom, according to certain procedures, may be seen as an open-ended problem in nature. Pupils are not limited by the school bell at work. The environment encourages them to communicate in a relaxed way. They exchange views and experience, as well as look for different ways of solving problems. They have to agree on which tools will be used and which measurements will be done in order to solve a particular problem.

Mathematics teachers have noticed that some pupils are difficult to motivate. The work in nature encourages the inner motivation in pupils. They can connect mathematical problems to life situations and the knowledge gained in other school subjects, which is a great asset. All pupils are active at the work in nature, which certainly contributes to a more lasting knowledge.

Key words: *outdoor school, activity hours, problem-oriented knowledge, experiential learning*

INTRODUCTION

Mathematics is a natural science with the largest share of hours in primary schools. Many everyday activities are related to mathematics, but pupils do not associate these activities to the school knowledge of mathematics. Every day we have to deal with problems related to space, length, area, time, data presentation, etc.

Such problems are: a farmer ploughs a field; walking the distance from home to school; a joiner makes oak trunk boards of a certain thickness; a bricklayer has to determine the height of stairs he is going to build; a forester estimates the percentage of trees that need to be cut down in the forest; etc.

Mathematics lessons should never be based on routine. It is not enough to teach pupils certain procedures and strategies to solve a task, lessons should also include problem-oriented knowledge.

In mathematics, in addition to specific and operational objectives of the subject, the general objectives of the subject should also be pursued. These objectives are:

- mathematics as a means of communication,
- mathematics as a tool in everyday life,
- links between the child's perception of the world and mathematical structures,
- systematic and creative work,
- broadening mathematical knowledge,
- development of confidence in one's own mathematical ability,

- knowing relevant mathematical techniques,
- mathematics as a universal and stable interpretation of the world.

From these objectives it is clear that mathematics is not an end in itself, but it is an activity in which pupils are actively involved. Pupils develop fundamental mathematical concepts and skills they will need in everyday life. The purpose of mathematics is the intercurricular integration with other school subjects – physics, chemistry, biology, home economics, art and design, design and technology, P.E., as well. There is a strong emphasis on curriculum integration in the nine-year primary school. Pupils are supposed to connect the knowledge acquired in various subjects. This objective can be realized in centres for curricular and extracurricular activities (CŠOD). Pupils in these centres are in direct contact with nature. They learn on their own experience, which allows a more lasting knowledge of pupils.

MATHEMATICS IN NATURE

Activity hours at the outdoor school

Our pupils have been visiting these centres for many years. Science days, cultural days, winter outdoor school and camps are organized in these centres for children with achievements. These centres are located in the vicinity of forests, rivers, seas. Pupils are in direct contact with nature, which is the most beautiful outdoor classroom for children. Pupils can relax, move freely and are active in nature. Nature offers them various research possibilities and creativity. It encourages them to seek various ways of solving problems. They communicate and exchange views and experience. At the outdoor school, pupils forget computers and TVs, they practise various sports. In the context of activities carried out by pupils at the outdoor school, activity hours are performed as well. The mathematics curriculum in the nine-year primary school recommends that activity hours be performed in all classes. They should help us accomplish the objectives of the problem-oriented knowledge. Pupils are divided into groups. Each group is assigned a task, which must be solved and its solutions are presented to others. These tasks are open-ended problems. In these tasks, information is not given, but pupils have to find it through various measurements. These tasks can be solved in several ways, so pupils need to agree on how to solve it and divide the work. At work they complement and help one another. Pupils should have enough time for solving problems, as they have to use the existing knowledge in new situations, outside the classroom, in nature.

Examples of tasks for activity hours

TASK 1

How many times does the bicycle wheel rotate while riding along the Sečovlje salt-pans? What distance does the cyclist ride?

Tools: wheel, revolution counter, tape measure, sheet, pencil.



Picture1: Bicycle ride

TASK 2

Estimate the length of the road from Portorož to the Centre for curricular and extracurricular activities Burja. How could you determine whether your conclusion is correct?

Tools: tape measure, map, sheet, pencil.



Picture 2: March

TASK 3

Use the shadow of a tree to determine its height. Do all trees of the same genus have the same height?

Tools: tape measure, rods, sheet, pencil.



Picture3: Tree shadow

TASK 4

Determine the thickness of a tree. What can be made from a tree trunk?

Tools: tape measure, sheet, pencil.



Picture 4: Tree trunk

TASK 5

From a piece of canvas, which is before you, pitch a tent by putting support poles in the middle. How many m² of land does the tent cover?

Tools: tent canvas, poles of different lengths, sheet, pencil.



Picture 5: Pitching a tent

TASK 6

Did a farmer plough one ha of the field? What would the length of the ploughed land be if he made 30 cm wide furrows?

Tools: tape measure, sheet, pencil.



Picture 6: Field

TASK 7

There is a reel of fencing wire. Make a pen for a rabbit, so that it will have a maximum area for grazing. What shape is the pen? How many m² can the rabbit gaze?

Tools: tape measure, fencing wire, sheet, pencil.



Picture 7: Rabbit

TASK 8

How many litres of water are in the pool?

Tools: tape measure, sheet, pencil.



Picture 8: Pool

TASK 9

Note all the types of trees growing in the forest. Pick an area and count how many deciduous and coniferous trees there are. Determine the proportion of deciduous and coniferous trees. Express results as percentage.

Tools: sheet, pencil.



Picture 9: Forest

TASK 10

Pick different sized leaves of the same tree. Wipe the leaves on the paper. Measure the length and width of each leaf and determine the ratio among them. What have you found out?

Tools: ruler, sheet, pencil.



Picture 10: Oak leaves

TASK 11

Determine the map scale.

Tools: tape measure, string, sheet, pencil.

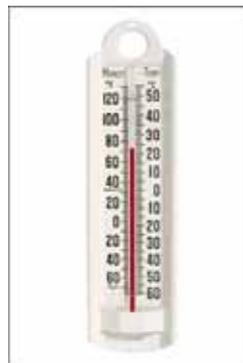


Picture 11: Map

TASK 12

Measure the temperature at eight a.m., noon and eight p.m. every day. Create a table and enter data into it. Calculate the average temperature on a daily basis and show it by using a column diagram.

Tools: thermometer, sheet, pencil.



Picture12: Thermometer

RESULTS

Pupils were dealing with tasks, while performing other activities at the outdoor school. During their visit of the Sečovlje salt-pans, they were practising sports and solving mathematical problems simultaneously. They estimated the approximate road length from Portorož to the Centre for curricular and extracurricular activities Burja by counting steps and measuring the length of one's own step. The exact length of the road was determined later, with a map. In determining the tree height, they used the ratio, a basic concept learnt during mathematics lessons.

They compared the length of the tree shadow with the length of a stick shadow. The tree height and the stick length are in the same ratio. Some pupils used the knowledge gained in art and design

lessons. The first pupil positioned a pencil so that its tip was aligned with the tree's top. Then he moved his thumb down the pencil so that the tip of his thumbnail was aligned with the tree's base. He rotated his arm so that the pencil was horizontal (parallel to the ground). The second pupil moved away from the tree so his feet were aligned with the pencil's tip. The third pupil measured the distance between the pupil and the tree. This distance is the tree height. The fourth task required them to measure the tree circumference and then to calculate its thickness. In all these tasks, pupils measured the length.

In the fifth task pupils had to evaluate the size of the surface under the canvas tent. They found out that the size of the surface under the canvas tent depended on the height of the pole supporting the canvas. In the sixth task they measured the length and width of the field and calculated its area. The rabbit pen can be of a rectangular, square, triangular and round shape. While they were setting up the fence, they discovered that all pens had the same circumference, but their areas were different. The eighth task was about measuring the volume of the pool. The objective of all these tasks was aimed at pupils to connect their mathematical knowledge related to measuring with their experience and the knowledge from other science fields and everyday life.

Because only few pupils have a well-developed spatial perception, they often make mistakes when converting measures. At the outdoor school they gain the size perception of measurement units and practical experience for a later understanding of abstract concepts. There are many forests around the Centre for curricular and extracurricular activities Burja. In the forest we come across various attractions, as well as a great diversity of life. Pupils explore the forest edge and its interior. They observe trees, undergrowth, animals, etc. When they go for a walk, they experience the forest in its entirety. They become aware of the ecological function of the forest – it is used for the exploitation of resources, but it also has a social function where we come to relax. The forest is therefore a well suitable outdoor classroom for intercurricular integration. During the walk, pupils counted the coniferous and deciduous trees and expressed results as percentage. They picked up leaves of various trees and bushes and measured their length and width. They found out, for example, that the ratio between the oak leaves length and width is always the same, regardless of their size.

Even in the eleventh task pupils had to evaluate the ratio between these two units – length and width. They measured the length of a path in nature and on the map to determine the scale of the map. The twelfth task is connected with data processing. Pupils collect, present and interpret data.

CONCLUSION

This paper has presented options on how mathematics lessons can take place in nature where pupils are active and creative. At work they use all their senses: they observe, touch, think, draw, measure, write down, etc. When solving problems, they reach many learning objectives written in the Mathematics or other school subjects' curriculum. At the outdoor school pupils perform various activities and find out that mathematics is part of life around us and that we solve mathematical problems constantly during our everyday activities.

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Living Wild – Education, Therapy, or Neither?

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Introduction

So – what is Living Wild?

Living Wild is a wilderness based cognitive programme for young men and women who are in the Scottish Criminal Justice System. They would be typically on probation or a court supervision order and usually 16-25 years old. Most usually they would be either medium to high or high tariff offenders.

Over a period of time they live communally in nature with the Living Wild team, they share a wilderness experience, learn the skills to process it, and get the opportunity to take stock of what it is they need to change and why they need to change it.

Where it all started – the Back Story

The programme started a little over 15 years ago when the Conservative Government of the time's attention was attracted by the then fashionable idea of "Boot Camps" that had crossed the Atlantic from America.

The original premise, based at the Applecross Training Centre, in the North West Highlands of Scotland, was to run a new project, the purpose of which was to look at the provision of "robust outdoor activity opportunities for young offenders" as an alternative to the Boot Camps that were in the public attention. Although boot camps were high profile and a popular idea, it was felt that a different approach was needed.

The Home Office were looking for a creative solution to the problem of prolific young offenders re-offending and spending a lot of their time in jail on short sentences or remand. The pattern of youth re-offending and the consequent damage it was causing, was both costly and enjoyed a high profile in the media. *Something* had to be done!

Very quickly the programme began to move away from being purely challenging outdoor activities to take on a more developmental approach. It quickly became clear that the Boot Camp idea wasn't viable and the ancestor of the course programme we have today was born.

The programme – does it work?

We have had a number of evaluations done but participants completing our Living Wild Scottish Government Programme at the 12 month evaluation point for 2008 – 2009, have now exited the 12 month monitoring and evaluation process.

We have developed a measuring tool which measures six performance areas to make an assessment of how successful our participants have been in making positive changes in their lives.

Of participants completing our Living Wild Scottish Government Programme at the 12 month evaluation point for 2008 – 2009 the performance indicators would suggest that

- 57% are in employment education or training
- 98% are showing increased self-confidence
- 89% are showing increased employability
- 83% are showing behaviours and circumstances likely to reduce risks of reconviction.
- 68% are improving bonds with community members
- 72 % are making increased use of community services and opportunities

What does it look like?

The original programme was centre-based, a series of progressive expeditions or wilderness journeys over three weeks which culminated in the “main event”, a 7 or 10 day wilderness venture. There were 3 expeditions, three day, followed by a four day, followed by the main expedition.

One of the challenges we always faced was breaking down barriers and building trust, especially when the first day or two was spent in the centre. The centre was our space, our party, and our rules of engagement. Immediately, our participants would be looking at strategies for getting round our systems, something they were very experienced and very adept at. They were often successful which obviously compromised our ability to keep people emotionally or physically safe.

As a result of this we changed the programme so that we went immediately from the train station to a tipi camp, a warm friendly and safe environment.

Over a period of time, when we reviewed courses, we noticed that we were gradually losing more and more people who were leaving the course early. At first we thought it may be due to physical fitness – young people were becoming less physically fit.

In the heyday of dance drugs, drugs of choice were ecstasy, cocaine or amphetamines etc. Dancing all night keeps you fit and in those times *we* struggled to keep up with *them*.

Drugs of choice now are often “sitting down” drugs, heroin or strong variants of cannabis, even alcohol – it’s hard to dance all night if you’ve had too much to drink. Consequently we noticed a very unfit client base and expeditions gradually shortened as a result.

However when we looked closer, we noticed that they often chose to leave on the same days, often day 4, day 7 and day 11. This coincided with days we went back to the centre to reset kit and food etc. We very rarely had anyone leave on expedition, but they voted with their feet back at the centre.

We were very interested in the why. I talked to some of our successful course participants as to why this was and they fed back a number of things but they all recognised the centre as a place where there was not only pressure, but also an escape route, it was easier to leave than to stay. We decided to take the plunge and run the whole programme in a wilderness setting.

If the key elements to our programmes rely heavily on the quality of relationships between staff and participants, then the wilderness allowed us to share life space with the young people in a powerful, natural and peaceful environment. Without any adversarial element participants could concentrate on what they need from the programme.

Today we live in the Wilderness together with our participants and as the programme evolves, we are discovering new and better ways of achieving our outcomes.

Why this programme, why in the Wilderness?

I went into this in some detail last year and talked about desistance and reframing skills, but in a general sense, however it’s fair to say that many young people that we work with are just

“*characters*” in their own story and they often are not aware of the possibility of becoming the “*author*” of their story.

Virtually none of these young people have any positive history, a story they can be proud of and share. They have many stories but those stories often involve violence, jail or such like.

We can support them in writing the first page of their new history, the stories of violence, thefts, drugs and crimes can become a preface to their future history, a mere context or baseline to measure their progress against.

This sense of distance travelled, or progress made, can often be a catalyst to the transition from “back seat to front seat”, “passenger” to “pilot”, or of course “character to author”

The skills and resilience they show can be the start of alternative future.

Simply another idea

If we can accept that any time we behave in any way; that all we are doing is trying to get what we want using the best idea we've got, *then it's entirely possible that there's a better idea out there.*

Just recently I observed a family in a cafe. Their child was obviously done with the experience of the cafe and started to adopt a strategy of moving his parents outside to do something more interesting with him.

He started generally playing up and his mother told him to settle down – not only did he not stop, he chose to escalate his playing up. His mother then said the same thing only louder, again he escalated and I watched as two people tried to get what they wanted by just applying the same unsuccessful behaviour repeatedly only louder and more forcefully.

It would seem, on the face of it, to a normal rational person, that just repeating an unsuccessful behaviour time after time makes no sense at all. It *should* seem that there is no sensible reason for expecting a different outcome from the same behaviour.

Countless parents nag countless teenagers fruitlessly, on countless occasions and bafflingly do the same thing when it doesn't work.

So why is this? Maybe they basically haven't got a better idea so they just do what they know, a sort of default setting.

Young people sometimes just need another idea, a more effective way of getting what they want. By offering a chance for individuals to experience a new way of doing things, a different approach to working through problems and issues we hope to see another way, another possible alternative future, quite simply another idea.

The Guiding Principles

Wilderness

At the heart of all of our programmes is Wilderness and Wilderness journeys; the idea that sometimes we have to travel beyond our ordinary experiences to fully understand the context of our lives.

Wilderness can offer us the chance to experience things from a different perspective and a new way of doing things. Suddenly the day to day worries and difficulties of our lives are replaced by a focus on our more basic needs, and a necessity for employing more need satisfying behaviours. Crucially, at the heart of this experience for many is the discovery that they have what it takes to succeed in ways in which they never imagined that they could.

This wild environment creates those opportunities for peak experiences without us needing to artificially contrive events to create this. We don't need to provide challenges such as ropes courses or abseiling etc, (although we might choose to). The wilderness environment takes care of that for us. For instance, we need to decide whether to cross a river in spate, whether to walk upstream or downstream to cross, or perhaps whether to set up camp and wait for the level to drop.

We are making real time, real decisions and it's real negotiation and relationship skills that we are employing. We don't need to create perceived threats – they are real and so are the consequences. This strongly enables effective, symmetrical balanced working relationships between staff and participants.

Safe Space

One of the cornerstones on which our programmes are built is the concept of safe space. When we feel unsafe we concentrate on that which makes us unsafe rather than the job in hand. "Safe Space" gives us an environment where we can concentrate on learning and growing.

With that in mind, Venture Trust works to ensure that the programmes operate in a physical and emotional safe space – this means that people choose to take on challenges rather than having those challenges forced upon them. Agreements and group decision making are at the core of these principles.

Time out

This is an opportunity to take some time out of their home environment. Often their home environment is risk laden, chaotic and very stressful, this is an opportunity to take stock, look at where they are and in turn look at where they want to be.

Experiential learning

We feel that it is critical, in our working model that participants directly experience and take learning from this personal experience rather than a more traditional educational process.

The vast majority of our course participants have not thrived in a traditional learning environment, the experiential model is seemingly much more accessible to these participants and much more interactive and empowering.

Course participants are allowed to learn at their own pace and tailor learning to their own developmental needs.

However, as the current financial climate we operate in demands us to demonstrate value for money, the pressure is applied to run shorter courses and more of them. The downside of this is that opportunities to practice learning and get it wrong, essentially the experiential model, are greatly reduced.

The "Outdoor Classroom" is an ideal environment for most of our participants. By putting a framework of self evaluation in place, that enables them to make sense of their behaviours; they will have a method of solving problems and making decisions that will be portable, effective and lifelong.

Choice Theory and Reality Therapy

Choice Theory and Reality Therapy offer our participants a system of self evaluation of their behaviours. As this is a system of internal behavioural control, they learn what they can and can't control, and learn to only to try to control the controllable.

Our clients in particular are evidence that external control doesn't work as a system for effecting long term pro-social behavioural change and many of them learn to manage frustration and anger as a result of learning some Choice Theory and many enjoy better quality relationships on their return home.

Pro- Social Modelling

By modelling pro social behaviours, rather than just telling participants what they're doing wrong, an approach that they're not only very familiar with, but is almost always ineffective, we demonstrate how behaving in a certain way will get you closer rather than further away from what you want or need and the people you want or need in your life.

This is evidenced for the young people by the strength of the relationships that they enjoy on programme. Importantly they get to experience positive pro social relationships and practice being part of them.

“A Different Way”

A Venture Trust programme offers a chance for individuals to look at things in a different way. We believe that when we look at things in a different way, we open up the possibility of more choices, more ideas and more chances to meet our needs.

A critical part of the process is each individual's willingness to accept the possibility that they can make positive changes to their lives and that an alternative future is possible. When they leave the Living Wild course, to ensure that the lessons learned are supported when they are back in their community, they will have 12 months support from a Venture Trust community worker. Without this support it is very difficult to deal with setbacks and the challenges that they face in turning their lives into the lives they aspire to.

A throwaway conversation

I was working a programme about five years ago and I was working with a young woman who had a tragic and very chaotic story. She was in a bad place and a lot of trouble. Shortly after the course finished she was jailed.

This felt bad - it felt like failure. It was always a bit of a rollercoaster when we had updates about our young people sometimes it felt fantastic, i.e. when we heard the success stories, but the flip side, when there were setbacks sometimes it felt difficult to believe it was working.

Interestingly I noticed that we all treated successes and failures in a similar way- we tended to give the young people the credit for successes , however when there were setbacks we almost universally accepted a level of responsibility and asked ourselves if there might have been more we could have done.

It's easier to be easier on other people than ourselves sometimes!

About four years later I met her again. She had really sorted her life out and was doing exceptionally well. As we were chatting she talked about her time in jail and said “do you remember the conversation we had in the dining hall?” I said that I did although I was struggling furiously to remember what it was I said.

She said that that conversation had played a part in how she planned to begin the process of rebuilding her life and relationships with family etc. “I never forgot what you said” she said.

I guess that's the power and responsibility of the relationships we have in our work.

Perhaps it wasn't a failure after all – maybe I just needed to believe!

Who was developing who? I wondered.

The original question?

This brings me back to the original question. Do we educate, when we teach new skills?

Do we offer a therapy, when we listen and support?

Or do we do something else?

Do we just share a small portion of our lives and ourselves and hope for the best? Or is it that we allow Nature to heal and restore- with us being an incidental bit part player? A sort of wilderness personal development tour guide.

I have no definitive answer, but I know that this would be a very different piece of work if it didn't take place in Nature and wilderness.

I would love to tell you that I KNOW this works, that I can prove it – but I can't.

All I have is anecdotal accounts of its success- it's essentially a new programme in its infant stages. Although that is of course very uplifting – it doesn't necessarily stand up to scrutiny.

Maybe in ten years time those people who have been through the programme in its present form, can provide us with a solid evidence base... but for now all I can say is that “I believe”

Conclusions

I have none.

All my experiences of using wilderness environments as a tool for personal development have taught me one thing- I don't KNOW anything!

15 or 20 years ago I was sure I had it dialled - only to find a newer truth further down the line... So 10 years ago I had a lot more experience and I really had it dialled this time. But then I found there was stuff I hadn't seen or heard of, but then 5 years ago it all finally fell into place... until just yesterday evening when some new ideas popped in and here we go again!

There are things I believe and things I feel instinctively to be right, but maybe the next big challenge is to prove it.

“The distance between cutting edge and trailing edge can be travelled just by standing still.”

After serving in the Parachute Regiment, Andy Ashworth has been involved in Outdoor Personal Development and expeditioning for over 20 years, where he has led numerous expeditions, both in the UK and overseas. In addition to his outdoor qualifications Andy has Youth Work Qualifications and also holds an Adult Education Certificate. He is the Head of Operations for the Venture Trust wilderness personal development programmes. He is a Certified Reality Therapy practitioner and a faculty member in the UK. Andy is also a member of the Institute of Outdoor Learning and was the National Coordinator for Scotland for the IOL Accredited Practitioner scheme for several years. His particular expertise is working with at-risk individuals including young offenders and long-term prisoners, and working with them to develop the skills to make effective choices in their lives.

Catch Mana – Catch Yourself

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Abstract

I would like to present you an example of good practise that we carried out, at our school in 2008.

Our students participate for many years now in festival: More knowledge for more tourism, which is organized by Tourist Association of Slovenia. The aim of the festival is to motivate young people to work in tourism and give them a chance to explore what is the most interesting and attractive in their own place and to encourage them to seek original ideas, solutions, possibilities and how to introduce and offer that to tourists.

The theme of the festival is different every year. It is necessary to write a research paper on the proposed theme in which is presented an original touristic product which is later on introduced and advertised on organized public touristic market.

With the reform of secondary vocational education we got, so called, project weeks.

In which students can be introduced with the manner of project work and have a chance to connect the knowledge from different subjects (cross-curricular links) and make a final presentation of their project.

In school year 2007/2008 (two thousand seven and two thousand eight) we connected both projects together – participation on the festival and project week - with the students of reformed program – chef. We found out that the goals of both projects are very similar or maybe even the same:

- Developing creative and critical thinking (they have to find a good idea, research possibilities for realisation and choose the best one)*
- Team work (research paper is a result of the whole class, requirement is all to participate)*
- Cross-curricular links (especially the connections of expertise theoretical and practical knowledge)*
- Public appearance (overcoming stage fright)*
- Own choice of work (everybody can choose what best suits them in what is really good at)*
- Making it possible for student to feel successful (raise of self-esteem, personal growth, self improvement)*
- Social learning (improvement of interpersonal relations between students and mentors) – Getting used to project work*
- Preparation for the final work that students have to make on the end of three year education.*

How work was done on our MANA .

Research paper FOREST MANA

The theme of the festival in 2008 was FOREST WEALTH – FROM THE LEGENDS TO NATURAL AND CULTURAL HERITAGE .

In first part of the year we formed an idea with our students by the method of brainstorming for the theme of research paper and different fields that the paper will include. Every student had to choose a research field.

In first part of the research we:

- Identify the concepts related to forest (the meaning of forest, species and forest types, protected areas, animals and forest endangerment in Slovenia and in the World)
- We researched the secret power of the trees
- In the field – in forest – we described the chosen location for our touristic product
- We researched the meaning of the word mana
- In literature we found stories, fairy-tales about the secret power of the trees

In second part we researched:

- Which occupations are the most stressful
- Who are the people who travel the most
- And on that basis we formed the target groups of tourists.

The most interest that our students showed was for the research of the word **mana**. I will present you just a few of their findings:

- Mana is not a symbol mana is symbolized by idols or objects that we have around our neck or around our belt.
- Mana is a solid connection with the light, secret power which each individual, every soul of the dead and all the spirits have.
- Objects and persons have mana, because they got it from the higher beings.
- Heavenly food – cereal from the sky and bread of angels.
- Heavenly food - the bread of life by the evangelist Ivan.
- Mana is a concept with which we interpret the function of the world. It means the foundation if the reason why some things happen. There are reasons beyond visual reasons.
- MANA = THAT SOMETHING, BEYOND!
- Its something more, something that we don't understand, something that touches us something that we are driven to.
- Mana defines our life and our status. .
- Biological definition of mana – Mana is secreting by insects, which feed on floemic tree juices. The body of these insects absorbs only a small share of the necessary materials, especially sugars (5-10%), and the rest they extrude in the back part of the bodies in the form of sweet wine. Now this is a honey dew or mana (manna), which is in the form of sticky doplets found on the leaves of various trees (fir, spruce, larch, oak, pine, chestnut, willow, beech, linden, maple, ash,...) and on the leaves of the undergrowth. This sweet dew – or mana, is food for bees, which it transforms into the final product – the Mana honey. With it can be fed various forest insects.

The results of this research students present to the class and afterwards from this various information, we prepared our touristic product called CATCH MANA – CATCH YOURSELF.

We imagined three day staying in the woods in intact nature. The program is formed with everyday routine adapted to stay in the wild and the program made of events or workshops. These workshops are called Manine delavnice or Mana workshops.

This is a set of exercises with which we learn to focus on the moment that is right now, on ourselves and on the world that surround us in that moment. We learn how to use our senses in the perception of the world or things that surround us.

Project week - Forest herbs

For the Festival it was required to make a presentation of the product that we made, on a public touristic market. We did the preparations for the presentation under the project week entitled Forest herbs which was happening in April.

We used in practise particular elements from our research paper and did every preparation for our final presentation of our touristic product.

The course of the project week

In Monday we went to the forest with our students. On the field we learned about eatable wild plant and we gathered čemaž (bear garlic or ramson) – *Allium ursinum*. After returning in the class each student had to describe three eatable wild plants and find various ways that you can use them.

In Tuesday students had their practical class of cooking at which they had to find in literature different recipes for the usage of bear garlic or ramson. Then they made the products out of bear garlic for the degustation, tasting or the advertisement on the touristic booth on the touristic market. They made herbs pate with bear garlic and olive oil with bear garlic. They put olive oil with bear garlic in decorative bottles and furnish it with the label that said what is it and the ways you can use the oil. That was also one of their suggestion for the souvenir from the experience of Catch the Mana- catch yourself.

In Wednesday students transformed in potential tourists and went to visit and learn about forest landscape in which we are installing the touristic product. We learned about the Dolenjska forest and the forest in the area of Laze above Krka (a small village), the first DULE and former homestead charcoal at Pahar (Pri Paharju) which is now use by the hunting family of Krka and where they have a hunting lodge, pasture and orchard.

We were led by an experienced hunter who, in a friendly and unobtrusive manner presented us with:

- features of the carstic landscape,
- climatic conditions of the area,
- forest stand and the tree and shrub species,
- deer and other animals in the area
- economic use and exploitation of space
- social structure of the population from the area in history and today
- today's tasks in this hunting area (coexistence of humans and wildlife in this area and protection and preservation of natural environment)

When hunting cabin fire was lit everyone could grill their own sausage which was really tasty after such hard work of learning and understanding of everything works.

We also have conducted some Mana workshops, which at first were not really accepted among students. Through the workshops students calmed down in quietness of the forest and became more susceptible for the surrounding area. Mana had a miraculous impact on them. Therefore at the end they discovered that this is something beyond in their words something normal.

In Thursday students made a advertisement material (the program of the touristic product, invitations to visit the stand, they wrote instructions for Mana workshops), they made inscription for the stand, advertisement tree, they made a contest game in the knowledge of different types of wood, they agreed and set up every props for the Mana ritual. They wrote on the wood different names of Mana workshops and they prepared other equipment for the stand and made souvenirs for the visitors (Mana key rings, dream catchers)

In Friday students presented their idea to the expert committee and to passerby on a stand in Prešernov square in Ljubljana. After the beginning stage fright they became independent touristic animators who attracted many visitors to the stand where they explained them what Mana is, how to catch that something beyond and how to on that very spot catch a bit of Mana with the help of Mana ritual.

The stand was designed and equipped so the visitor can have a chance to catch the Mana with all of his senses: mouth – the pate made of bear garlic eyes can relax on green and brown shades of the stand, the ear of the visitors can be calm down from the bird singing and the touch was eased by the tenderness and the warmth of the different wood samples.

Conclusion

I can conclude by saying that the combination of the two projects was very successful for the students as well as for the mentors. And that we in that manner caught each our own Mana. We accomplished something more, what we could not achieve with the usual teaching:

- team work with the participation of the whole class
- students were very successful at their work and they overcame stage fright
- they connected touristic competition with their field of study
- they combined theoretical and practical knowledge of their expertise
- they presented their work to their schoolmates and other students and employees of the school
- they lived another school week in a different way
- the learning was relaxed, based on experiences and in nature
- they were developing manual skills and a sense for aesthetics
- they were learning about new materials at the making of the stand and at doing souvenirs
- it was made better relationships between students and mentors
- the students were rewarded for their work (they got an award and a grade in the grade book)

It may be that the forest Mana is not a legend, but it is that something beyond, what every person wants.

In everyday tempo, a person can't realise a presence of Mana so it is the easiest way to catch it in the forest in the arms of the natural wealth.

The time that a person spends in the forest in the manner that he turns up all the senses, it makes him possible to feel the six sense- Mana.

We all students and mentors caught mana with the help of project week and with it we caught ourselves. We enriched ourselves with new knowledge and experiences which will help us in vocational and everyday life.

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The Highlanders Project – Wilderness Therapy in Iceland

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Abstract

The Highlanders Project was started in 1989 by three experienced youth workers, and the experiment was sponsored by the Youth- and Sports Council of Reykjavík Municipality and the State Home for Delinquent Youth.

The idea of the project was to provide an alternative to other provisions for youth at risk available in Iceland at the time and to test our belief that the challenge of being in the wilderness would add something authentic and valuable to the therapeutic process.

In the beginning we didn't even know the words "experiential learning", but we were sure that being in the wilderness would be physically, socially and emotionally challenging for all participating, and that the experience would provide the material we needed for the therapy work. So the journeys we made through the wilderness with several groups during the next few years, also became our personal journeys of the discovery of experiential learning. In 1995 during a training course at Outward Bound - Belgium we discovered that we belonged to a theory and methodology; we had a home.

The lecture will tell the story of one youth-group's journey through the wilderness and a little bit about the long journey of the facilitators from vague ideas to a full blown theory and practice of experiential learning.

Björn Vilhjálmsson, (male, born in 1955) is a teacher by education and is now finishing a MEd in Educational Theory and Adult Education. Björn has 10 years of teaching experience in primary and secondary schools, and 12 years experience of designing and leading social and unemployment projects for youth for the municipality of Reykjavík, Iceland.

Björn has been working as an experiential educator since 1989 and as a trainer for educators and trainers at a national and European level since 1995.

The Highlanders Project is a wilderness therapy for youth at risk that Björn, with two colleagues, started developing in 1989 based on experiential methods, and it still exists. It takes place in NW-part of Iceland, which is one of the most remote areas in the country. The experience of the participants and their understanding of the meaning of it all, was researched in 1999 and published in a book, "Ævintýri á fjöllum" (Adventure in the mountains) in 2002. A book about the intentions of the developers and on experiential learning is under preparation.

Björn is currently working in the Grundtvig Project "Via Experientia: International Academy of Experiential Education (www.viaexperientia.net)

School in Nature is Very Important for Every Child

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Carrying out school in nature has been a part of my life for more than nine years. As a teacher I've taught Science for five and a half years in Dom Vojsko (Facility of school in nature). Since February 2007 I've been a manager of Dom Vojsko.

In my personal life I have three children who also attend schools in nature and throughout their telling I learn how they feel about school in nature.

Some thoughts of pupils of 7th grade from primary school Fram who spent their time in Vojsko from 25th to 29th May 2009.

I had a great time in school in nature. We didn't have enough free time which was bad because we got along with pupils from the other school. Long walks were nice, sometimes a bit tiring. Thursday was the best because we became closer and we danced a lot. For me, the worst day was Friday because we had to say goodbye.

It was great although they were »tormenting« us a bit. I realized that my schoolmates were better there than at school. Pupils from other school were great too.

It was great. The weather was nice and we could stay out the whole day, playing different sports. I could have stayed there even a bit longer.

It was really good. Long walks were tiring. What I liked best was the orientation run. I got two diplomas. The food was tasteful and I liked teachers because they were nice.

Because I had injured arm, I couldn't go with my schoolmates. That's bad. I attended school and missed my schoolmates a lot. They wrote me a postcard. I hope to go next year with them.

School in nature achieves many aims. A child experiences connection with nature. S/he develops a positive and responsible relation for environment. S/he gets a lot of generally useful knowledge and practical skills for life. S/he is active all the time. School in nature achieves many other goals as well. In my opinion, the most important aim of school in nature is individual process of becoming socialized.

Every school in nature is a story for itself. It begins with departure. Children say goodbye to their parents and parents departure from their children for five days. It would be ideal to cut the connection between a child and his/her parents. Therefore it is highly recommendable to leave the cell phone at home. During the days of separation parents learn what a child means to them; they miss him/her; they think about what they are doing with their child right and what wrong. They also realize how the time passes when their child is absent; how to fulfill that time; how to use that time best.

During that separation a parent confronts him/herself with many different feelings and is therefore, after the return of the child, enriched with new experience.

What about a child? When packing, s/he has to think of things to take with him/her to have during his/her five-day residence somewhere else, not in his natural environment. At departure s/he experiences a separation from his/her parent, a confusion (kiss his/her parent in front of other

schoolmates or not?). S/he asks him/herself about the new residence, about the new environment, what will the teacher be like, what will s/he do, what silly thing will he make with his schoolmates....A pleasant thrill when thinking about unknown dwelling together with his/her schoolmates.

The arrival. Always, and I mean always, a warm welcome. Pupils are arranged into their rooms as previously agreed. They listen to instructions about the timing of the days. And then the school in nature begins. The programme is scheduled by the manager of the school in nature along with the teachers' companions. It is changed due to weather conditions or wishes from the teachers' companions or pupils. Pupils like the time of socializing the best. This is what they are really waiting for. All the talks in the rooms, visits of schoolmates in the rooms, finding out what kind of bedding his/her schoolmate has, what kind of pyjamas s/he has, what kind of toothbrush s/he uses.....All the negotiations for sweets because some bring more and some bring less.

Pupils also get to know their teacher in different situation, not in the classroom. They see the teacher as a person, being tired after a hard long walk, being dressed in a tracksuit and pyjamas. The teacher is no longer only a strict authority, but also a human being with human characteristics. But that does not mean that the teacher's authority is gone. The relationship between a teacher and a pupil becomes more sincere and enriched.

A story of school in nature happens, and within this story there are many individual stories. Each pupil experiences his/her own.

Employees at facility that carries out school in nature follow this story all the time, they create and form it. They are included in it as persons who give knowledge and educate a young person. They fulfill their mission which is to bring the nature closer to children and teach children that they should respect and love nature. They help them to feel that their body is tired after a long walk and needs a rest. That their body needs protection from ticks and external influences. They help them realize a lot of other things as well. For example to respect the fact that we are different and that clean rooms are responsibility of all participants.

For employees all children are equal because they don't know them. This is a great advantage. They are aware that their role, their job, is very important because children will have memories on school in nature for the rest of their lives. They try to make those memories positive.

I realize, and after 10 years' experience I claim, that it's not the same if we get to know the animals in the stream or the method of catching animals or plants in the stream in one day or during the whole week stay. Knowledge and experience are the same, but....there is no story. No group story, no individual stories. No deep affection for a fellow man.

And in the end, when a child gets home, a story is concluded. Parents have a changed child. There was a lot going on for a week. I'm not talking only about new knowledge and experience. The emphasis is on emotional field. A child has experience how to survive five days without his/her parents. S/he knows his/her feelings towards his parents. S/he carries in him/her his/her own story and feelings that mark him/her for the rest of his/her life.

It is. School in nature is very important for a child.

Simona Žibert Menart, prof. biol. in univ. dipl. biol. were a teacher in Primary school, after that a teacher in outdoor centre. She's a manager of outdoor centre for the present.

Contribution of Outdoor Education to Youth's Deciding Responsibility

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Abstract

Two years have passed since primary schools prepared and adopted common agreed rules in form of responsible behaviour plans for pupils. Although all of the participants from our school have cooperated when the document was being drawn and though we are all acquainted with it, pupils' behaviour that is not in accordance with the values listed in our educational plan has not been reduced. Why don't responsible behaviour plans provide wished results? Is it possible to contribute to youth's bigger responsibility so that we include them into outdoor education? How important is the contribution of outdoor education to the life of "right" values that the youth lives?

I, the author of this article, geography and geology teacher, worked in a Centre of School and Outdoor Activities (CSOA) for five years. Employed as a natural and human science teacher, I had the opportunity to weekly observe life of pupils of different age and a few times a year also life of secondary school students. They were provided with outdoor education for a few days and carried out special activity days or classes out of the curriculum. For more than three years, I have been the headmistress of a primary school that is under the same roof as one of Centres of School and Outdoor Activities. This is a way for me to keep in touch with outdoor education performing within the mentioned institution.

My new role enables me to present outdoor education to pupils and their parents in terms of its importance to children's development. Qualified person's point of view plays a central role when parents have to decide how much money they are willing to invest to enable their child participation in outdoor education. On the other hand, I have the possibility to observe teachers' and pupils' reactions when they return to school after spending a few days in a totally different environment.

The society of numerous possibilities

In following sequences, I will try to establish the ways to include pupils in outdoor education in order to contribute to their personal development and satisfaction. Viktor E. Frankl, the founder of Viennese psychological approach called logotherapy, says that more and more people experience an uncomfortable feeling of emptiness which he called inner emptiness. It is about the instinct that doesn't tell a human being what to do. Contrary to olden times, traditional values don't tell a human being what he should do. Often he doesn't even know what he wants to do. This is the reason for him to too often do this, what the others do, or this, what the others wish him to do (Frankl, 1994a, 77). He doesn't live his own life, but someone else's life, life of a "big brother".

Viktor Frankl is a psychologist who dared to tackle a very important taboo topic of a modern society and seek for answers, concerning problems youth deals with. Tests have namely shown that the feeling of nonsense is mostly widespread among the youth (Frankl, 2005, 7). Nowadays, due to modern offers and constant pressure, youth is concerning existential questions before they enter their own independent way of life – the same happened to our ancestors when dying or suffering immensely, or they were the exceptional chosen ones, philosophers or artists. A modern human being keeps being confronted with two alternatives: he can take in and realize the meaning of all possibilities and problems in order to achieve inner peace and live peacefully with himself or with the others; or he can

flee from himself and coexistence into one of consumer society daze (223). Not being aware of what we want in our life and the absence of values in everyday life lead to confusion and “melting” into society. By this means, we don't stimulate our own acts, but we only respond to the happening in society. Very often, neither children nor adults know what they want in a moment of life; consequently, they don't know how to take decisions. Their role to achieve an eventual faint goal is at a minimum.

Youth's values

A value is something that is worth the effort, something that can satisfy our longing. A human being can adopt a value only at a conscious or intellectual level; meanwhile, he can also adopt a value at an inner level and an inner value can become a motive for all of his decisions (Šinkovec, 1996, 96-97). A value is always something worthy, without regard to our personal belief. If we don't adopt values, that doesn't mean that the values don't exist; it means we have decided that they mean nothing to us (100). All problems of a contemporary human being are being reflected on the youth. They are the victims of modern value destruction.

When talking about education and adopting values, what really matters are good personal example and help when pupils seek for their own values. A teacher fulfils his duty by choosing such activities that make pupils aware of their own values and make them asking themselves about the values. Young people don't learn values by listening, but by observing teacher's acts (Šinkovec, 1996, 101). One cannot teach the values, one must live the values (Frankl, 1994a, 80). A good relationship between a pupil and a teacher is the basis for an education that teaches values. A relationship between pupils and teachers is more important than teaching methods by themselves (Šinkovec, 1996, 102).

Curriculum goals realization in form of outdoor education opens new possibilities to a pupil and more possibilities to a teacher to get a closer contact with a pupil. When participating in outdoor education, there are numerous different opportunities and common activities that automatically bring the participants together. Classes are not that strictly structured into a lesson and in the meantime, goal realization reaches the added value. For this reason, teachers with a feeling for young people often decide to organize outdoor education by themselves or within the framework of a school and not in organization of external organizations. Teachers say they get into pupils' good books when they get closer to them in those sensitive years when pupils perceive a teacher as an idol. Because of that, a teacher keeps his authority through all the years of schooling and besides, pupils pay regard to a teacher, like his company and feel they can trust him. A teacher described is a proof of the weight of a good relationship between a pupil and a teacher and how important it is to live the values.

When a teacher gets to know a pupil, he can help him find his strong points, recognize them and rely on them. When being in school, pupil's strong points can happen to be unseen and the surroundings treats pupil's behaviour as inappropriate. Pupils on which all the problems of a contemporary human being are reflected are usually right. But, it is wrong trying to form them into what we expect them to be (Frankl, 1994b, 33). They are a reflection of the society. They need to know that they behave inappropriate and that they will have problems in the future because of that. From this point of view, time that a teacher and a pupil spend together while participating in outdoor education is precious because a teacher has the possibility to fully get to know a pupil.

Young people try to deny the values. Values mentioned in responsible behaviour plan happen to produce the opposite effect we wanted to achieve. In effort to find the truth they dare to challenge this, what will become the essence of their life in the future. There are many different ways for them to try to put their power into force (Frankl, 1994a, 41). All the inappropriate behaviour is only a consequence of a search for their identity, for the meaning of their unique lives. Outdoor education is

more comparable to real life than lessons in a classroom. Real life requires a lot of communication, interpersonal relationships are essential in all professions; one always has to know his way around in a new situation, physical abilities are required to overcome all daily efforts and one also has to know how to relax – and this all is possible when participating in outdoor education. It is more real than lesson inside the four walls. It gives a pupil an opportunity to be physically more active. Therefore, in the evening, pupils are tired in a different way than they were if they sit in front of the television or computer. Outdoor education has a relaxing effect on children. A peaceful human being is not that rebellious; a rebellious human being acts like that only because he doesn't know what to do with himself. Children who cannot calm down when in classroom, often surprise with their knowledge and abilities when participating in outdoor education.

Nowadays, in the time of urban society, many children often don't have a possibility to have a contact with the authentic nature. As a consequence, those children are deprived of all the variegated adventures their ancestors experienced. The variety of all realized experiences contributes to value invigorations which are called experiential values (Frankl, 1994b, 72). When participating in outdoor education, a child can experience the nature with all his senses and strengthen the part of perception that might mean a lot to him in the future. With his behaviour and knowledge, a teacher can represent an idol for him.

Apathy and taking the responsibility

Inner emptiness is mostly shown as boredom and apathy. Boredom is the inability to get interested into something, and apathy is the inability to take the initiative (Frankl, 1994a, 80). Nowadays, contrary to olden times, people are spared a lot of distress and tension; therefore, they don't bear them any more. The level of deprivation they are able to bear has lowered; they don't know how to renounce something. For this reason, a human being creates an artificial tension he needs and he keeps demanding something from himself. Purposefully, he creates a situation that makes him suffer, e.g. eating disorders, intensive sport (Frankl, 1994b, 91). Those people could be helped by being directed to a goal in the future or in a part of the future (Frankl, 1983, 62).

Escape into the mass is escape from responsibility (Frankl, 1994b, 101). When raising children, they need to have many experiences so they will feel the responsibility to live their life entirely. They are needed to have the possibility to form their rules and use them. A spoiled child finds it more difficult to bear the burden and because of that, a danger to recourse to drugs gets bigger. A child perceives himself the way his parents and his surroundings does and this is how he will see himself in the future. He needs to know that, although we are not satisfied with his behaviour, we accept him the way he is. Duty of a human being is to find a way to his task and find the meaning of his life in all its uniqueness and singleness (80). He is not exchangeable, which means he is responsible to create his own destiny. No one has the same possibilities he has and he has those possibilities only once. He cannot change his uniqueness and singleness (102).

The youth seeks for excitement and tension the society spares them from, which is mainly seen as vandalism or inappropriate behaviour. Nowadays, in times of wealthy society, most people suffer from too loose, not too strict demanding (44). By this means, they don't stimulate their own acts, but they only respond to the happening in society. As a consequence, they don't know how to take decisions. And this is where I see the biggest advantage of participating in outdoor education – pupils and teachers spend together the whole few days. They are provided with new experience, they are faced with new situations, they are offered new options they have to choose between, and there is a lot of spontaneous conversation between them and teachers. What is essential about all this is that a teacher, with his good example, influences pupil's way of thinking. Finally, the emptiness the members of his

family feel when he is out of home will have to be filled up – the same as when he will leave his parents.

Conclusion

The nature by itself is surely the best teacher. But, nowadays, in times of society with a lack of authentic interpersonal relationships, it is more than just a teacher. Nature can teach us how to gain new experience, seek for important life directions and unique adventures or simply as an environment that enables the beginning of authentic interpersonal relationships. The latter can even improve due to this experience when going to school. The nature is not only an instrument to achieve curriculum goals or holistic educational goals, but holistic life goals. We can help the youth to establish them or contribute to their failure. Participating in outdoor education in our CSOA centres for a few days brings pupils all the mentioned advantages. For this reason, every year pupils of different age from our school participate in outdoor education.

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Brigita Gregorčič has a B.Sc degree in geology and geography and a M.Sc in geography. She has been an outdoor teacher for five years. Now she is a primary school headmaster.

Educational Activities in The Triglav National Park

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One of the most important tasks of a national park is to educate people on the importance of protecting natural and cultural heritage. Since its formation, the Triglav National Park (TNP) has been committed to carrying out the task to the best of its abilities.

The first, already traditional, method used to achieve this goal are lectures on the nature and cultural heritage of the protected area. This educational activity was first used many years ago by photographer Jaka Čop, who gave text and slide presentations of his outstanding photographs, most of them depicting the mountain nature of the national park, to school children and adults. Čop's work was continued, in the framework of the TNP and with much success, by Jože A. Mihelič. Mihelič, who grasped the attention of his audiences with stunning photographic images and vivid texts, also initiated an active collaboration with primary schools throughout Slovenia.

However, gradually it became evident that presentations, no matter how good, are not sufficient to meet the educational goals set for school children. In an attempt to tackle the challenge, an idea was conceived to organizing the Belar Natural Science Days in Trenta. Albin Belar was a Slovene scientist who launched the first proposal to establish a protected area in the Julian Alps, and Trenta is a valley in the TNP that is nearly inaccessible for a part of the year and is facing depopulation. To reverse the trend, the TNP built a large information centre in Trenta, which today provides jobs for several local people. A nature trail was built along the Soča River. Every year in May, Trenta welcomes fifth grade pupils from all primary schools in the surrounding areas of the TNP. Although the recent years have seen the number of pupils drop, the Belar Days are still an event of considerable magnitude. At several points along the trail, park rangers and experts explain to pupils interesting facts about the nature and life of the people in the Trenta valley in the past and today.

Guided tours of the Triglav National Park are the park's second traditional educational activity. Most guided tours are carried out by park rangers and, recently, also other park employees. Guides lead to the park area groups of interested people, or accompany mountaineers to mountain summits within the TNP. Most guided tours run along the nature trails built by the park. These are also subject of nearly all school group tours. The nature trails are equipped with information boards and visitors are provided with leaflets stating relevant facts and figures. The most popular guided tours are the Pokljuka Trail and Goreljek bog, and the Soča Trail on the Primorska side of the park.

In recent years, the TNP has taken up several other educational activities.

In 2006 a catalogue of workshops aligned with curriculum content was prepared and presented to primary schools. The TNP is a popular destination for natural science days, sports days, and social sciences days. The most popular sites and topics include the Goreljek bog and Pokljuka forests, followed by workshops on the flora and fauna in waters, mountains, relief formation, animal tracks, meadows, and forest life. Social science based activities include fascinating workshops held at Farmhouse Pocar in the Radovna valley where participants learn about the life of children in the old

days; workshops on settlement types within TNP and a workshop on light sources – what people used to light up their surroundings.

Pupils were also fascinated by the workshop on crafting wood products: spoons, stools, and rakes. The workshop led by Mr Mihelič and several park rangers was held at a number of primary schools in the framework of the school's Technics classes. Last year, a butter production workshop was also held.

Since 2002 the TNP organizes Friday Afternoons in the Park every last Friday in a month from May to September. The events are intended for families and take place at various locations within the TNP. Every year, the topics of individual events are bound into a whole. For the last few years the children and their parents are led by the Green Dwarf. This year we went to Bohinj, meeting a beekeeper at Brod, a herbalist at Senožeti, and a miller at Stara Fužina. The event includes a short walk, new knowledge on the nature and/or work of people and production of a simple souvenir to take home. Friday Afternoons in the Park attract varying numbers of visitors, attendance varying with the weather. There are, however, a growing number of regular visitors.

Every third Saturday in a month the court in front of the TNP Information Centre houses an organic produce market, the Triglav Market. The event also features a number of children's activities known in Slovene as *Brihta* (the Brainiac). Much like for all other activities held at the Triglavsko Roža Information Centre, the topics of educational activities are agreed upon for a year in advance. Currently, the Info Centre houses an exhibition on experiencing a bog with all five senses. In the scope of *Brihta* workshops, children made simple devices for listening to their own voice, and spinning discs. Mushrooms were the topic of the *Brihta* workshop in September. The workshops are mostly attended by the same children. Over the year the young participants collect stickers and their attendance is awarded at the end of the year. Exhibitions and workshops we prepare are also offered to other schools and performed on request.

This was a brief account of the TNP organized educational activities. I think that in the future a crucial task of the national park will be to spend as much time as possible in the nature. Children are undernourished in this respect even today.

Different Methods of Work in the Museum

(on case of Alpine Dairy Museum in Stara Fužina)

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Abstract

Here I would like to present some methods by which we bring children into the museum's contents. These children come to school in nature which usually lasts for five days and they live in our centre (CŠOD, Dom Bohinj). Among other activities, we take them to Alpine Dairy Museum in Stara Fužina (Dairy Museum in short). Working methods can be used in other Museums. However, substantive revisions are necessary.

1. *Classical interpretation of the museum by the teacher and selecting objects.*
2. *Work through worksheets.*
3. *Museum Tourist Guides.*
4. *Working in small groups.*

Alpine dairy in Bohinj

For centuries Bohinj has been the biggest Alpine herdsman and dairyman centre in Slovenia and it has been in this region that Alpine herdsman ship along with dairy production developed in its most intensive form. From May until the middle of June, the herdsmen took their herds of cattle from valleys, first to lower hills, and from there to higher mountains, choosing the best pastures for their cattle to graze on. Later, with the onset of autumn, they, one-by-one, returned to valleys. In 1873, an organized cheese-making union, that started producing cheese in the Swiss way, was founded. Janez Mesar, the parish priest of Bohinjska Bistrica, was responsible for this change in production. Soon the Bohinj cheese trade flourished, becoming an important income generator for the local population.²⁵

1. Classical interpretation of the museum by the teacher and selecting objects

This is more or less a classical presentation of the museum. The teacher leads pupils/students through the museum and presents it to them. When teacher finishes, each pupil/student chooses his subject in a museum. They write their observations on the subject. Finally, pupils/students present their reports to their classmates and teacher.

The method, according to experience, is especially suited for younger pupils/students. They are usually not capable of completely independent work in a museum, and a prior preparation for work or previous knowledge is required.

Interesting objects can also be pre-determined. In this way we get some time, which can be lost in the individual work of students.

2. Work through worksheets

With this method, we work through worksheets. Each student receives his worksheet, and keeps it (an example of worksheet is attached). When the work is completed, pupils/students present results to their classmates and teacher. The work is concluded with a summary prepared by the teacher.

²⁵ <http://www.gorenjski-muzej.videofon.si/index.php?mid=3&exhid=7>

Worksheet example:

**SUBJECT NUMBER 21
SHEPHERD'S BED**

Instructions:

The worksheet is prepared to work with in Dairy Museum. Carefully read the instructions and start working. Work independently. Write notes in your notebook. Do not write on the worksheet. In the museum, locate the object in the picture first. View it well and read the inscriptions on it, if they are available. Under the image read a brief description of the object. Give answer to questions and write a brief report. You will present a report to your classmates.



Brief description of the subject

Shepherd's bed was very simple. It was made of wood and covered with hay. Shepherd was asleep in its ball rolled in like a bear, so it is also known as "Medvedjek". Here try to answer the questions. From the answers write a brief report.

Questions:

1. How was the shepherd's bed made up and what was it covered with?
2. Why was the shepherd's bed also called »Medvedjek«?
3. Why is there a paper on the wall and why is it decorated?
4. How did the shepherd use space under the bed?
5. Are the beds in mountain buildings today such as those in the museum?

3. Museum Tourist Guides

The teacher distributes leaflets with the text to the students. Each pupil/student receives his own. One pupil/student gets the role of facilitator. Others get the text that presents their part of work in museum. Facilitator leads schoolmates through the museum, while others present their parts of it.

If it is necessary, extra instructions are given by the teacher.

Examples of leaflets with text (facilitator and one pupil/student):

facilitator	
introduction	text
1st room	text
2nd room	text
3th room	text
4th room	text
final thoughts	text

2nd room		3²⁶
cheese making	types of cheese	
text		

4. Working in small groups

Pupils/students are divided into four groups. Each group gets its own worksheet. Groups are divided all around the museum; each group has ten minutes to answer the questions in each room. When work in the rooms is completed, all groups meet in the first room. Teacher makes an introduction, each group presents one room. Finally, the teacher makes a conclusion.

Worksheet example:

²⁶ Third one in the row in this room of the Museum.

Group A

Instructions: text

1th room	2nd room	3th room	4th room
<ol style="list-style-type: none">1. Question number 12. Question number 23. Question number 34. Question number 45. Question number 5	<ol style="list-style-type: none">1. Question number 12. Question number 23. Question number 34. Question number 45. Question number 5	<ol style="list-style-type: none">1. Question number 12. Question number 23. Question number 34. Question number 45. Question number 5	<ol style="list-style-type: none">1. Question number 12. Question number 23. Question number 34. Question number 45. Question number 5

Zelenci – Nature Reserve

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Abstract

Taking a trip to Zelenci means visiting a Nature Reserve, an area where in principle our presence should be unnoticed. We are just guests there, so we must behave accordingly.

The source of Sava Dolinka, Zelenci and its marsh, was proclaimed a nature reserve in 1992, because of its exceptional landscape, biological, hydrological and geological importance. The marshy locality is characterized by a variety of features such as moor, swamp, trees which are dependent on the high humidity contents of the surroundings. The site is part of Natura 2000 European ecological network.

The beauty of Zelenci was acclaimed by the famous British scientist Sir Humphry Davy: »I became very fond of the valley of the river Sava with all its waterfalls and lakes. I do not know anything more beautiful in Europe.«

Water sources vary a great deal. The beautiful Sava Dolinka appears as a small lake, looks like an emerald, hidden among bushes and trees.

The Gornjesavska valley and the nearby Planica valley are of tectonic origin, with visible traces of glacial activity in the distant past. During the last ice age some 20 000 years ago, the Planica valley was covered by the Planica glacier and along its end moraine a lake was formed. The Podkoren Lake was much larger than today, this is confirmed by the lake sediments on Prodi, near Rateče, which is 8 m than present-day altitude of the site where the water leaves Zelenci. The sediments of the one-time lake consist of lacustrine limestone, known to the local people as krida- chalk. Zelenci therefore represent the remains of a once magnificent lake, to the east of which stretches the Podkoren swamp

Karavanken Mountains to the north forming a relatively uniform series of Paleozoic rocks, covered by woods and rare pastures. The Julian Alps look different. Their rocks date back to the middle and upper triads or Mesozoic. They are covered with woods only at lower levels. Solitary larches persist at greater heights, while after them there is nothing but bare rocks and mountain pastures.

The Sava first takes its source as the Nadiža Fall in Tamar valley. The waters of the Nadiža and other streams flowing down the slopes soon disappear in the alluvium. Reaching the lowest level, they strike upon the moraine and gush to the surface in a multitude of springs, filling the lake. This is known as the source of the Sava Dolinka. The water also emerges from the very bottom of Zelenci, pouring out of little volcanos. Other sources are scattered over the swamp along Zelenci, the local people refer to them as kettles.

The water from the Zelenci sources is very cold. The winter temperature is 5° C, and a fair degree higher in summer. Cold water inhibits spreading of algae in the lake. The underground water, saturated with carbonate, begins to release limestone under changed physical- chemical conditions. In the calm waters the limestone settles at the bottom of the lake as chemical sediment.

Vegetation around Zelenci

The plant life is highly diversified and species requiring high moisture are predominant. Most interesting from a botanical point of view is the eastern part of swamp with a large indentation of moor, known as Drni. Drni is a low bog covered with typical peat mosses (*Sphagnum spp*) and other plants growing in bogs and marshes.

Drni is surrounded by still- standing waters, the entire area as far as Zelenci is overgrown with *Carex rostrata*, which dominates the view of the swamp as a whole.

Growing beside them are numerous other plants, characteristic for bogs and marshes: the round-leaved and long-leaved Sundew (*Drosera rotundifolia* and *D. anglica*), both interesting insectivorous. Another insectivorous plant is Bladderwort (*Utricularia vulgaris*) with orange- yellow blossoms and special pouches into which it catches little animals such as water fleas.

The Erica family is represented by two typical bog species: marsh Andromeda (*Andromeda polifolia*) and Cranberry (*Oxycoccus palustris*). The first to blossom in spring is *Menyanthes trifoliata*, with beautiful white blossoms, densely awned on the inside. Interesting is also *Pedicularis palustris*, its name is associated with the fact that from these plants people extracted a flea repellent.

The most abundantly represented among the plants of the area are the Sedge family most of which have three- edged stalks. One of them is *Rhynchospora alba* and very rare *R. fusca*. Very interesting is also *Trichoporum alpinum* with a tuft of long white hairs.

Interesting sedge species are also *Carex lasiocarpa*- Drni is the only locality of *Carex lasiocarpa* in Slovenia and also very rare *Carex limosa*.

Interesting sedge is *Cladium mariscus*, which grows up to 2 m high. It owns its name to the edge of the leaves which is sharp, with big curved denticles.

At the margin of the swamp we can find *Phragmites australis*, which points to habitat changes.

Along Zelenci one comes across *Triglochin palustre* and Winter Horstails (*Equisetum hiemale*)

A number of highly interesting plant associations can be found in the bog area. Some of these are widespread in Central Europe, but in Slovenia can only be found at Zelenci.

The animals of Zelenci

Zelenci is home to numerous animals. Most of them have a special rhythm of life and we have to be there at the right moment while they are active. In the water habitats and its surroundings we can find several species of dragonflies, mayflies (*Ephemeroptera*), which are important link of the nutrition chain consumed by the autochtonous fish Brown Trout (*Salmo trutta fario*). Dragon-Fly larvae have a catching mask and their preys are mostly mosquito larvae. Pollution from the main road, specially engine oil can damage dragon- flies' larve. Water beetles, like *Gyrinus notatus* never stop turning around its axis. Water spider (*Argyroneta aquatica*) spins its web below the water surface.

Zelenci is highly important to certain amphibians, although their number is steadily decreasing due to human influences. Here you can find Common Frog (*Rana temporaria*), the numbers of Common frogs has decreased drastically because of traffic. Other amphibians are: Edible Frogs (*Rana esculenta*), Common Toad (*Bufo bufo*) and Common Treefrog (*Hyla arborea*). In the group of tailed batrachians we can find Alpine Newt (*Triturus alpestris*), much greater rarity is the Crested Newt (*Triturus cristatus*).

Reptiles represented in the swamp are: Grass Snake (*Natrix natrix*), Common Viper (*Vipera berus*), Viviparous Lizard (*Lacerta vivipara*) and Sand Lizard (*Lacerta agilis*).

Birds are quite abundant: here you can see Little Grebe (*Tachybaptus ruficollis*), Moorhen (*Gallinula chloropus*), Water Rail (*Rallus aquaticus*), Corncrake (*Crex crex*), Mallard (*Anas platyrhynchos*), Kingfisher (*Alcedo atthis*). Another interesting species here is Whinchat (*Saxicola rubetra*), which is very rare and endangered. Among the migration period there are also other ducks: Garganey (*Anas querquedula*), Teal (*Anas crecca*), Wigeon (*Anas penelope*). From time to time flocks of Blackheaded Gulls (*Larus ridibundus*) and Black Tern (*Chlidonias niger*) gather on the swamp. It is also visited by Heron (*Ardea cinerea*), Coot (*Fulica atra*), White Stork (*Ciconia ciconia*) and even Black Stork (*Ciconia nigra*).

Among mammals living in the Zelenci areas we can see roe deer, fox or even a stag. The swamp is a shelter to other small mammals: shrew-mice, voles, different mice, the Stoat (*Mustella erminea*), Water Shrew (*Neomys fodiens*). There are several species of bats, some of them are endangered.

Zelenci and its surrounding marshland is an exceptional aquatic habitat, most of which are highly endangered.

The aims of protecting Zelenci include:

- preservation of an exceptional water source: the lake with little volcanos, where water gushes to the surface in the bubbling springs
- preservation of a marsh whose central area transforms into a bog
- preservation of plant and animal species
- preservation of the typical landscape
- preservation of the local geological characteristics
- scientific- research and study- demonstrative work.

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Observation Skills through Nature Play

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Abstract

Many children nowadays show lack of observation skills. This is a consequence of many factors, with the fact that children spend hardly any time in nature ranking high on the list. Outdoor education is a great tool to help children improve their observation skills. Just the fact that we spend more time outdoors helps, and a lot of instructors put some emphasis on observation. These include not only visual perception but smells, sounds and touch as well. In our OEE centre we work with primary age children and do a lot of games and activities to increase children's awareness and perception. In the workshop I will demonstrate how I help children to observe small animals, pay attention to details and learn to use a simple classification key.

The author Peter M. Leschak said: "All of us are watchers - of television, of time clocks, of traffic on the freeway - but few are observers. Everyone is looking, not many are seeing" (Finest Quotes web page). We live in small flats with heating and air conditioning, travel in cars on well paved roads, work in offices, eat processed food, and surround ourselves with constant entertainment (and distraction) of radio and television. One thing that we hardly use anymore in our sheltered day-to-day routines are observation skills.

The authors of Teaching in the Outdoors, the reading material in many courses in outdoor education in the US, agree: "There is a vital need, especially among the youth of today's urban culture, to develop an awareness of the natural wonders of this amazing world" (Hammerman, 2001, p. 14).

Observation skills are not only useful when it comes to spending time in nature; being in tune with our surroundings can be beneficial in other aspects of life as well. It is apparent that by being constantly aware one can prevent pick-pocketing or similar annoyances which can occur in bigger cities. But practicing awareness also helps us to deal with other people, learn and remember things better, do our jobs more efficiently, and simply be more in touch with everything that is happening around us. Industrialist Eugene G. Grace once said: "If I were to prescribe one process in the training of men which is fundamental to success in any direction, it would be thoroughgoing training in the habit of accurate observation. It is a habit which every one of us should be seeking ever more to perfect." (World of Quotes web page)

Deep awareness of everything that is happening around us used to be common and very important in lives of our ancestors. Had they not been aware, had they not paid attention to their surroundings, they would not have been able to find or catch food. Besides, there were a number of potential dangers they had to pay attention to in order to avoid them. Being aware and noticing details was one of their primary brain patterns. "We all inherit the potential brainpower that our hunter-gatherer ancestors used with extraordinary intelligence in order to survive. Our brainpower includes a huge capacity to perceive subtle and minute details, to notice all sorts of shapes, colours smells, sounds, designs, movements, sequences, changes, patterns, and anomalies in our environment. These sensory

perceptions can be honed – with time and curiosity – into the mental habits of a well developed 'naturalist intelligence'." (Young, Haas, McGown, 2008, p.19)

Therefore we do have the capability; we simply do not use it much because it is not that vital in our modern lives. When children are very young, parents try hard to develop their sensory awareness. Children are surrounded by colourful toys of all shapes, and crib-toys hang above them, which provide not only visual stimuli but often make different noises as well and differ to the touch. Some of toddlers' first words are often hot, cold, big, and ouch. "However, by the time children reach kindergarten, deliberate education in sensory awareness fades out. They learn their ABC's and stop there. Shouldn't this foundational intelligence be honed into literacy? Shouldn't sensory imagination be 'an essential learning requirement' like reading, writing, and arithmetic?" (Young, Haas, McGown, 2008, p.19)

Most humans rely heavily on sight, but all five senses are important for the processing of information. In a natural setting it is fun to explore all five senses – if we are paying attention, all of them are heightened. Often our trampling noisily through a forest, talking loudly as we go, thinking of a hundred errands we need to do on this day, ... prevent us from sensing much. We need to slow down and, since for most of us this is not a habit, deliberately start paying attention. All of a sudden a whole world of not just visual images, but also of smells, sounds, physical touches and even tastes come alive. Who has not sometimes been amazed by the smell of rain in a forest, birds' song, the feel of warm moss on our skin, or a sweet taste of wild berries? Natural setting seems to amplify our senses, if only we pay attention. Even the sixth sense, the so-called extrasensory perception or simply intuition, is felt stronger by people who pay attention to themselves and their surroundings, and these are often the people who take time to build a closer relationship with their natural environment. Most of us can feel it if someone is staring at us, even if we cannot see them. This perception is very useful when we listen to our intuition telling us to look out for a possible danger, even though we had not known there were any hazards around. It has saved people from dangers both in natural and urban settings.

Expanding our senses is an exciting experience for many who are not aware of what their senses are capable of. Both children and adults enjoy these activities and games. A number of great activities are described by Joseph Cornell in his books, which have been used worldwide to enhance people's perceptions and to build their relationship with nature. These types of activities are among those which most often lead to people's 'wow moments', and these are a great reward for any teacher or mentor.

Let us focus on most people's dominant sense, vision. Even though we obtain a large portion of the information about our surroundings through the eyes, the information that gets to our brain is often what we expect to see, more than the physical reality we are looking at.

Children know animals and plants from colouring books, commercials, cartoons, toys and other simplified and artistically reshaped designs, rather than from observing their living counterparts. Consequently when they are then looking at a real animal, they 'see' (or notice) what they expect to see. When we are in a forest with a group of school children, drawing small critters they have found, I try to direct their observations to look for certain features, like the shape of the body, the number of legs and which part of the body legs grow out of. Eight out of ten children still draw an ant (while at looking at one closely) with three similarly big and shaped body parts and with legs either growing one pair out of each body part or one pair out of the thorax and the rest out of the abdomen. Bees' legs, however, always seem to be growing out of the abdomen, which is, of course, black and bright yellow.

Despite the instruction to carefully count how many pairs of wings bees have, eighty percent of bees on the drawings end up with one pair. All insects and other small critters of course have visible eyes in the middle of the head, no matter from which angle the child is drawing the animal. Often the animals are smiling charmingly at us.

Only specific questions which truly focus children's attention, after they have already drawn the animal, help them to notice particulars. Often there is a "wow, look at that!" expression on their face when, for the fourth time, they are instructed to look again at the shape of their ant's thorax. They finally see it. "Hmm, I guess not all ants look like the guy from Antz!"

Guided observations in activities which are fun and appropriate for children can help a lot with how children manage to focus their attention to detail. They just never needed to do it before. Authors of Coyote Guide's to Connecting with Nature believe that: "All of us are born with this latent potential; it is simply an under-worked muscle in some of us" (Young, Haas, McGown, 2008, p. 200). But if we want to have observant scientists, artists, innovators, caregivers and human resource management in the future, then youth need to learn these skills somewhere and what better setting for that than nature.

Joseph Cornell, the author of *Sharing Nature with Children* (1998), agrees with the importance which observation has in working with children out-of-doors: "Involve everyone as much as you can, by asking questions and pointing out interesting sights and sounds. Some children are not used to watching nature closely, so find things that interest them, and lead them bit by bit into the spirit of keen observation" (p. 14).

One fun activity to do with children to promote precise observation of animals is to catch small animals and then create a forest museum with bigger models of these animals. Before they start working, children are told that others will try to guess what their animal is from observing the model, without seeing the actual animal, so they have to pay attention to detail. Making the model, asking questions to other groups about their animal and guessing, all help with children's ability to observe carefully, ask good questions, and notice details about animal anatomy. Naturally, showing the real animal at the end is just as important and very exciting. Telling which animal is which is usually not needed, children's attention to these animals during guided questioning and guessing was such that they recognize the animals without problems.

Focused and successful observation cannot happen if we do not slow down a little. This is helpful not just for developing nature awareness, but for other aspects of our overly structured and fast-paced lives as well. Children have grown up in this pace and usually try to finish all the tasks as quickly as possible while still achieving acceptable results. We need to show them that some things should not (and need not) be rushed and that taking time is often vital, let alone more fun. Get down on all fours and *really* look at how that earthworm is moving. "Wow, how does it do *that*?"

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Živa Pečavar started working with children in a local ski club when she was in secondary school. She studied Primary Education at University of Ljubljana and she soon realised that her interests do lay in working with children, but outside of a classroom. Besides teaching she worked at a summer camp in the US, helped with local scouts and taught skiing. She got a masters degree in Outdoor Recreation at Aurora University in the USA. During the year in the US she worked in an outdoor environmental education centre on campus. After coming back to Slovenia she started working at one of the CŠOD centres that focus on younger students.

Outdoor Educational Practices in School

Outdoor Education in The Ashley School – UK

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Abstract

The Ashley School is a school for pupils with “learning difficulties. It was graded by OFSTED in 2009 as being outstanding, the highest grade possible. The school runs several outdoor programmes that are embedded through the school. Lawrence will give an overview of the school and its catchment area before focusing on the outdoor education programme within school, how this adds value to the school and its learners and what Lawrence and the school are doing to promote outdoor education across the town and the county. Specific reference will be made to the Duke of Edinburgh’s Award Scheme, canoeing and kayaking, orienteering, journeying and problem solving. He will further explain how curriculum time issued to deliver some elements of the programme and how the programme is funded. Areas of national programmes like the “outdoor learning cards” and the IOL professional development programmes will also be discussed from a practitioners point of view.

Hear what a senior school leader from the uk has to say about outdoor education in schools.

Introduction

Outdoor education as a vehicle for learning. This paper looks at The Ashley school and the work they are doing with Outdoor Education as part of the curriculum as after school activities and to support other schools and the wider community.

Overview of the school

The Ashley School is a school for learners with Moderate Learning Difficulties (MLD) in Suffolk UK. The school has had 3 consecutive Outstanding gradings from OFSTED and has just been re-designated as a specialist college for “Cognition and Learning”. There are many situations that can lead to a learner being educated at The Ashley School, they may have some or a combination of the following or something else:

- General learning delay

- Learning 2-5 years behind the “normal”
- Reading age several years behind chronological age
- Have not been attending school for a number of years
- Have a medical condition that has delayed learning
- Has a condition such as autistic spectrum disorder, Downs Syndrome
- May also display disruptive behaviour.

There are 130 learners on roll aged 8-16 years, this is through Keystages two, three and four. In addition the school also works with over 100 mainstream learners every week.



The Ashley school is one of just two schools in the county with residential provision where learners can stay one or more nights per week.

Classes generally consist of 12-14 learners with a teacher and a support assistant.

Lowestoft is the most easterly town in the UK. It now has very little business with the fishing industry and ship building mostly gone. It is an area of multiple deprivation with some of the most deprived wards in the UK.

Curriculum time

For over 13 years Outdoor education has been on the school timetable. The exact nature of this time has varied over these years. Currently each keystone three class (aged 11-14) have an afternoon (2 ½ hours) a week for 8 weeks. Each class has a different themed activity involving either orienteering, off road cycling, climbing, canoeing, or expedition skills.

Keystone four learners (aged 14-16) receive ½ a day for a term of each of the two years. This takes them on further from what they learnt during Key Stage three and can also include kayaking, archery and problem solving.

Accreditation

The key stage three learners use British Canoe Union paddle power awards and for the orienteering we are working to deliver the NNAS young navigator awards.

New for September 2010 we are delivering new accreditation from City and Guilds as part of the Foundation Learning programme. The Awards and Certificates in Employability and Personal Development (7546) from City and Guilds offers a modular approach covering a wide range of areas of independent and vocational work. The units are not specifically about Outdoor Education but we use this to deliver this work. The titles of some of these units are, Making the most of leisure time, Working as part of a group, developing skills etc. For example:

Unit 7546-332 Making the most of leisure time

Level: Entry 3, Credit value: 2, UAN: H/502/0650

Unit aim The aim of this unit is to introduce learners to a range of leisure activities and encourage them to express their preferences for what they do in their leisure time.

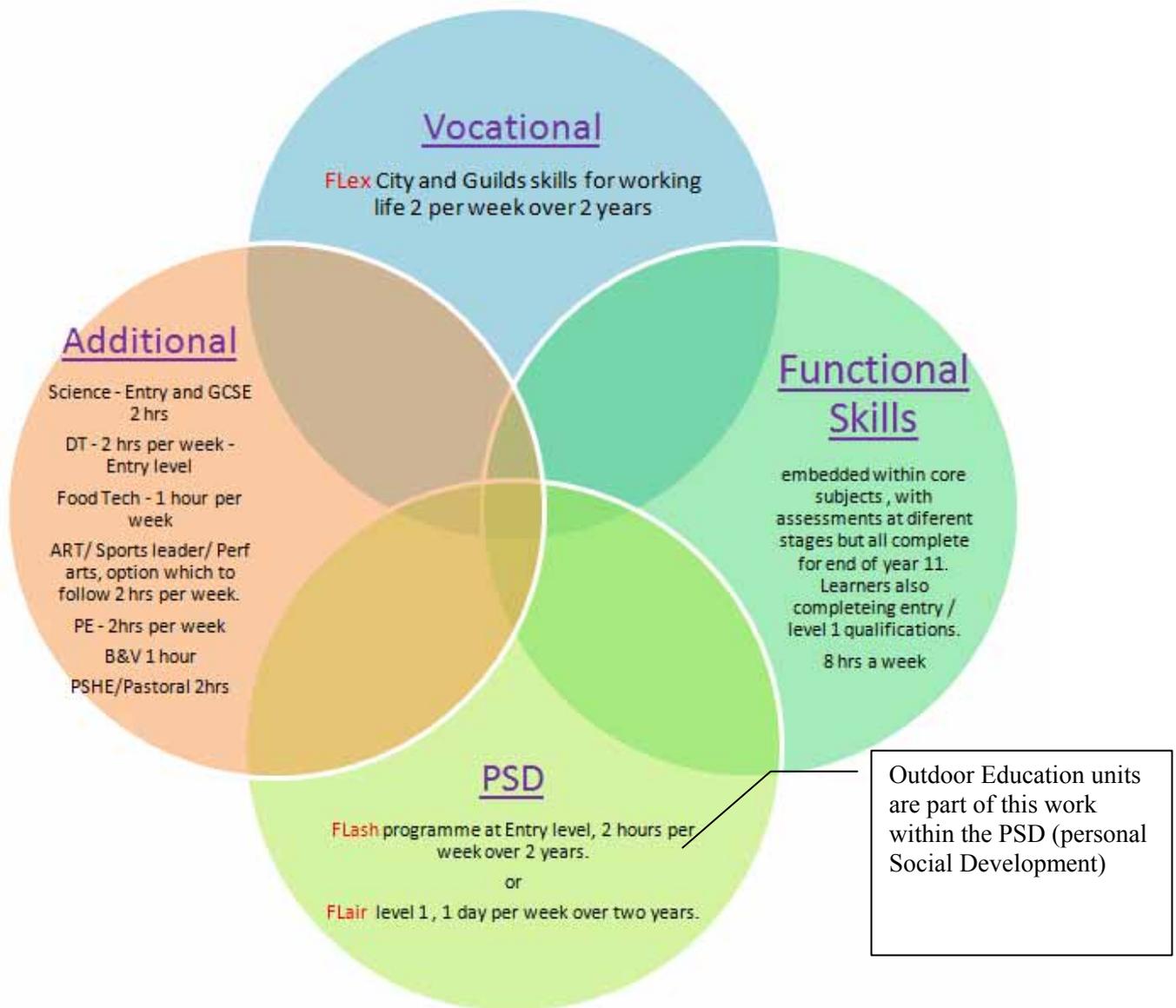
Unit 7546-337 Working as part of a group

Level: Entry 3, Credit value: 2, UAN: K/502/0455

Unit aim The aim of this unit is to help the learner develop skills to become an active contributor when working with others on group activities and to be able to review their own progress and skills development.

Using these qualifications the Outdoor Education will be a vehicle for wider learning about themselves and other and at the same time the work is contributing to their overall achievement. This makes the Outdoor Education embedded into the school curriculum.

The diagram below shows how the curriculum in keystone four is constructed.



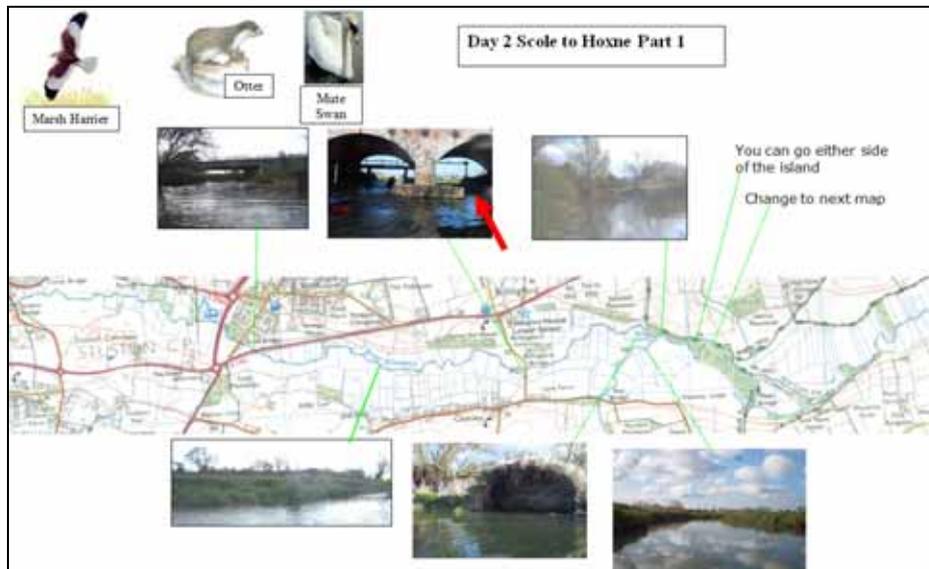
Duke of Edinburgh's Award

The work during the main school day is further supported by after school work towards the Duke of Edinburgh's Award. Pupils in year nine from 14 years of age can participate. The four sections that they have to complete are: learning a new skill, taking part in a physical pastime or sport, volunteering in the community and an expedition. Participants learn how to canoe for their physical recreation and all the expeditions take place on the Norfolk Broads and Rivers of Suffolk.



Some of the sites that we use are just field along the river that farmers allow us to use allowing Wild Camping. Using canoes

does mean that the participants are forced to work together much more than if they were walking. Reading a conventional map is quite difficult for most of the participants so we use a modified map with photos, an example is shown below.



The Duke of Edinburgh's Award scheme is nationally run and does not label the awards in any way to mark where they have come from.

Residential experiences

Since 1988 we have taken a yearly group to an activity Centre in North Wales. We now take about 40 learners from across Keystages 3-4 (11-16) with about 10 staff every May. There is the chance to take part in different outdoor experiences and importantly learners have the chance to spend sometime in the mountains. As East Anglia is very flat spending time in the mountains is a key experience. We spend a full 6 days doing activities and for many this is their first time away from home and the living and eating with a group of people, trying new foods etc is as important. Many parents have commented how they notice a big difference in their child on returning from a Wales trip.

In the last few years, following a suggestions from a parent we also offer an "educational holiday". These learners still stay at the centre but go out on days out to the castles, take one of the many steam trains, and go to other attractions. In this way they get used to being away from home and the living together without having to take on adventurous activities.

The centre staffs is excellent and as we group the learners broadly by ability into groups of 6-8 learners they are able to differentiate the programme so that all learners feel they are able to achieve and yet have been stretched as well.

Our Local Authority centre is Thorpe Woodlands in Thetford. This centre is about one hours drive from the school in Lowestoft. A new 40 bed centre was built in a new location and opened in 2009. We have been using Thrope Woodlands for the last ten years. Usually for a week long camp that we call "Forest Challenge". We usually try to partner up with another school either a special school or a

mainstream school. All the youngsters trying to get along together and making new friends adds an extra element to all the other activities.

Most recently we have been using the centre for groups of learners from across Lowestoft who are in their final year of school and are at the risk on Not being in Education, Employment or Training (NEET). A 3 day two night residential programme with at least 2 sessions of one to one mentoring during the stay and sessions on interview skills as well as plenty of the outdoor sessions. In this way we are using the outdoors as a vehicle for learning about their options after they have left school. We have had excellent feedback from the Connexions service (careers support) and the staff from the schools who attended.

Community links

Working with partners in the community we have commissioned the mapping of parks in the town of Lowestoft and with the permission of the District Council we have erected 4 permanent



orienteeing course that are available for schools, youth groups and the general public to use. All the maps and information are available to download from our school website for free. We have been offering free induction sessions and we are also using these resources as part of the Outdoor Learning Cards courses which we are able to offer at the school. These resources encourage the use of orienteeing and other outdoor activities as a vehicle for learning maths, English, other languages etc.



Initiatives

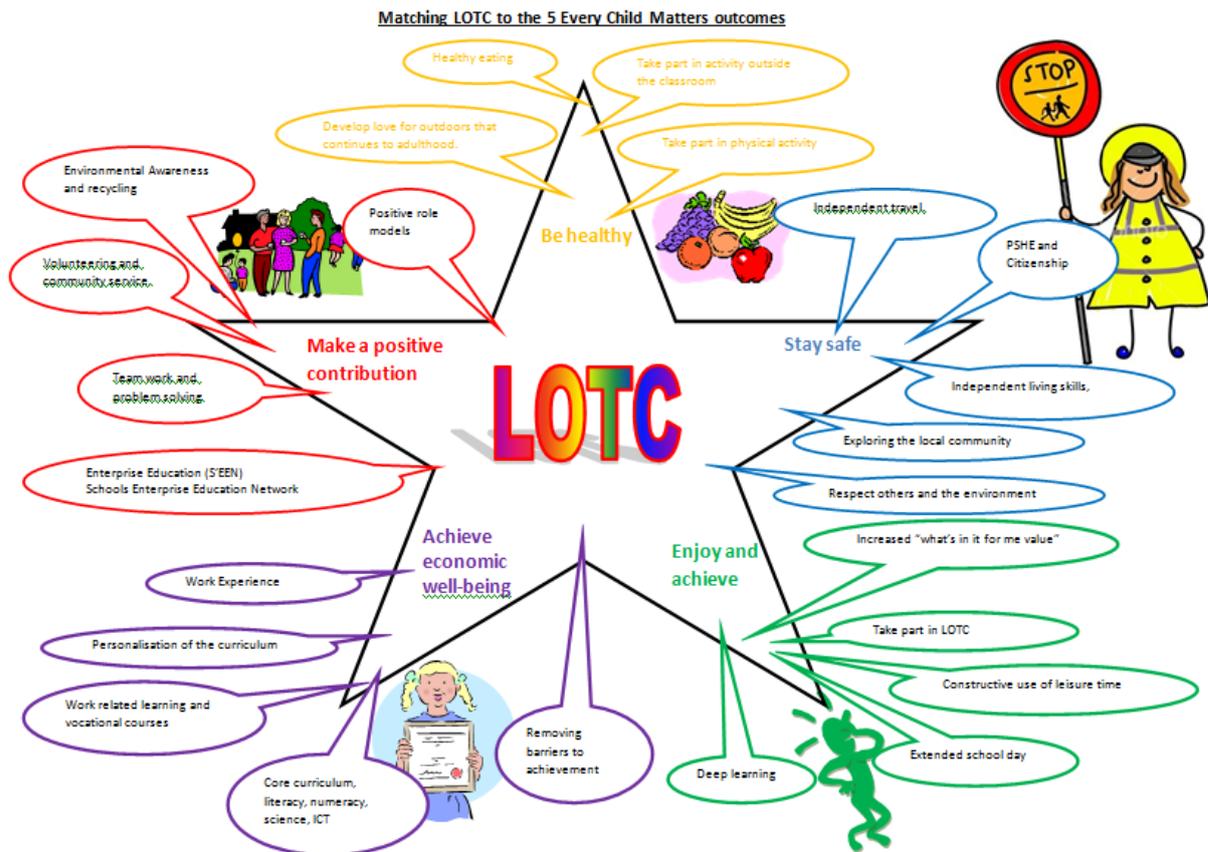
Within the UK we have had some initiatives that have been running for a while. The Every Child Matters (ECM) agenda has been the focus of much educational work over the last few years. At the time of writing

this it is not clear whether the new UK government will continue with the ECM work but it has covered much ground in this time. The ECM agenda covers 5 areas:

1. Being Healthy
2. Staying Safe
3. Achieve and Enjoy
4. Make a positive contribution
5. Achieve economic well being

Using the Outdoors as a vehicle for learning it is possible to see how the ECM outcomes can be met.

The Learning outside the classroom Manifesto (2006) set out an aspiration for learning outside the classroom. From this the Council for Learning outside the Classroom was set up nationally and has started various programmes. We have been matching LOTC with ECM. The diagram below demonstrates some of this mapping. Whilst this covers all of the LOTC area not just Outdoor Education it is useful to develop other teachers and school leaders to extend their thinking of the benefits of Outdoor Education as a vehicle for learning.



Development plans

The School is an organisational member of the Institute of Outdoor Learning (IOL). Lawrence Chapman is a Lead Practitioner of the Institute of Outdoor Learning (LPIOL). We are starting to use some of IOL other professional development programmes, with two staff starting the Registered Practitioner of the Institute of outdoor Learning (RPIOL). This is useful as it supports reflective practice and encourages staff to look at the way Outdoor Education is used.

The school is well resourced with canoes, bikes, problem solving equipment, orienteering courses, camping equipment and a bouldering wall. We need to sustain these resources and develop them further. We would like to purchase a mobile climbing wall that we can use on our site. We hope to do this in partnership with voluntary groups like the Scouts who would then be able to use the Wall during evenings and weekends.

We need to evaluate the new accreditation in use and see if it is effectively meeting the needs of our learners and giving them opportunities to progress in life.

Conclusions

In summary we hope that you can see that Outdoor Education is embedded into the work of the school. That we see it as part of the work of the school to celebrate this learning and encourage others to use it as we believe it the ability to develop young people into more employable adults.

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Links

Ashley School www.ashley.suffolk.sch.uk

British Canoe Union www.bcu.org

Christian Mountain Centre, North Wales <http://www.cmcpensarn.org.uk/>

City and Guilds, Qualifications <http://www.cityandguilds.com>

Duke of Edinburgh's Award scheme www.dofe.org

Every Child Matters <http://www.everychildmatters.gov.uk/>

Foundation Learning <http://www.dcsf.gov.uk/14-19/index.cfm?sid=3&pid=227&ctype=TEXT&ptype=Single>

Institute of Outdoor Learning <http://www.outdoor-learning.org/>

John Muir Award <http://www.jmt.org/jmaward-home.asp>

Learning Outside The Classroom <http://www.lotc.org.uk/>

National Navigation Awards Scheme <http://www.nnas.org.uk/>

Outdoor Learning Cards <http://www.oeaptraining.info/courses/oeap/olc>

Suffolk Local Authority Outdoor centre near Thetford <http://www.thorpewoodlands.org.uk/>

Lawrence Chapman is a “leading Professional of the Institute of Outdoor Learning LPIOL”. He is also Deputy Head Teacher at The Ashley school, a special school in the east of England, UK. He is a canoe and kayak coach, climber, mountaineer, orienteer and off road bike leader and in his spare time he runs scouting for 14-18 year olds in Lowestoft and is one of 3 organisers of the Lowestoft Christmas Day Charity swim raising £13,000 a year for local charity by taking a dip in the North Sea on Christmas Day.

Outdoor Experiences as a Support to Indoor Teaching and Learning

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Abstract

Three examples of the observations of shadows in nature: umbrae and penumbras, shadows of leafless branches and images of the Sun bellow the trees are considered and their modelling in a classroom is discussed.

Introduction

Teaching and learning in school often starts from artificial and idealized problems, followed by discussion of the phenomena associated with such artificial problems and even in conclusions the problems are not related to everyday phenomena and students' experiences. Well known examples in physics are studies of motion with negligible friction and air or water resistance, heat transfer without heat losses, electric currents without resistance in wires, mirrors and lenses with well defined focal points and more. It is well known that such way of teaching inactivate students because they do not accept the new knowledge as something relevant for their everyday life.

In this contribution we present the approach where as initial motivation a student's experience from nature is used. For the usually complex phenomenon observed in nature the model is built in the classroom which emphasizes most relevant phenomena taking part in the observation in the nature. The model is discussed, studied and with its help new knowledge is introduced to students. By this approach the studied concept are thoroughly connected to the experiences. Using this approach with interesting natural phenomena as motivation, students become interested in observing interesting things when being in nature and trying to understand them or to ask the teacher for explanation.

Practical examples

As practical examples are always the best illustration of the general description of approaches, we present three interesting examples from the same area of physics – from optics. Shadows are one of everyday phenomena which are relatively easy to explain to students and to study experimentally in a classroom. Surprisingly, even some evident phenomena still present problems for understanding to younger and older students. In addition, an eye of a physicist still observes a number of curiosities.

Example 1: Umbra and penumbra

One of the examples that are seen every day are umbras of distant objects like buildings or other high objects where also penumbra is seen. Although both are seen every day, the understanding of the (pen)umbra formed by the extended light source is not easy for pupils. Penumbra in a textbook is often shown as a region that is brighter than the area of the shadow and dimmer as the rest of the screen or sometimes space. Even the umbra by itself is often strictly limited to the dark shape seen on the wall or on the screen but it is not considered as a part of the space that is less illuminated. Definitions often claim that umbra is the region in space without a light. This definition is hardly met even in Space; due to the reflections all around us it is never the case in everyday life.

Penumbrae are always formed when the light source is extended as is our Sun. They can be observed in regions where the object that casts the shadow is distant with respect to the screen, on which the shadow is observed. For the beginning of the lecture the students are made aware of the presence of the penumbrae outside in nature. The teacher takes the photos or he/she can prepare them in advance. The pictures are later used to enliven the memory of details. Here we consider two examples of penumbra observed in the nature in the sunlight. In Fig. 1-left the author takes a picture of her own shadow. The shadow of the author is sharp, as her distance from the screen (ground) is approximately one meter. On the other hand, wall shadow has diffuse edges, as the wall is more distant (approximately a few meters away). Fig. 1-right shows the same phenomenon, only the effect is even more pronounced due to the two reasons. The wall (the mountain chain in this case) is a few kilometres away and the screen (the snowy slope) is tilted away from the sunlight. Therefore the author's shadow is very elongated, in addition, the penumbra region caused by the distant mountain is more than 100 m wide and the continuous change of brightness within the penumbra is clearly seen.



Figure 1 The umbra and the penumbra of the near (the author) and the far (the wall) object (left). The umbra and the penumbra of the near (the author) and the far (distant mountain) object seen on the tilted snow-screen (right).

To make students aware that within the penumbra region the continuous change of the brightness is found and why it is so, the classroom model is helpful. The set of overhead projectors presents the extended light source. For the object that casts the shadow, anything can be used. We have used the circular piece of cardboard. For the screen any spacious bright and even area is appropriate, the best is the white board as it allows for sketches of shadows.

The set of overhead projectors is put in the line in a distance of 2-3 meters in such a way that all of them cast the light to the same frame. The object is placed in front of the screen about 20 - 30 cm away of it. The overhead projectors are turned on one after another and the shadow is observed. The object illuminated by one light source only casts a sharp shadow. Two overhead projectors cast two overlapping shadows. The region where shadows do not overlap is brighter than the overlapping shadow region and darker as the region without a shadow. It is worth to connect shadows and light sources by switching overhead projectors off and on and marking shadows on the board. The brightness gradient increases when more and more overhead projectors are turned on. Finally, the teacher can show the penumbra formed by the extended light source (Fig.2 – upper left). The regions of the continuous and stepwise brightness regions (Fig.2 – below) are discussed and related.

Example 2: Shadows of leafless branches

The motivation for the next example is hidden already in Fig.1-left. The vertical shadow line of a distant wall is much sharper than a horizontal one. The observation has the same reasons as the observation reported by Minaert¹. He pointed out that shadows of vertical branches of leafless trees are sharp while shadows of horizontal branches are diffuse or even non-existent. This is true if the ground is horizontal and the observation is not made in an equatorial region at noon. The example of such an observation can be seen in Fig. 3. The “source” of the shadow is seen on the left side of Fig. 3. The tree or a bush on the left was chosen purposely as the branches were almost exclusively horizontal and vertical. The shadow of the same tree shows very diffuse and almost nonexistent horizontal branches and nice sharp vertical branches.

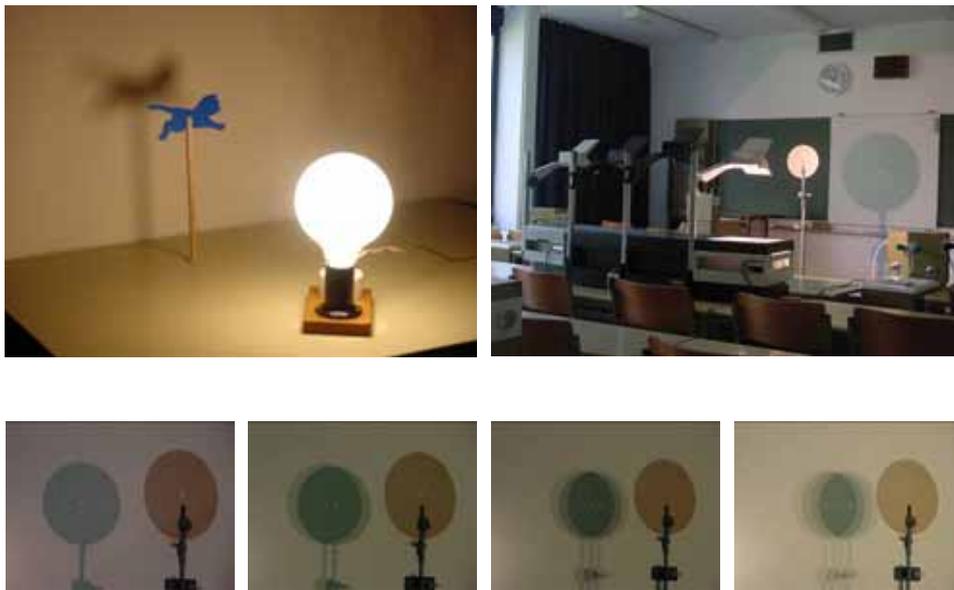


Figure 2 Umbra and penumbra of the extended light source (upper left). Four overhead projectors, the object and the screen as the model of the extended light source (upper right). The object and its shadow illuminated by one, two, three and four overhead projectors (below). Photo G. Iskrić.



Figure 3 The source of the shadow (left) and its shadow (right).

The explanation considers the shape of the shadows of small objects illuminated by sunlight. They have the circular shape of the Sun with diffuse edges, Fig. 4. Unfortunately, this fact is seldom observed if ones attention is not drawn to this. This observation was nicely explained by Minaert¹, but

for the students the explanation is probably not completely clear due to the lack of experiences with shadows of small objects.



Figure 4: Snowflakes on the window as a source of shadows (left). The shadows of snowflakes at the screen close to the window are sharp (middle) and diffuse circular or elliptic (on the table below) if the screen is more distant (right).

Let us first consider the shape of the shadow of a small object. For this observation the window with small snowflakes ornament was used. Snowflakes were actually the Christmas decoration, but the sunny day offered also experimental considerations of their shadows. The shadows of the snowflakes are sharp as long as the screen is rather close to them (Fig. 4 – middle). However, as the distance of the screen increases, the penumbra effect washes out details and the shadow becomes more and more circular with smooth edges. Additional information can be seen on the horizontal table below the screen, where shadows become elliptical. This observation is seldom a part of everyday experience.

Intersections of penumbras result in regions of more dense shadows than regions of a simple penumbra of a single object. More complex objects can always be constructed by small objects (small cubes, spheres etc.), which shadows become circular or elliptic if the screen is not perpendicular to the sunlight rays. The branch can be considered as a set of small (cylindrical) pieces, where on a distant horizontal screen (ground) each cast an elliptical shadow. Regions of penumbras shadows intersect and the areas of intersections in the direction along the long elliptical shadow axes is larger than intersections along the short elliptical axes. In a normal situation where branches are vertical, the ground is horizontal and the sunlight is not perpendicular, this results in very diffuse shadows of horizontal branches and sharp shadows of vertical branches. To show that the orientation of the screen is the reason for the observation, the tree is modelled as a cross on the window, Fig. 5 - left. The proper orientation of the screen allows for the opposite situation where horizontal “branches” are sharp and vertical diffuse, Fig. 5 - right.

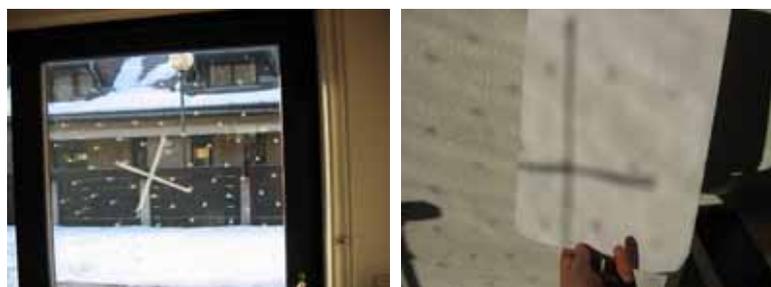


Figure 5: The model of the branches (left) and the screen position and orientation, which enables sharp vertical branch shadow.

Example 3: The Sun, small apertures and shadows

Again, the shape of the shadow of a small but complexly shaped object can be used as the starting point for another observation. Light spots below the trees, which have elliptical shapes, do not reflect the shape of the aperture between tree leaves. They are frequently reported in school text; however the study of a model of the apertures between leaves can reveal additional curiosities.

One can find two types of shadows within a circular light spot: the shadows that appear due to the object blocking light *after* the sunlight passes the leave aperture and the shadows that appear due to the object blocking the light *before* the sunlight falls to the aperture. The later is commonly observed during the solar eclipse. However, the solar eclipse one cannot observe everyday, but it is possible to replace the Moon by a building or a tree. The shadow is inverted which is a surprise for students.

Let us first start with the images of the Sun below the trees, Fig. 6. Each aperture between leaves acts like a small camera obscura aperture and thus the image of the bright enough object (the Sun) is formed on the ground. Therefore the aperture shape is lost and the shape of the light source is retained. This is easily shown by a simple experiment that is very surprising for students. The experiment is performed on a sunny day in the classroom if a direct sunlight is available or outside. A small aperture of a deliberate non-circular shape is cut in the piece of paper. The paper is oriented in such a way that the sunlight is perpendicular to the paper. Another paper or a cardboard in the function of the screen is hold behind the paper parallel to it and the bright spot on the cardboard is observed. The screen is first positioned very close to the paper with aperture and its distance is gradually increased. Initially sharp bright motive with the shape of the aperture gradually transforms to the circular image of the Sun. Students can compare the size, the shape, the brightness and the sharpness of images for equal distances between apertures and cardboard screens.



Figure 6 The “source” of the light spots (left) and the elliptical shadows of generally shaped apertures (right).

Irrespective of the aperture shape, all images are circular, of the same size, but brighter images are less sharp. The following relation can also be established: the larger the distance, the larger the image. This last relation can be analyzed quantitatively and can also be used for the estimation of the distance of the aperture. The relation to sun images below the trees is straightforward.



Figure 7 The light can be blocked with the objects that are found between the aperture and the screen. The shadow appears within the camera obscura image of the aperture in the window shade (left) or it can be observed behind trees of different distances from the ground (the shadow- middle and the source-right).

However, this is not the end of the surprising exercise. The light beam that actually forms the image of the sun can be blocked and the shadow appears within the circular light spot, Fig. 7. The shadow is sharp and has the same shape as the object if it is placed between the aperture and the screen close to the screen. But nature offers also a different way of blocking the light. During the solar eclipse the Moon blocks the light from the Sun and if one is lucky with the geographic latitude, altitude and the weather (or one has the money to travel to the correct place at the correct time, the weather is a very different question), the solar eclipse can be observed. Even if the total solar eclipse cannot be observed, partial solar eclipses can be observed at least once every few years. If the opportunity occurs, teacher should show (besides the ordinary security measures) the camera obscura pictures behind the window shades, the paper aperture - screen activity and obviously the shapes of the shadows below the trees. The students compare the shape of the partially covered Sun seen by direct observation (do not forget protecting glasses) and the shape of the light spot behind the paper-hole or window shades apertures. The shape is inverted (as every camera obscura image).

As partial solar eclipse is not available every year, it can be modelled by blocking of the sunlight by a distant object. Any distant buildings would do the job and should be observed during the sunrise or sunset or simple when walking into the shadow of a skyscraper or out of it. Horizontal walls will offer the observation of the up-down inversion of the image of the Sun and vertical walls will result in left-right inversion of the image. Nice and surprising motives can be obtained during the winter when trees are leafless. If the paper-aperture-screen activity is performed in such a way that sunlight passes the leafless tree, the inverted shadows of branches could be observed². The activity needs a little of practice, as the images of the Sun are due to the relatively short distance between the aperture and the screen, small. Window shades enable larger images but unfortunately the relative position of the aperture with respect to the blocking tree branches cannot be controlled (Fig.8).



Figure 8 The images of the Sun behind the window shades. Branches and remaining winter leaves cast an inverted shadow (left). The Sun shone through the trees (right), when the picture on the left was taken.

Photo G. Iskrić.

Conclusions

Examples shown can be used for stimulation of student's motivation for natural sciences. The studies that originate in everyday phenomena provide a welcome link between the "school" science and its "everyday" significance.

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Open air laboratory FLEX – an authentic learning environment that gives teacher trainees, enrolled for general studies²⁷, fundamental access to chemical conversion phenomena

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Abstract

The working group didactics of chemistry at the University of Siegen set up an “open air laboratory with experimental field “ (FLEX) a place to learn close to Nature. Events are offered to teacher trainees (students who are studying at university) of every school type. The immediate closeness to the environment and nature provides an extra advantage, e.g. with everyday life and nature based topics (such as getting natural colors and dyeing fabrics) as well as with the environmental analysis for secondary schools.

This article is supposed to highlight the advantages for the training of teacher trainees for general studies provided by a near-natural learning environment like FLEX. It shall show how chemical aspects such as the observation of substances and substance transformation can be an initial point for phenomenon oriented matters of nature related topics. Do-it-yourself experiences of nature-oriented chemical conversion phenomena for students are thereby an essential background of great importance for a future realization of own lessons.

Introduction

Students with the emphasis on natural sciences in general studies are studying the single disciplines biology, chemistry and physics at the University of Siegen, each with at least one introductory professional lecture associated with practical training. Selected child appropriate experiments for chemical conversion phenomena of everyday life and nature, which can be performed by student with children in future lessons (e.g. lighting and looking at a candle or fire, dissolving and regaining lime with carbonated water), are in the foreground of the practical training in chemistry. But experimenting in the very artificial surrounding of a chemistry lab is experienced rather unrelated and factual. (Spatial) Framework conditions that go together with the university education cause a distance between the teaching subject of *natural* sciences (esp. chemistry) and the actual object “nature”. Martin Wagenschein, a famous German didact, characterized this distance in an interview concerning his lifework (1981) very nicely, especially when it comes to the natural scientific part of general studies:

“Of course, our natural science that occurs and is shown in schools hasn't got any home in those schools as it hasn't got any nature. It cannot become a natural science because it takes place in concrete blocks, in laboratories with instruction devices and books with bold sentences. Thus it is a science in which nature is not noticeable. I mean “nature” in the sense of how kids or “simple“ people understand the word.

Isn't there supposed to be an initiating consideration of nature, if not in nature, so on its edges? Only as much as that: glades with trees, rocks, hills, water (standing or flowing), a shed with all kinds of

²⁷ Science and social studies at primary school level

“stuff“ (material) also tools in it, finally a room in which that what is performed and tried outside, is previously planned, discussed afterwards, written down and learned.- A vision, I know“
(Wagenschein 1981, p. 169-170).

Wagenschein's vision becomes tangible

FLEX complies with those quoted guidelines in many parts so that Wagenschein's vision in the education of teacher trainees for general studies could become reality. Thereby we focus on chemistry as a so far neglected science, concerning general studies, with a special view on substances and substance transformation as a starting point. Students should experience processes of chemical change more appropriate, closer to the environment and nature as well as connected with other natural sciences. In addition these processes are combined with other areas of general studies beyond the nature related perspective.

FLEX (figure 1) is located outside a small village close to a forest. A shed is built on an approximately 6700 m² large meadow with two springs, a small stream and a pond. The shed was remodeled into a small room for experiments (“laboratory”) and equipped with extensive experimental material from simplest excavators for the exploration of the ground in the elementary sector up to a mobile photometer for chemical analysis of the environment for the sixth form. By and by wicker tepees, Benje hedges, a phenological hedge, a bed of herbs, a small acre and a “green seminar room“ were added among other things. Energy supply takes place self-sufficiently trough solar modules, fuel cells and a wind wheel.



Figure 1: Open air laboratory with experimental field

From the phenomenon to the “touchable context“

In Wagenschein's opinion, natural history and science lessons have to start with immediate and tangible phenomena of nature of the children's everyday life. He talks about “natural monuments that immediately appear sensuous; in ways that we sense them as a counterpart and in ways that they affect us without prejudice and intervention thereby also being unbiased by us and not yet settled on a certain aspect” (Wagenschein 1977, 129).

This approach was recently highlighted once more. In his article “The discovery of the phenomenal” Klinger emphasized which role phenomena in general studies could play for the initiation of scientific thinking. He concludes: “If things should be clarified and understood, school has to allow the experiencing of phenomena and based on this, has to devise a thinking of science.” (Klinger 2008, p. 8) Furthermore, Klinger underlines that phenomena which are noticed consciously by children, e.g. rusting of iron, originate in their everyday life but also affect sciences in their entire breadth. Against this background he concludes: “Phenomena don't look after subjects and disciplines. That makes up a part of their fascination and on the other side shows the necessity of an interdisciplinary approach.” (Klinger 2008, p. 8)

This is also valid for the handling with phenomena in FLEX: Phenomena that are easily understandable for kids become starting point and focus of attention. Based on them, explanations that are both appropriate to the children's imagination and wording, have to be developed. Thereby affective and aesthetic aspects of perception and observation of phenomena are legitimate accesses. Phenomena are not supposed to be interpreted exclusively as objects of scientific interest but they are ideal objects of childlike curiosity. They should be explored with all senses. This exploration is a process in which the children's attention is fully integrated; they are completely “with the matter” and *experience* the phenomena. For the topic „fire“ this means that the children collect wood for a campfire and that they try to light it in different ways, even with flint and scale. It also means that they look at the blazing flames and make use of the fire, e.g. by heating water for tea. Later on they learn to ignite a little stick by the glow and finally, if necessary, they extinguish the fire.

In this context Buck and Kranich - in the preface of their book “*Looking for an experienced connection...*” - write about “a *genuine, rooted understanding in the sense of Wagenschein. So to say an experiential saturated realization and comprehension that is carried out by oneself.*” (Buck and Kranich 1995, p. 7)

Such “experienced connections“ are overlooked easily in the bustle of everyday life and as a consequence of our technically designed environment. They “got lost”, in the truest sense of the word, through massive intervention of humans in the environment. But if you try to look out for “strange” phenomena from a childlike view, you will find a lot of astonishing things in nature-oriented environments. The apparently banal question “Why doesn't the pond close to the FLEX leak out?” leads, for example, to the topic “clay”. Further Questions can be developed, such as: “Why do you detect clay on certain places in the ground and not elsewhere? How did it arise? Why is clay well deformable and why is burned clay different, simply not deformable and red by now?” This subject area represents easy *comprehensible* natural phenomena as an example for an “experienced connection” out of the children's everyday life and nature.

In the mentioned sense students, during a lecture in FLEX, should themselves intensely experience what they afterwards enable the children to find out. In this course, students themselves intensely experience phenomena through selected and complex topics (like fire, clay, lime). Together with the lecturer they reflect their experiences according to didactic aspects made for general studies. Own experiences of students are especially important, as there is a bigger chance that the approach to teach outside and at the edge of nature is taken into schools.

Learning outdoors

In the above mentioned quote Wagenschein postulates to leave the classroom and to accomplish the starting observation of nature at least at “the edge of nature” for general studies. With this in mind chemical transformation processes on primary school level in FLEX should not be conducted as isolated experiments in a laboratory, but as conversion phenomena in the environment and at the edge of nature. Therewith it should be clarified for teacher trainees how they can strengthen the reference to the children's everyday life in their subsequent own lessons.

Visits of extracurricular locations to learn should therefore be arranged more often. Henning Schüler, who highlighted the meaning of learning outdoors several times, argues as follows: “But general studies have to open – not all along but with increasing frequency – doors and windows since they deal with life itself. They need an outdoor urging, curious view, they need outlook and occupation, experience and know-how, weather and seasons; only in that way they find to their things and to appropriate teaching and learning.” (Schüler 1999, p. 137) According to Sauerborn and Brühne an extracurricular learning location enables, in particular, original meetings and direct confrontation of the children with learning materials, active participation as well as “the possibility of an autonomous perception of multi-perspective educational contents” (Sauerborn & Brühne 2009, p. 22). Braund and Rice emphasize that visits of extracurricular locations offer a welcomed variety to everyday school from the children's point of view. In reference to a questionnaire survey they assessed that out of 11 possibilities to learn pupils stated the item “going on a science trip or excursion” as the most pleasant one (Braund & Reiss 2004, p. 11). The authors think that learning outside school is a key component and postulate it to become a component of the curriculum of every school.

From all extracurricular places to learn those are of special interest that are close to nature like meadows and forests as well as the learning location FLEX. Learning close to nature is getting even more important regarding the changed childhood in Germany. Nowadays children experience considerably less immediate sensual-physical experiences with and within nature because of technical, economical and social changes. An intense preoccupation with natural phenomena hardly happens. This lack of nature experiences leads to a growing alienation from nature. Giest and Wittkowske prove this with several studies. They state: “The distance between nature and children [...] seems to grow. Their confessions to nature are getting more abstract, their ability to realize ecological connections seems to decrease” (Giest and Wittkowske 2008, p. 10).

In our opinion the statements just taken already hold true for the majority of teacher trainees. The course for teacher trainees inside FLEX is thus intended to - at least partly - compensate nature-related experience deficits of students. Future teachers are supposed to experience and perceive nature more consciously and intensely. Thereby they should also develop a stronger awareness of ecological problems, with the aim that students collect experiences and develop moral concepts that they can implement into their own pedagogic activities afterwards.

The reference to ecological questions results in a type of inner needs concerning FLEX as well as other nature-orientated locations to learn: “The learning confrontation with nature and therefore with scientific learning cannot take place detached from the question of human's acquaintance with nature. This basic concept is valid for general studies but also for scientific teaching.” (Giest und Wittkowske 2008, p. 10)

Following the concept of “Living in nature“ by Janssen (1988) and Trommer (1988) we basically track the central theme of an original meeting with nature. This includes sensual perception and emotionality, the condition of an inner mood, a learning environment that allows a broad space for fantasy and creativity as given in FLEX.

Environmental education in general studies does namely “not adapt to teaching units according to the printed sheet. It has to find its own didactic ways.” (Schüler 1999, p. 130) The same is surely valid for an environmental educational competence teacher trainees are supposed to acquire.

Experiencing conversion phenomena outdoors

At first sight it does not seem really obvious to associate nature-orientated learning and chemistry. Indeed, there are hardly any basic approaches by which learning of chemistry is pursued outside a laboratory. Nevertheless, it is not the aim of general studies to impart expert knowledge of chemistry. The perspective frame of the society of didactics for general studies (GDSU - Gesellschaft für Didaktik des Sachunterrichts) points out the following: “Through developing simple biological, chemical and physical relations, natural phenomena can be interpreted and a responsible dealing with nature can be initiated.” (GDSU 2002, p. 7-8) Children should examine material properties and become acquainted with substance transformation. Plenty of substances and substance transformations can be found in nature. Soil constituents as, for instance, lime and clay can be considered as near-natural substances. Additional substances can be found as ingredients, active substances or dyestuffs in plants, e. g. starch, lavender oil and carotenoids. Combustion processes are examples for chemical change. Nature-orientated conversion phenomena combined with old craft techniques are suitable to convey phenomena and experiences that are almost replaced by efficient large-scale industrial processes these days. The basic principles of food production (such as cereal and dairy products) and associated references to agriculture, environment and nature are not sufficiently aware to the children.

At FLEX student can sow corn, see it grow, mow, thresh and grind it, bake with the flour and smell, touch and taste the bakery products. You can take a smell at the odorous plants; leaves and blossoms can be harvested and their scents can be extracted and processed to perfumes and crèmes. Students can look for tinder fungus and produce tinder themselves. There are further possibilities e.g. the cultivation of renewable resources which are exemplarily realizable through a soap making process out of vegetable oils such as sunflower oil and plant ashes.

Those topics provide the foundation for all sciences and finally offer all perspectives for the overall treatment of general studies.

Two examples will be described in detail:

The example “clay“

The cluster shown in figure 2 summarizes the topic “clay“ structured according to the five main perspectives that are described by the GDSU.

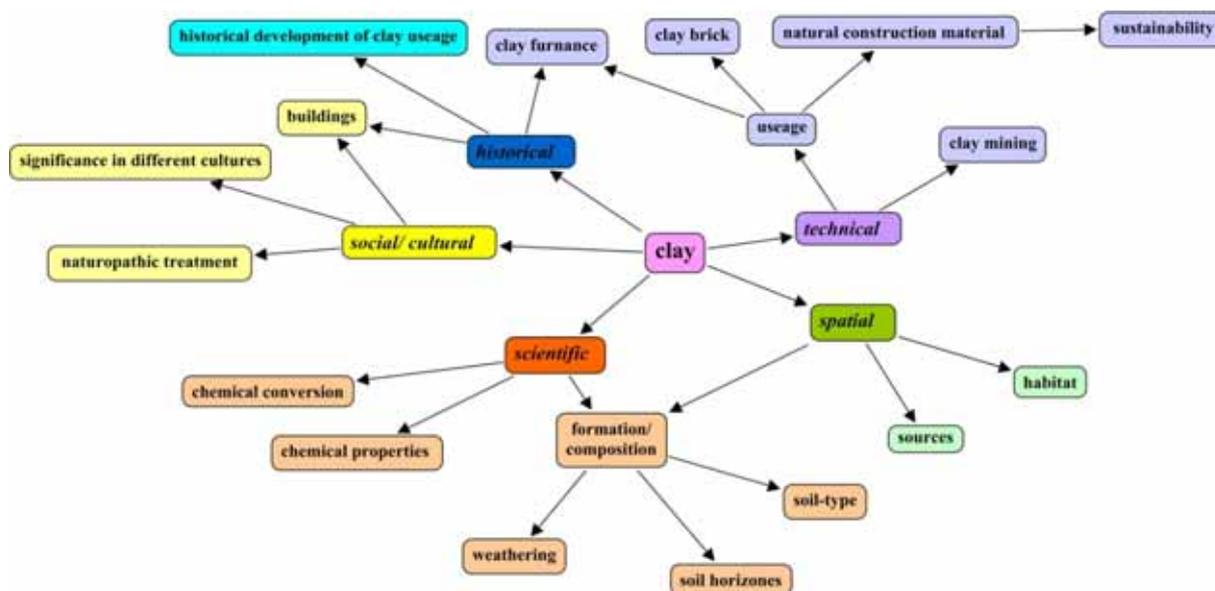


Figure 2: Cluster concerning the topic “clay“

An example for the spatial based perspective is the examination of the formation of clay through weathering. In this context it is also possible to discuss the various types and horizons of soil. Students can look for clay with the help of a soil sampler. Through a finger test and an odor test they can find suitable locations for digging clay.

With the help of this clay, its material properties can be examined. Water holding capacity, ability of elutriation and plasticity can be examined and experienced with simple experiments. Students recognize that humid clay can be easily processed, and that it becomes solid after drying. Changes between wet and dry and the connected change of characteristics can be repeated as often as wanted. Clay can be fired with a simple furnace at the FLEX. During this process, substance transformations become obvious. The fired clay is not moldable with water anymore and changes its color during the firing. This is an irreversible process. A new substance is generated: You talk about brick or tile. Model houses or a small clay oven can be built out of the produced bricks. So you can look at clay from a technical, a social and a cultural perspective. Clay is a natural building material with the features of reusability, insulation, regulation of humidity and the bonding of noxious substances. Furthermore it is sustainable through reusability as well as through low energy consumption when it comes to extraction, transport and processing. Half-timbered houses and clay huts, for instance in Africa, are well known. The historical perspective can be served with the clay oven (named “Backes”) in the FLEX.

There are a lot of possibilities to link the topic “clay” to previous experiences. Curiosity and the eagerness of explorers can be aroused. The direct and active contact with clay enables students to experience nature with all senses and to get to know the relations between the different perspectives.

The example “tinder“

In an analogous manner to the former example the possibilities of the topic „tinder” will be described below (figure 3).

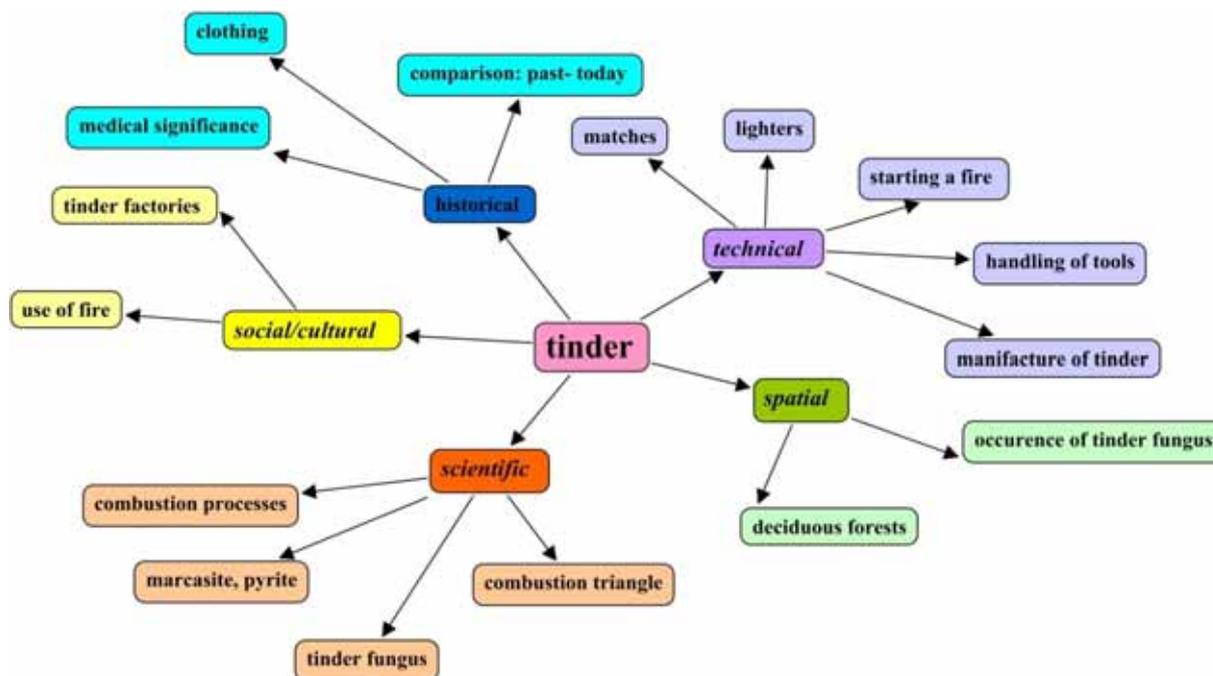


Figure 3: Cluster concerning the topic “tinder“

Tinder fungi can be found in the forests close to FLEX. Finding and examining the real tinder fungus can be assigned to the spatial based and scientific perspective. By sawing up the tinder fungus and looking at the slices, the students get to know the structure of the crust, flesh (trama), layer of mycelium and core of the fungus and uncover the trama as basic material for the production of tinder. For producing thin leathery slices the extracted trama is further processed through soaking in boiling water and hammering it until it is flat. Additionally it can be tested if soaking in saltpeter or potash solution enhances the inflammation of the tinder.

By means of starting a fire with the help of tinder you can discuss the combustion triangle (with the three prerequisites for the development of fire: oxygen, ignition temperature and fuel) as well as the combustion process and the associated chemical reactions against the background of a scientific perspective. If you use the fire to light the clay oven of FLEX, to prepare food or to produce light and heat you can experience the significance of lighting fires from a historical and social-cultural perspective.

Even the historical perspective concerning the production of medical band-aids and of clothes that were made out of tinder rags can be of interest. Under a technical perspective the development of firelighters such as matches and lighters can be dealt with.

The subject “tinder“ covers the different perspectives of general studies. It offers excellent possibilities to be active and to find a transition to the subject “fire”.

First experiences

So far three groups of students participated in the course at FLEX whereby they worked out topics such as “clay as sustainable building material”, “it burns like tinder” and “from grain to bread”. They also didactically reflected those topics with reference to their future general studies. In an open interview concerning their evaluation of the course, the results were very positive. Only few critical statements concerning the unfinished condition of FLEX as well as the possibilities to get there were uttered. The students emphasized the high reference to everyday life and to nature, the product oriented procedure and the experimentation with simple tools. It was of particular significance for

them to immerge into the children's mindset and to reflect the observed phenomena and experimental results in detail. They appreciated working without time pressure, the cooperative atmosphere and the pleasant environment in fresh air.

Therefore the learning environment FLEX creates diverse stimulating possibilities to learn that can be used within the subject general studies in a profitable way. Thus it should become a permanent item for teacher trainees of general studies at the University of Siegen. Students can experience conversion phenomena and make experiences right at FLEX whereby coherences of the environment are not ignored or just mediated verbal-communicatively. Learning does not take place *about* the environment but outside *within* the environment and *within* nature. In doing so the perspective alters from mere "mediation" of "natural"-science in the consideration of isolated phenomena in the laboratory and from idealized theory to the experiencing and the recognition of natural science. Authentic learning becomes possible through aspects that are linked to everyday life, nature-related and ecological. Phenomena and relations can be perceived immediately and can be looked at with a multi-perspective view that is based on a chemical approach of the world.

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ECO Day at Ledina Secondary School – Solar Show at Open Day

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Abstract

Ecology seems to be one of the most frequently discussed topics of today's society. Although we are reluctant to admit it, ecological problems have become a part of our everyday lives. At Ledina Secondary School we have decided to bring this topic to life at Open Day, in hope of inspiring our students and visitors to become more ecologically aware.

The organizers' common goal was to raise ecological awareness in the field of renewable energy sources and efficient use of energy. Each group of experts from the organizing team realized their part of the goal in a specific way.

The School provided many different workshops, debates, movie viewings and their evaluations, experimental work with modern digital technology etc. The results of the Project Day were numerous creations, which still remind our students and the School's visitors of the ecological obstacles we are facing every day.

We have chosen the project method because it has proven to be the most interesting according to our students, not only because it makes classes more pleasant and eventful, but also because it provides us with possibilities, which regular didactic methods do not.

Throughout their work, our students developed many new skills and abilities, such as critical thinking, the art or problem solving, collaboration skills, self-growth skills, creativity, acceptance of change and other. The highlight of the eco day was undoubtedly the solar show.

Key words: *project work, connecting between subjects, open day, solar show, creative ideas, eco-day*

Purpose

On Saturday, 19th December 2009, Ledina secondary school widely opened its doors to all ecologically aware visitors. In association with their teachers and mentors, our students organized an active eco day with numerous ecologically themed workshops. The date on which Ledina secondary school organized its eco day was chosen especially, to echo the conference about climate changes that was being held in Copenhagen at that particular time.

The common goal of everyone involved was to develop and spread ecological awareness in the field of renewable energy sources and efficient use of energy. Work methods were placed entirely in the hands of the professional working groups, which realized their parts of the common goal in different ways. The school organized various workshops, debates, film screenings and their evaluations, experimental work and work with contemporary technology.

The project work method was chosen, because it has proven to be more interesting to the students and is said to variegate school lessons. Throughout their project work, students acquired and developed many of their organizational and work skills, such as creative and critical thinking, the art of efficient and appropriate problem solving, working as a team, group development etc.

Overall presentation of the eco day

Based on the general common goal each professional working group chose their own unique work method, with the help of which they would achieve their desired results. Outside coworkers were invited to cooperate and work alongside the original teams. The connecting element between all the activities at the school was the solar show, an amusing and informative presentational performance. The entire amount of energy that was required for the execution of the show itself was to be acquired with the help of the solar modules, which were attached to a solar van in the schoolyard. However, the idea failed to be realized due to bad weather on that day. At the show, which had been prepared by the “Zero carbon agents”, the meaning of alternative energy sources was presented with an additional accentuation on solar energy. The agents put together a fun and interactive quiz for the audience of the show, based on efficient energy use. Later on they also plainly explained how solar modules work and collect energy from sunrays. The informational portion of the show was dividedly variegated by the musical numbers of the school's choir, a performance by a famous Slovenian singer Tanja Žagar and a few of the school's music bands.

The festively educational December Saturday began at 9.00 am with the solar show, which was carried out by the school's students within the sphere of the “Zero carbon agents” project.

After the solar show all of the participating students were placed in their appointed workshops, which were open to outside school visitors until 12.00 am. Each student attended at least one workshop, in which he or she was actively participating in the creative work.

Presentation of all the eco day workshops

WORKSHOP	CONTENT	BEARER
SOLAR SHOW	The “Zero carbon agents” introduce themselves at the show, students compete in a quiz, the topic of which is efficient use of energy and renewable energy sources, a performance by the school's choir, mr. Dintinjana explains the way solar modules work.	<i>All teachers, E-forum</i>
I BET YOU KNOW IT	Pupils work together in teams, competing in a quiz, the topics of which are literature, history, geography and mathematics.	<i>English language teachers</i>
THE IMPORTANCE OF WATER IN NATURAL PARKS	Pupils explain the process of the international exchange programme with Spanish peers, the topic of the programme being natural parks in Slovenia and Asturias, a Spanish province.	<i>English language teachers</i>
GREENHOUSE GASES	Chemical experiments are being done in the school's chemistry department's laboratory, the topic of which is “Greenhouse gases.”	<i>Chemistry teachers</i>
STUDENT PRESENTATION OF ECO THEMES	Pupils present their ecology themed project work, with which they have participated in various competitions.	<i>Chemistry teachers</i>

<p>CARBON CIRCULATION IN NATURE</p>	<p>Animation is used to show and explain the process of carbon circulation in nature. Through the explanation of the circulation of carbon in nature, the process and aspects of recycling are explained and compared to it. The carbon in our atmosphere (in the form of CO₂) is being used in the process of photosynthesis, where carbon is being used in processes of synthesis of organic molecules (eg. food). Animals feed on plant life, which separate the carbon from the food with the process of cellular respiration and release it back into the air with general respiration – breathing, in the form of CO₂. Students fill out their worksheets and participate in a quiz, the theme of which is carbon circulation in nature.</p>	<p><i>Biology teachers</i></p>
<p>SAVING ENERGY</p>	<p>Pupils work independently to create plans with which energy could be economically preserved, which they try out at home. A few of the most uniquely creative ideas are chosen and then publicly presented in front of the entire student body. With the promotion of these innovative energy saving solutions the students are able to raise economic ecology awareness and encourage the public to apply rational energy use to their homes as well.</p>	<p><i>Geography teachers</i></p>
<p>WHY NOT? TRY IT OUT FOR YOURSELF</p>	<p>Activities: Animals on the brink of extinction (posters, movies) The game called memory, with the topic of ecology Shooting ecological baskets (basketball a little differently) Eco-runway Creating posters and presenting the ecological vocabulary.</p>	<p><i>Romanic languages teachers</i></p>
<p>ENVIRONMENTALLY FRIENDLY HANDLING OF TRASH</p>	<p>Pupils are divided into two groups, the first of which is given the task of making cards with inscriptions of different groceries, devices, newspapers, chemical products, cans and other packing. The second group is given the task of making cards for dumpsters for their environmentally friendly recycling process and also sorting “trash.”</p>	<p><i>German language teachers</i></p>
<p>ECO-POETRY</p>	<p>Pupils are given visual and textual material as a headword and are given the task of creating ecologically themed poetry, songs or short stories. They write, type and print their work and if there is sufficient time left their creations are exhibited and posted on the school's notice boards.</p>	<p><i>English language teachers</i></p>

DO I REALLY SEE WHAT I'M LOOKING AT?	Screening environmentally themed movies and creative activities based on them: 1. Poster 2. Debate 3. Fliers 4. Creative writing 5. Slogans	<i>Psychology and Slovenian language teachers</i>
IS IT REALLY GOING TO GET HOTTER?	The Environmental Agency of the Republic of Slovenia provides the school with information about average temperatures in certain measuring spots in the country. Pupils test out this information and check if the temperatures have really been rising in the last 50 years and then use graphs to present their findings.	<i>ARSO, mathematics teachers</i>
HOW MANY SOLAR MODULES DOES OUR SCHOOL NEED?	A presentation of the RETSCREEN programme and conducting different calculations about renewable energy sources. A great deal of these calculations are targeted to test out if and how the purchase and usage of solar modules is efficient and sensible.	<i>Mathematics and informatics teachers</i>
I'M SHAKING	Conducting physical experiments, relating to electricity.	<i>Physics teachers</i>
ENERGY SOURCES THROUGHOUT HISTORY	Creating a timeline in the shape of a spiral with a chronological presentation of energy source uses throughout the ages: burning wood, water, wind, solar energy, oil, coal.	<i>History teachers</i>
JUST A BIG ILLUSION?	A screening of an ecologically themed movie and a round table discussion and debate with the topic of media constructions about global climate changes.	<i>Sociology teachers</i>
CLIMATE CHANGES AND ME	A presentation about man's influence on climate changes and an individual's options on how to limit them.	<i>FOCUS</i>
BENEFICIAL SOLAR ENERGY USE	A presentation of solar modules and how they work.	<i>E-Forum</i>
PRESENTATION OF BEEKEEPING	A presentation about honey and the history of beekeeping in Slovenia.	<i>Beekeeping Atelšek</i>
ECO-POSTER	Creating posters with ECO-slogans in the Microsoft Office Publisher computer programme.	<i>Art teachers</i>

Ledina solar show

Overview of project »Zero carbon agents«

The project was organized by E-forum. Energy and climate programmes and especially PR activities together with principles of good team working skills are not incorporated into the formal educational curriculum. The transition to low carbon society requires responsible and educated persons who are trained from their early ages.

Within the project »Zero carbon agents« (organized by E-forum) 6 pupils coming from Gimnazija Ledina (all together there were 30 youngsters from six Slovenian secondary schools) were taught in July 2009 (they accommodated in CŠOD Radenci near the Kolpa River) how to calculate their own CO₂ footprint and how to reduce carbon dioxide emissions by using renewable technologies and by decreasing energy consumption (energy efficiency measures). Three experts visited them: a) an expert coming from designing and marketing agency teaching them about effective communication strategies, b) director of civil engineering centre teaching them in practice how to construct a solar collector and c) electrical engineer presenting them his own electric car.

According to their preferences the pupils were divided into three groups: two Technicians interested in natural sciences and technique responsible for PV application, two Communicators interested in PR activities and coordination skills, and two Designers interested in Arts and/or software skills (Microsoft Office Package – Publisher), responsible for designing invitations, brochures and posters.

In the beginning of the school year, the “Zero carbon agents” succeeded in inspiring their schoolmates, teachers and the head of the school to participate in raising ecological awareness amongst the public, using their acquired knowledge of responsible use of energy.

On 19th of December 2009 newly trained youngsters prepared their own solar show in the schoolyard and in the school gym. The agenda of solar shows mainly included practical presentations of solar techniques, music band playing on PV system, theatre performances and other amusing activities. Among the audience there were children from kindergarten, parents, school colleagues, principals, journalists, representatives from other schools (headmaster of Ledina Primary School), local authorities (ARSO – Tanja Cegnar,) and businesses (director of BISOL).

The Solar Show at Ledina Secondary School not only provided a fun and innovative way for students and visitors to learn important facts about ecology and our environment, but also allowed them to show their previously acquired knowledge on the topic by competing in the Solar Quiz. The feedback the organizers received in response to the show was excellent, visitors and students were reportedly most impressed with the school's bands' music performance, the cube demonstration of the use of our World's energy from various sources and the performance of a famous Slovenian singer – Tanja Žagar and the creative quiz questions through which everyone learned something new.

The solar show organized within the project attracted huge attention. It was covered by the media (local and national newspapers, interviews on the radio, web pages). Several people from the audience asked for further information and got the contacts of renewable companies.

Youngsters responsible for the organization were pleased and together with their classmates asked about possibilities of the participation in future projects.

We made an appointment with the solar system factory (BISOL), whose manager agreed to participate in the Show with a presentation of solar modules and solar energy.

Project evaluation

The pupils devotedly and self-sufficiently participated in the workshop activities. Numerous creative crafts were produced in the workshops during the cold December forenoon. One could find creations such as: eco-slogan posters, timelines and graphic displays of temperature changes throughout history, ecologically themed poetry in the English language, fliers and slogans. Pupils also made some delicious ice cream with the help of liquid nitrogen (an environmentally friendly gas), with which they made the visitors' stay at our school a little bit sweeter.

Conclusion

The Eco Open Day at Ledina secondary school was carried out as an educational project workpiece, which exceeding classical lesson plans because of its ability to connect various professional areas and subjects, which enables a more wholesome understanding of the subject and acquirement of knowledge. The work was targeted to be in useful in everyday life situations and to give pupils and visitors a unique learning experience, where the students became the main executants of the activities, so that their interests were recognize, realized and their teamwork strengthened.

The theme of the work itself was handled problematically and interdisciplinary. Classic learning methods and lesson plans do not enable such wide-spread project work to exist in an everyday learning process.

This eco day also helped improve the interdisciplinary skills of the school's teaching staff, which ameliorated the teachers' abilities to work together as a team, create connections between their teaching subjects, which contributed to the professional development and growth of each teacher individually.

The project »Zero Carbon Agents« on a Public Mission does not fall into a strict category of the energy saving or renewable energy sources' measures with measurable results. It falls into a category of Information Campaign activities, where raising awareness by a good educational programme and by developing effective coordination and marketing skills is the essence of the project.

Respecting the Kyoto Protocol regarding carbon dioxide emissions and Energy Climate Package adopted in March 2007 means reducing energy consumption by 20 percents till 2020 and reaching 25 percent share of renewable energy sources in the energy balance. By exerting influence on people's energy and climate attitudes as a core essence of the project, raised awareness of people in general and of pupils in particular, the project might contribute to the reorientation of consumer's patterns into sustainable solutions.

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Sound Producing Objects and Musical Instruments – Music Lessons are also Part of the School in Nature

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Abstract

When I plan the activities of the school in nature in the first triad I pay particular attention to the fact that they are very carefully planned. Besides sports activities they include also the kind of activities that make children oriented towards nature and make them feel in touch with it. I teach them what nature offers to us, how do we know our way around in nature, how can we play and create something with its fruits and the way we develop respect for it. When I worked with the pupils I wanted to sharpen up their sense and ear for nature, their imagination, creativity, I supported them when they observed and did some research on sounds coming from nature. The activities within the framework of the entire project Our musical instruments and sound producing objects took place in nature, at the time of our school in nature week, during lessons at school and at workshops with parents. When we attended our school in nature we spent plenty of time in the nearby meadow and in the forest. We listened to sounds from nature, tried to imitate them, we spontaneously whistled on grass, leaves, acorn caps, we made wooden flutes, picked different small stones, small sticks and other natural materials.

We played with them, described them, said something about them and found out that we can produce different sounds out of them. We struck them together, rubbed them against one another and performed interesting accompaniments of already known songs. In the evenings we made music nights with singing, dancing and playing on instruments. At the end of our school in nature our collection of sound producing objects and musical instruments made from natural materials was rich and varied. As our pupils were enthusiastic about all the activities, the project Our musical instruments and sound producing objects was extended and we continued with it after we came back from the school in nature week.

Introduction

Music is part of every child's autochthonous life, part of his games, expression, experience and cognition. Every single year of life opens specific possibilities in music development that should not be overlooked or postponed to later time. Music plays an invaluable role in children's education as it contributes to the realization of a wide range of education and instruction goals. Music experience stimulates the research of different and new ideas, it improves children's expression of feelings and sharpen up their consciousness and observation of other people's feelings. When the child listens, performs or creates music he grows intellectually as music leads him towards thinking and solving problems. By singing and listening to music the child acquires new vocabulary that accelerates the use of language and helps him at learning vocabulary and sound patterns. Music experience is important for children's physical development. By singing, playing musical instruments and rhythmic movement the child acquires and increases the control of his body and thus does some research on the environment. In the end, with music, the child develops the notion about himself as through organized sound environment he gets to know himself and as a personality he grows into a cultural reality that surrounds him.

Activities within the framework of the themes of *Our musical instruments and sound producing objects* can be divided into four phases:

1. Fieldwork (in the forest and in the meadow) in school in nature

Before we left for our fieldwork I talked to the pupils about rules they must observe outside and the way they must behave in the forest and explained to them the instructions for their work. When we got into the forest each pupil searched for his place for listening to the sounds in nature and tried to answer the three written questions:

1. Do you need a lot of time to hear three different sounds?
2. Can you figure out where do the sounds originate from and name them?
3. Can you describe whatever natural sound with your own words?

We gathered into a group and analysed the answers, exchanged our experience and opinions. We picked different species of grass, leaves, acorn caps and spontaneously tried to whistle on grass, acorn caps and leaves. Some pupils had learned this previously at home, others tried very hard to learn and succeed. When we went for a walk in the forest we searched for different small stones, small sticks, cones and other natural materials. We played with them, described them, talked about them and found out that we can entice different sounds from them. We struck them together, rubbed them one towards another and performed interesting accompaniments of already known songs. On our way home we visited a nearby farm where we took a look how the farmer provided for different crops. He gave us some pumpkins, corn cobs, nuts, hazelnuts and chestnuts as a present.

2. Workshop on making musical instruments and sound producing objects from natural materials

We prepared an exhibition of autumn crops and other natural materials that we brought from our instructive walk. We carefully looked at them and admired forest and autumn fruits, different sticks, leaves, and grass, then we described, classified, compared them and at the same time we figured out how could we use them as musical instruments. With the help of different books and our imagination we created a beautiful collection of rhythmic instruments. Let us present the most interesting ones:

a) *Small sticks*

They are a pair instrument, made of two identical sticks that are approximately 18 cm long with a diameter from 1.5 to 2 cm. We get a sound if we struck the right stick on the left one. Improvised sticks can be of different width and length. We made them from dried and peeled willow sticks.

b) *Nut shells*

They are an indispensable and a very rhythmic instrument in terms of sound. They are listed among those instruments that can be used by the whole group of children. The instrument can have three shapes:

1. A pair of big nut shells (empty halves)
2. A pair of hollow nuts (we glue the nut shells again)
3. If we make two holes in a small shell and we strain an elastic through them, we can put the shell on a finger (one on the thumb, the other on the index or middle finger)
4. We made all the three shapes of the instrument from nutshells

c) Corn cobs

If we strike with dried corn cob on another cob, we get a unique sound that is very quiet and pleasing. We get a different sound effect if we slide with one corn cob on the other. We used fir cones instead of corn cobs as well.

d) Stones

A pair of flat stones – not too big and not too heavy can be a rhythmic musical instrument of a pleasant sound. If we put one of both stones in a slightly concave left hand and we strike in the middle of the first stone using the other one, we get a slightly low, nice, full sound. But if we hold the stones in a way where each stone is placed on its own end and we strike on the simple end of the left stone with the stone that we hold in the right hand, we get a somewhat emptier, slightly higher and short sound. We coloured and painted the stones with different motifs as well.

e) Rattle

We make a distinction between rattles with a handle and rattles without a handle. If we take a look at their shape, they can be round, oval, tubular, cubic, etc. The casing can be made of wood, glass, metal, plastic, cardboard, from different crops with some wooden parts (ornamental pumpkins, coconuts, ordinary nuts). We fill the rattles with different materials: sand, grits, poppy seeds, rye, wheat, peas, corn, beans, cherry, apple pips, small stones and other things. Rattles sound better if they are not completely filled up. The rattle is shaken, but the shaking should not be convulsive. We made a rattle from a dried ornamental pumpkin. As its epidermis was dry and hard, we cut out the patterns and coloured it.

f) A string from crops

We can arrange nut shells or emptied – glued nuts on a different framework. Besides nuts we can arrange hazelnuts, almonds, etc. We get a sound by shaking the strings or by tapping on them with right hand fingers.

We arranged nut shells on an iron framework.



Picture 1: A string made of nut shells

g) Drums

We made it from dried edible pumpkins and a leather membrane.

3. Workshop with pupils' parents

Children were so enthusiastic about the collection of musical instruments and sound producing objects that were made in school in nature that they wanted to complete and extend it. We invited the pupils' parents to join us. The workshop took place in the afternoon in the craft classroom and in the school workshop. With the help of their parents the pupils made interesting musical instruments. Our class

collection of musical instruments and sound producing objects became considerably bigger and became an additional aid at every music lesson.



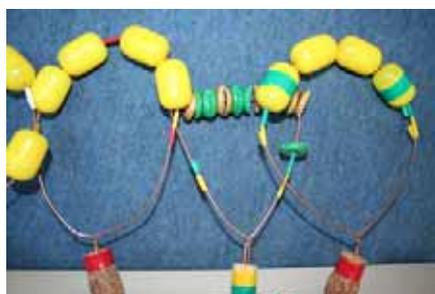
Picture 2: Musical instruments made of wood

4. Making musical instruments and sound producing objects from waste material

At our school we are aware of the fact that the pollution of the environment is a serious issue. This is why we have sub-divided our rubbish with consciousness and responsibility for a couple of years now. The pupils found out very quickly that we could make musical instruments from waste material as well. We started collecting plastic bottles, plastic glasses, cans, paper cylinders, cardboard boxes, metal and cork stoppers... With the help of scissors, glue, paper and coloured pencils we made interesting musical instruments (drums, rattles, trumpets, guitars...)

At the end of our project we prepared a show with a rich exhibition of the instruments we had made.

Pupils performed a medley of folk songs. Their parents accompanied them with our musical instruments made of natural and waste material. The performances took place in smaller groups, each pupil had his own instrument and was responsible for his part of the song performed.



Picture 3,4,5: Instruments from waste material

Conclusion

Pupils were very motivated for work. The working atmosphere was amazing. The pupils were thinking all the time what could they use to make new musical instruments. They were active all the time, they moved a lot in nature, did some research, observed things and were very creative. They learnt what sorts of different things the nature offers to us and how important it is to stay in touch with it. They got to know new sounds and how are they created, they improved their vocabulary, but mostly they sang a lot, played on instruments, invented and created new rhymes and songs and danced as well. If we implement this kind of work, we develop the children's musical capabilities and educate them to learn to sing with joy. We also educate them towards learning music in general. They learn how to perform in front of a group of people and accept responsibility for every single individual's contribution at the success of the entire group.

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Sound Sources - How to Create a Diverse World of Sounds

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Abstract

The world we live in is full of sounds. In nature we are accompanied by bird singing, animal sounds, movement of branches, rustle of leaves, bubbling of water, thundering, bumping of the sea against the coast, falling of fruit on the ground ...

Sound sources

We can also create the sounds with the objects that we use often in everyday life. Here are some examples:

1. We fill the bottles with water to different heights and play on them with a nail.



Figure 1: Bottles filled with a different amount of water create different sounds.

2. We fill the stemmed glasses with water to different heights and scratch with a wetted finger on their edge, so they can sing.



Figure 2: Every glass creates its sound. To make the glasses more attractive the content of the glass can be coloured with fruit juice, pen ink ...

3. On the nails of different sizes, hanging on the rope, we beat with another nail.



Figure 3: Playing on the nails.

4. To the shoe box we string some ropes of different thicknesses and pluck on them.



Figure 4: Playing on the ropes, stretched in the shoe box.

5. We blow the balloon and then slowly stretch the neck of the balloon and let the air come out. The sound is changing, depending on the openness of the mouth. The blown balloon that is let into the air also creates interesting sounds.



Figure 5: The sound is created, when the air is let out of the blown balloon.

6. The sound source can be made from the paper sheath, nails and fine grains (rice, meal, pea ...). We insert the nails into the sheath. The length of the nails should be a little smaller than its diameter. Then we throw some grain into the sheath and close both sides of the sheath. If the tube is long, the noise lasts longer.



Figure 6: The nails are inserted into the wall of the carton sheath. When shaking the grain in the sheath, the grain hits their ends.

7. From the waste material (plastic bottles, glasses, sheaths from the paper towels ..., we can make different sound sources, known as rattles.



Figure 7: Different sound sources made of the waste material.

8. The sounds can be created if we rotate the tube above our head. We have to be careful, that we don't disable the flow of the air on the tube. We can play with the tubes of different diameters, material and lengths. We will obtain a diverse range of sounds.



Figure 8: When rotating the tube.

9. Also other objects, for example a badminton racket can create its range of sounds. The sounds are different, depending on the direction of the racket upwards - downwards, left – right or diagonally.



Figure 9: When moving the racket the sound is created.

10. We can also play on the comb. It is recommended that the comb has the teeth of different size and thickness, because the sounds created in that way will be more variegate.



Figure 10: Playing on the teeth of the comb.

11. We can make different simple instruments. One of them is the clay bas. To make the clay bas we need a container with the bottom, a balloon and a hollow stick. We rub on the stick with the wetted fingers.



Figure 11: Clay bas.

12. We connect sheaths of different sizes, straws or bamboo sticks, cut on different sizes and get the pan pipe.



Figure 12: Playing on pan pipes.

13. The concert atmosphere can be created in the kitchen with the utensils.



Figure 13: Playing with the cutlery, kitchen dishes and other kitchen utensils.

The world of sounds is diverse. Let us relax by the play of sounds and creativity.

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Adventure Learning Schools – A New Design for Schooling

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In wildness is the preservation of the world – Henry David Thoreau

Abstract

David describes the five year journey of Macmillan Academy, an inner city mixed comprehensive, in creating a unique model of urban and rural adventure and outdoor learning that has integrated the curriculum of the school.

Macmillan Academy is the only school in the UK to hold a formal specialism in outdoor learning, with dedicated resources, staffing and world class facilities.

Macmillan Academy are proud to be working with a new UK charity called Adventure Learning Schools. David will provide an overview of this exciting work in Cumbria and beyond.

The Vision

Imagine a school where the learning culture is so rich that students not only achieve high academic standards, but through the emphasis on adventure increase their competence as learners, develop their personality and create increasingly effective learning environments for themselves as they move towards becoming citizens of our global world.

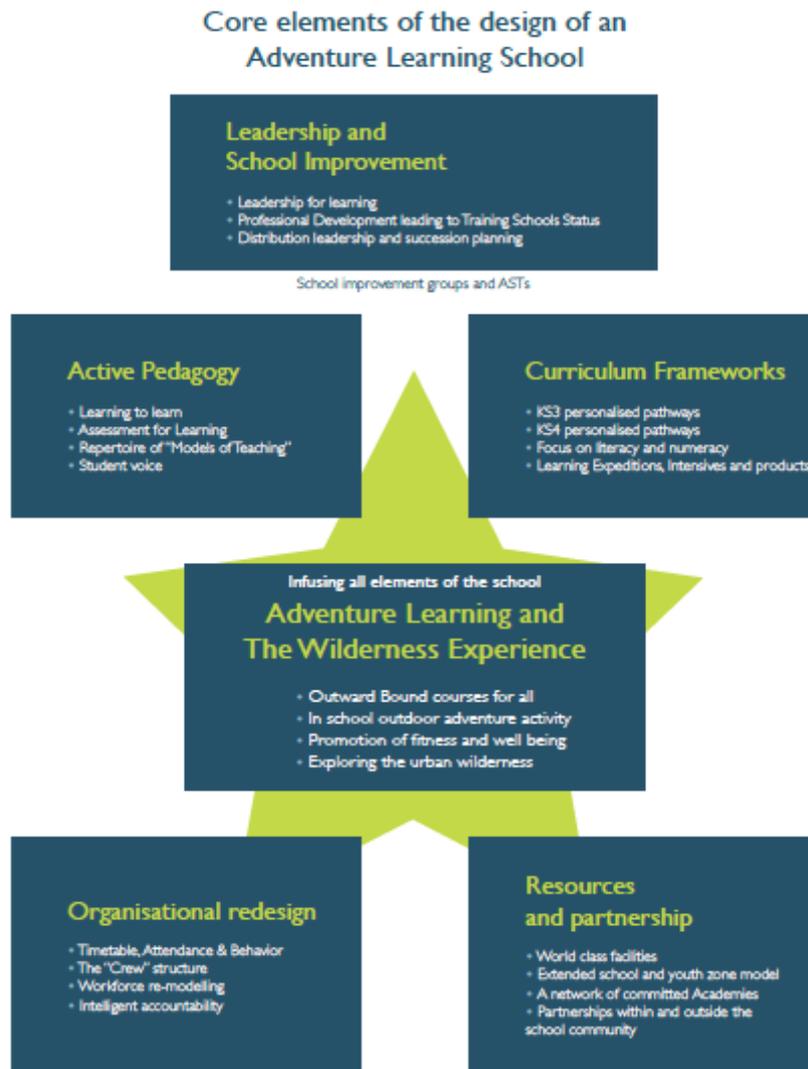
Our vision is to create a network of schools where learning is not just enjoyable, but leads to genuine accomplishments, and appreciation of oneself, others and society, and where the skills, knowledge and dispositions acquired enable the student to become an active and creative citizen. These are schools where the great traditions of education often previously the privilege of a few, are now open to all.

To this end we have established a new charity – Adventure Learning Schools – to take the idea forward. These are schools where:

- The highest standards are achieved, especially in Literacy and Numeracy, and every student is enabled to achieve their potential.
- Learning occurs not just within classrooms but also in the external environment both wilderness and urban and is consistently infused by a spirit of adventure and inquiry.
- The culture is not only comprehensive and inclusive, but also leads to the acquisition of a range of learning skills and aptitudes, genuine accomplishment and an appreciation of oneself and others within a global context.

The Whole School Design

In order to be recognised as an Adventure Learning School a school will need to adopt a 'whole school design' based on active learning principles. The framework is designed to be specific and replicable in so far as it contains the best of current knowledge of what makes for an effective school but then infuses it with a 'wilderness' approach to learning and experience that embraces both urban and adventurous outdoor settings.



Core elements of the design of an Adventure Learning School

The Basic Adventure Curriculum

At the heart of these schools will be a curriculum design that actively deepens subject expertise for all young people through engagement in learning both inside and outside the classroom. There are seven critical curriculum dimensions that need to be in

place for a school to be recognised as an Adventure Learning School:

- The first is that all students will as part of their curricular entitlement have exposure to the wilderness as an environment(both urban and rural), in which learning takes place, and which, through adventure and expeditionary challenges, enable them to develop key skills and qualities. This would involve access to programmes such as Duke of Edinburgh Award and the John Muir Award.
- The second is that students entering Year 7 will have a flying start to their secondary school education through participating in a transitional adventure learning programme in Year 6 of their Primary School.
- Third, the school will adopt a 'crew' or vertical tutor group arrangement to ensure that every student is part of a nurturing social group and have the opportunity to learn from, support and lead others.

- The fourth is that the KS3 curriculum framework will have a predominantly enquiry approach. This will involve the use of learning expeditions which are extended lesson blocks to facilitate cross curricular project based work; and intensives, that are opportunities for deep inquiry, catch up or extended study by blocking out days and sometimes weeks every half term.
- The fifth is a discrete and unrelenting focus on Literacy and Numeracy to ensure that all students are in at least the top quartile of their distribution at the end of KS3. This will involve intensives, one to one tutoring and catch-up programmes as appropriate.
- Sixth, this will result in a coherent KS3 experience that utilises the elements above together with a range of additional learning entitlements such as acquiring a range of learning skills through direct curriculum experience, assessment for learning and the expanded repertoire of teaching strategies utilised by staff. This ensures that the student completes KS3 with a broad range of skills knowledge and experiences that equips them for the transition into adulthood.
- Seventh, students in KS4 will have access to a range of 14-19 pathways that have a strong connection with the outdoors as well as programmes that have a strong inquiry learning focus.

The Invitation

We want the opportunity of becoming such a school to be open to as many schools as possible. To begin with though we are building the network on a smaller scale to ensure the rigour and quality of the education provided is maintained in the early years of the programme.

We are interested in working with both existing schools and Academies and Trusts that have a clear educational vision. We are already working with schools in Cumbria and Stoke to develop the model so that their students are able to enjoy the new curriculum in September 2010.

We invite you to join the Adventure Learning Schools network!

David Exeter is currently a Senior Leader and Director of Outdoor Learning at Macmillan Academy in Middlesbrough (2005 onwards). David is an experienced senior educational professional who has led the design of the outdoor learning specialism at Macmillan Academy. Previously he was a Senior Training Consultant for The Outward Bound Trust (1997-2005). David has a solid reputation for designing powerful learning opportunities for young people. David is known for his high standards and detailed knowledge of outdoor education, adventure and learning.

The outdoor learning journey has been presented by David at national conferences.

Recently David has been actively involved with 'Adventure Learning Schools' consulting as a school designer with Professor David Hopkins.

David holds a Master Degree from Sheffield University, and his first book, 'Learning in the Outdoors', was published by Outward Bound.

“A taste of the scientific approach to the urban ecosystem analysis”

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Abstract

Our school is in the heart of the capital. In biology, experiential learning is very important. Some of which has been performed in the vicinity of the school. We studied the structure of urban soil, the impact of pollution on it and set up a weather observatory on the terrace of the school and learn about the artificial aquatic ecosystem-pond on the outskirts.

We used the basic methods of field work and instruments available in our school and we borrowed some from the professional institutions. We tried to steer students in the interdisciplinary integration of knowledge (biology, physics, chemistry, geography ...). In the class, we present the students with the potential for their own independent work (literature review, finding equipment, learn some basic measurement and analysis methods, the use of ICT ...). The final picture was created by interpreting the results, which actually allowed the students to understand the importance and interconnectedness of soil, air and water pollution and the impact of various factors.

Participated students made considerable progress in teamwork, personal responsibility; they learned many exciting new methods with which they can evaluate the impacts on the environment, critical evaluations of results and present them to the community.

Introduction

In biology, experimental learning is a very important part of education. Students have to learn some basic research steps to understand how ecosystems live and how everything is a part of the circle of life. The basic biological questions are: How? Where? and Why?

How can we encourage students to engage in active learning to understand and answer these questions by themselves?

We took all the available school equipment to make the first steps toward scientific methods in natural sciences. The methods and equipment could be very simple ones. The most important thing is to teach students to start thinking in a scientific way and make them curious about nature.

We have to teach them how to define the problem, make careful observations, data collection, simple analysis and find some answers.

It is a process in which they must use their previous knowledge from different subjects, communicate in a group, make measurements precisely, evaluate results and present them to the others. They will use such skills in all levels and subjects of education.

I wish to present our work mainly as an example of methodology while including some useful comments. The measurements and results are accessible at our school library.

Study questions: Discovery of the urban ecosystem (Soil, Atmosphere, Water)

Each ecosystem follows the common principles of energy conversion. It is very interesting to study ecology outside of the city, but sometimes we have no time or money to travel such a distance. This is the reason this time we chose the urban ecosystem as a model of a natural one. To reach our goals, we started with very simple methods to help us understand how non-living factors influence the biotic components of their ecosystem and vice versa.

Organisation of our research:

For the field work, we organised a group of students aged 16-18 from different classes. All of them took part in the project on voluntary basis.

We sampled **the soil** from the parks after regular lessons and other lab analyses during the breaks.

For **the atmosphere** observation, the team installed a weather station on the school roof's terrace and some professional institutions supplied the necessary measurement instruments.

A group of students took regular daily measurement readings under the supervision of the tutors. The readings were taken during the main break, except on Saturdays and Sundays, for more than two months.

For **the water** research we took a public transport to the city suburbs where we made some research on a pond. There we spent four afternoons with a group of students and some additional time in the school lab.

SOIL

As in every city, Ljubljana is facing different types of pollution. We decided to do a short research project on the urban soil in the city parks next to our school, which is situated in the very centre.

Our field work took place in three different locations near the school and one in the Tivoli Park, which is 500m away from the school, outside of the city centre. We determined the position of each park using the GPS system.

The locations were chosen on the basis of the soil's origin and composition, for example, natural or anthropogenic. In addition the soil in different locations was exposed to the influence of different types and degrees of pollution, for example road traffic, pedestrian traffic, pets etc...

We were interested in the influence of the living of both, living and non-living components (5).

Our samplings were done in autumn and early spring of 2007. We chose days without precipitation to get better results. Lab analyses were carried out in the chemistry lab.

Our results were then compared to the official ones of the EU-URBSOIL project (2., 9).

The students presented the results at different school events to other students, teachers and parents. In addition, they gave a presentation to the representatives of the local government.

The presentation included a printed report and its publication on the school web site.

Methodology

The basic pedological equipment used in the project included:

-a spade was used for collecting surface soil and, when necessary, for digging into deeper layers of soil for sample extraction.

-a pedologic drill was used mainly in the fields. It helped us to collect soil samples without causing any lasting damage to the ground.

- digital and analogue thermometers were used to measure the soil temperature at 5cm and 20 cm below the surface

-the MERCK Agroquant 14602 Set is a simple mobile lab designed for on-the-spot measurement of certain chemical properties of the soil. It was used for the measurement of pH; NH₃-N; NO₃-N, NO₂-N, in all the locations.

-CBL-Vernier probes were used to measure temperature and conduction.

-HCl was used to determine the percentage of CaCO₃ in the soil.

-a lab dryer was used to determine the humidity of soil samples

-instructions for soil texture and structure (7)

Discussion:

Our basic soil research showed that the physical parameters, texture and structure of the soil are influenced mostly by:

- the kind of parent material that soil developed on
- the origin of the soil brought to the location

The chemical parameters mostly seem to depend on:

- the time of sampling
- the quantity of precipitation and sunshine during the time before sampling
- the location of a particular park and the sampling location in it
- the distance from traffic and its density
- the kind of activities being carried out in a particular park (nitric compounds)
- weather conditions, location and traffic (pH).

We also didn't find the essential difference in the pollution determined by the presence of nitric compounds in the soil in the city centre (which was brought by people to create parks) and in Tivoli (which has been there for centuries).

There is, however a difference between the two soils in those parameters that determine the formation and origin of the soil (texture and structure).

We were faced with some difficulties concerning the physical parameters of soil texture and soil structure. Experience is needed when using these methods of soil sampling and we did it for the first time.

The comparison with official data (URBSOIL) was done to evaluate our results and to show how precise our measurements were. There were no significant differences and this was proof of accurate research work.

ATMOSPHERE

Ljubljana is a city with frequent autumn and winter temperature inversion. In the past, severe air pollution occurred. We wanted to check this problem at our school.

For the observation of the atmosphere, we built up a weather station on the school terrace. First we had to discover where, how and why the weather comes from and decide for main parameters we can follow.

We were also very interested about PM 10 as they are a part of the pollution. These particles cause damage and soiling to materials, and it's a major cause of visibility impairment. The same fine particles are linked to serious health problems also affects our ability to see by scattering and/or absorbing light.

The atmosphere monitoring requires good organisation and defined the individual part of work. We used many different instruments.

We divided students into groups in order for them to be more familiar with each instrument. There was always one of each group to make a measurement. One group also collected the official data from the home page of the ARSO (Environmental Agency of the Republic of Slovenia) (6).

The interpretation of the results was done by students and teachers-tutors. There was a lot of data to analyze.

At the end of the project students made a graphical presentation of the results of all parameters that had been measured to their colleges, teachers and parents.

In terms of physics we measured different air quantities:

- air temperature
- relative air humidity
- air pressure
- the weather and types of clouds
- wind velocity
- illumination (in lux- photometric units)
- PM 10

We measured concentrations of the following gases:

- Oxygen- O₂
- Carbon dioxide- CO₂
- Nitrogen dioxide- NO₂
- Sulphur dioxide- SO₂
- Carbon monoxide- CO
- Methane- CH₄

Methodology

Measuring instruments for physical parameters:

We collected all possible instruments we had in school in the physics, biology, chemistry, geography labs.

- Analogue thermometers and instrument for drawing air temperature on a chart
- Analogue hygrometer and instrument for drawing relative humidity on a chart;
- Vernier's CBL (Calculator- based Laboratory System for light intensity measuring)
- Analogue barometer
- Anemometer

- A clouds type chart

Measuring instruments for gases

- Instrument DRÄGER MULTIWARN II (O₂, CO₂, CO, CH₄)
- TI-92 and CBL with VERNIER CO₂ sensor
- ACCURO pump and DRÄGER tubes for gases (NO₂ and SO₂)

We have used the instruments for gas measurements for the first time. We have only used CBL and TI 92 before.

The students have studied the instruments and the handling of the instruments and measurements. One group has had to follow and make a note of every day's official measurements of ARSO on their official web page.

We borrowed the Dräger Multiwarn II at the Centre for Civil Protection and Disaster Relief at Ministry of Interior of Republic Slovenia in Ljubljana. This instrument is used for the measurement of life treating levels of poisoned gas concentration.

Measuring instruments for PM 10

We acquired the instrument for measuring PM 10 from the Ecological mobile unit of the Josef Stefan Institute in Ljubljana and the standard SiO₂ filter with 10 micrometer pore shapes from the Department of Meteorology of ARSO. They helped us get familiar with the state directive of the air quality.

We have measured the PM 10 by using the Accuro air sucking pump. The flow of air was measured at 2m³/h. This is the standard value of gas flow for PM 10. The pump has a standard SiO₂ filter with 10 micrometer pore shapes.

The sampling time for the pump was 24 hours, so the sum of pumped air was nearly 48m³ per day.

The maximum allowed concentrations of PM10 which the air contains can be 50 g/m³. We compared our measurements with ARSO, which publicizes the average daily and annual concentrations on their websites.

Discussion

During the project, the students found out how difficult it is to get the exact data of a selected parameter because in the environment, different factors interfere and influence each other.

The students have upgraded the special skills necessary to get the right sources of information, the help of the experts handling the instruments and refined our measurement methodology.

There were of course some unexpected problems as, for example, with the probes for the detection of NO₂. We had not been told about the sensitivity interval of the probes. So we were left with some extra expenses to buy some new probes.

During the project we also had the opportunity to improve our data interpretation skills and refine our measurement methodology with the help of expert in the institutions. At the end of measuring we were surprised by the good air quality in late autumn.

WATER

The pond of Koseze is situated in the western part of Ljubljana. It was created on a flooded abandoned clay site (3).

This man-made ecosystem provides now an interesting water habitat for many species of plants, animals as well as other organisms. It is also valuable to its visitors as an oasis of peace in the highly urbanized area of Ljubljana.

It is easily accessible by public transport services and not so far from our school.

Students of two second year classes were involved in this research.

Methodology

After researching soil and atmosphere we focused on the ecology of a pond.

The late autumn was not the best time to work in this place, but sometimes it is good also to see the final stage of vegetation and the season.

Our task was to learn basic water ecology methods, with a physical and chemical analysis as well as biological ones (13).

We took samples from a spot close to the water and two to three meters away. Students made the sketch showing the places of sampling. They found and were able to define different plants and animals at different locations around the pond.

We searched for animals among the plants on the pond banks, on the trunks and tops of trees and in bushes and water animals under stones, sieved silt on the banks and caught a few swimming samples. Simple methods of hunting were used (nets, sieves, turning over stones and the remains of dead plants and animals). Water samples were taken for further lab analysis in the pond, at the waterside and ashore.

Using the AQUAMERCK portable school lab kit, the basic chemical water analysis was done to detect water quality.

In terms of physics we measured the following water quantities:

- water temperature at different depth and surface,
- relative air humidity above the surface,
- electrical conductivity

We also measured chemical parameters such as:

- pH
- Oxygen quantity- O₂
- Nitrate and nitrite- NO₃, NO₂
- Ammonium NH₄
- Phosphates
- Carbonate hardness

Discussion

The pond of Koseze has the typical characteristics of a pool that enables life to different plant and animal existence. In spite of its anthropogenic origin ecological succession has created a natural environment with no significant signs of pollution so far.

The vegetation is quite heterogeneous. Close to water we can find typical marshy plants and a little farther away there are also usual the meadow plants. The slow flow of the water in the swamp adds to this ecosystem.

Determining the species of plants at this time of the year is not a simple task because most of them have dropped their leaves and chlorophyll. The students tried to identify the plants on their own. We had seen some of the plants in our biology lessons, but for many of them they had to refer to our literature when writing their reports (1, 10., 15).

Having no suitable equipment and due to the fact that the time of vegetation was nearly over, we could not define the sunken plants. But we know from our literature that there are a great number of such plants.

It was late autumn, so we found very few animal species and the number of representatives of individual species was also small. We recorded the presence of some of them from their remains. We found the skin of a ring snake, empty shells of different snails, bits of *shells* of a *Trichoptera sp.* and the shells of two different species of tortoise. The presence of *Trichoptera*, which are very sensitive to the state of oxygen, confirms that the water is not too polluted after all.

We discovered many interesting animal species in the shore line, in the shallow water and some species of birds on the pond surface (4., 11., 12.,16.).

In summer, when the abiotic factors are more favourable, the variety of species are certainly much wider and it is typical of ponds.

In spite of its anthropogenic origin, ecological succession in the pond of Koseze has created a natural environment with no significant signs of pollution so far.

Urbanization and man's activity, however, represent a great ecological impact. Our students discussed the eutrophication processes, which can lead from latent eutrophication into less favourable growth conditions.

Our students were enthusiastic towards their field work methods, becoming familiar with the instruments and analyse, team work and sampling. The difficult part was the interpretation of the results and the writing of the report.

General conclusions

The goal of our projects was also to develop the special skills of the students by working on field measurements, to increase the abilities of nature observation and making conclusions on the obtained data. It was also very important to learn how to compare our results with those of the official measurements and to find out what the reasons were that caused the differences.

The project achieved also the following objectives:

- The collaboration on a common theme and social interaction,
- The development of team-work and organization skills,
- The stimulation of interdisciplinary thinking,
- The application of ICT skills,
- The development of the ability to perform precise measurements and critical data interpretation,
- The development of report writing and presentation skills,
- The motivation of our students to know, in depth, the values of nature and ecology in order to realise the danger of climate changes.

- An increased awareness of the importance of environmental quality and influences caused by man.

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Soil sampling in Zvezda park



The collected materials in the hands of the students from 2. Class



Air humidity in November 2007

Forest Pedagogy in Slovenia

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Abstract

In learning and education for sustainable development, Slovenian forests undoubtedly have a major role. Forest pedagogy can be the basis for such education. While this is a relatively new branch of pedagogy, it is becoming increasingly common in Europe; however, in Slovenia, it is at an early stage.

The fundamental basis for such education has been made in the curriculum for nursery schools and primary schools, but it has not yet been realised. The reasons for this are both subjective and objective in nature. Objectively, vaguely defined goals primarily in teaching programs have caused delays in realising forest pedagogy, while subjectively the problems are in the nature and causes of assuming greater responsibility for teaching, the kind of preparation in the use of more empirical and experimental methods, teacher knowledge etc.

In the future, an interdisciplinary approach would be desirable, bringing together science teaching as a nature-engineering profession.

Introduction

Forest pedagogy is coming to Slovenia relatively late in comparison to other European countries; in particular, it depends on the activities of individual societies and associations in this field. The most important in this type of education is still the initiative and the role of schools and nursery schools. The fact remains, however, that the teaching about forest and aquatic ecosystems, and the interaction between natural ecosystems and their environment, is to frequently implemented entirely in school classrooms and does not include knowledge about sustainable development.

The United Nations declared the Decade of Education for Sustainable Development for the period between 2005 and 2014. From the perspective of sustainability, the forest is the perfect example: it is eternal yet simultaneously destructible; every person should understand its vital interdependence of living and inanimate nature, the interdependence of plants, animals and humans (Anko 2009).

Slovenian forests and their management are good indicators of sustainable management and, as such, highly appropriate as a positive example for activities and education within the scope of forest pedagogy. Slovenian forests can become the foundation for children's creativity, which is perhaps the most essential skill for their future personal success.

The purpose of this paper is to highlight the importance and values of forest pedagogy, and to draw attention to possible barriers that prevent more systematic work in this area.

Definition of forest pedagogy

Forest pedagogy is a relatively new branch of science, which brings together interdisciplinary pedagogical and forestry knowledge. The name originates from Central Europe; along with other related terms.

Slovenia's neighbour Austria provides an interesting example. Forest pedagogy is teaching people about the forest, specifically, its non-economic aspects. Learning is mediated through direct and

indirect perception, which includes learning by doing, i.e., with the heart and head. In the forest, trained foresters teach people, through a rich learning experience by providing the knowledge of the functions and importance of the forest. Forest pedagogy is a tool with which foresters teach about the environment and the appearance of life, which requires proper and good knowledge of the forest (Botka and Moser, 2003, in Divjak Zalokar 2008).

Examples of good practice can be seen in Austria, Switzerland, Germany and France. In Austria (*Waldpädagogik*; www.waldpaedagogik.at), eighteen forest training centres have been established; 1,200 forest-educated teachers carry out guided training (at least three hours) in the forest. Nursery schools (*Waldkindergarten*, *Naturkindergarten*), forest schools (*Waldschule*) hotels and youth forests have also been established. Each year in France, 30,000 pupils are enrolled in the forest programs and projects, producing over 400 projects.

The formal term “forest pedagogy” (or similar) is not yet in use, although individual activities that can be included in forest pedagogy, are already underway.

In short, in Slovenia, forest pedagogy is defined as education and training on forest and nature, and its values. It is based on the emotional perception of nature, to promote experiential learning and thus develop a positive attitude towards nature. Activities carried out in the woods.

The principles of forest pedagogy are based on understanding the relationship of humanity to the environment and to nature, and knowledge of forest ecosystems. Forest pedagogy also promotes and educates people about sustainable development in its social, economic and environmental aspects. It presents a bridge between natural and social sciences, and offers a holistic and systemic approach that takes into account structure of environmental problems.

Values and advantages of forest pedagogy

Children's history of contact with nature

Children's relationship to nature is created through the development and life of humans (*Homo sapiens*) for almost their entire history. In the beginning, humanity lived in close harmony with nature. With the cultivation of plants, the domestication of animals and permanent settlements, a slow and long process of alienation from nature began.

However, from the beginning of human development and throughout most of history, children have maintained close contact with nature. Their first choice of games is based on visits to the nearby forest or forest edge, large trees or streams.

Changes began in the second half of the twentieth century. With urbanization, the natural playground began slowly to disappear, the natural landscape, under the influence of urbanization, greatly decreased. However, children were still free during their playtime, with very little parental supervision (White 2004).

The lives of children today are quite different; their physical contact with the outside environment has been greatly reduced. The culture of childhood in which they can spontaneously explore nature and have contact with their surroundings is over (More 2004); the daily lives of children have been reduced to courtyards and gyms. Research indicates a lack of security due to various factors, as the cause in most cases (Wilson 1996).

The consequences of such a lifestyle are that children simply do not know that nature is part of their lives, and perceive it as a separate environment. They do not know the tree and animal species,

ecosystem functioning, nor do they develop an appropriate attitude towards them. They do not know that the quality of our lives depend on forests. Some even develop a fear of nature. When these kids grow up, to them nature on has meaning as a barrier.

The child experience of nature

Children experience nature in a completely different way than adults. Nature is green laboratory for them, where they can, test how things work with their hands, through play and their own research. Research has shown that love of nature and a positive environment increases with regular contact and playing in the natural environment (Bunting and Cousins 1985; Kals et al. 1999; Schultz et al. 2004). Children's emotional and affective values of nature develop earlier than their abstract, logical and rational perspectives (Kellert 2002). The problem of most environmental and school educational programs about nature is that they show nature from the perspective of adults and in an abstract and logical way, which is not suitable for children in their early years.

Values and advantages of forest pedagogy

Many people do not know that the forest once covered the entire Earth. It did not only assert itself where water made this impossible, or in distinct climatic conditions. The forest has always been a natural framework, essential to human existence and development. Attitude towards trees and forests have largely been positive: the forest is a place of imagination, a core identity, a strong spiritual and emotional impact (Slee et al. 2003).

Today, we find that people of all ages need contact with nature, precisely because it brings pleasure and enjoyment. So today, when the forest is the largest natural area in the densely populated cultural landscape, people return to reflect its non-material values. The fact is that our society focuses much effort on raising environmental awareness, which is certainly very positive, but actual knowledge of nature is less. In addition, we must consider that the nature is a superior concept of the environment. Therefore a "step back" may be necessary for children and thus adults better to understand nature, to love it and to learn to respect it.

Knowledge of the functioning and structure of forests offers us something more than just a biological baseline knowledge of ecosystems. In the woods, we can track what life values nature offers us. Nature is a constant creation of new life (Mlinšek 1993), and accordingly forest pedagogy should be well designed, creative and innovative. Forestry science and management in Slovenia has long been based on educational principles of the great reformer of science and practice in education Johann Heinrich Pestalozzi. The nature of the forest is best known in an experiential way, which is an important step in the next signpost proper forest management.

In a natural forest, it can be seen that the young parts of the forest are sheltered by old trees that protect them, throughout centuries of growth. These young trees tell us about patience, perseverance, solidarity between generations, that the values given to us by today's fast pace of life are lacking. Trees tell us their life stories: the beech about its authority, the fir about patience, the decaying oak tree about the history of any war, discoveries and other historical landmarks. Such stories can frequently be found in the woods, but we need to explore them.

Here new dimensions for education of the children and our coexistence with nature open up. In the first period of children's' lives, they experience their surroundings on the emotional level, so the forest offers a maximum in terms of promoting autonomy, children's imagination and creativity, social contacts and motor skills.

Forest pedagogy is based on experiential learning and research methods. These are the so-called active methods that mentally and emotionally attract children to solving problems and are especially suited for activities under the forest pedagogy. Active and experiential learning through direct experience of events, in their natural environment and specific problem-solving, focusing on processes of mutual influence and connections between phenomena have a positive impact on child's development (Marentič Požarnik 1993).

Forest pedagogy is aimed at target groups, but primarily we are addressing it to preschool and school children. The forest is green schoolroom and forest pedagogy takes place only in nature and forest ecosystems.

Upgrading and continuing education may be an interdisciplinary project work or the work of the entire class, because connection is possible with almost all school subjects. Specifically, knowledge and experience on the functioning and structure of natural ecosystems may also be used to advantage in all other subjects, such as Slovene language, history, geography, music, art education and also for more abstract subjects, such as mathematics or physics.

Barriers

The forest is a common element of the Slovene landscape, and therefore a value in itself (Bogataj 2009). Forests in Slovenia also have economic and environmental and social components, which are essential for the health, welfare, and social and cultural development of people.

Forests cover slightly less than 60 percent of Slovenian territory; greater forest coverage in Europe is found only in Sweden and Finland. Seventy percent of forests have been preserved, i.e., their structure and composition is quite similar to virgin forests. Slovenian virgin forests are maintained at Kočevje, (the virgin forest Rajhenavski Rog (51 ha) and virgin forest Pečka (60 ha)) and are classrooms for all of Europe. In addition, we also have culled and eight protected primeval forest reserves. A walk through the old growth forests shows us all the dimensions of nature.

Management of Slovenian forests is sustainable and multipurpose, and based on clearly defined laws. We have a tradition of forest management in Slovenia, which is based on principle of sustainability and this principle is the basis for the ethical management with our forests (Anko, 2001).

The Slovenian forest is an irresistible field of research; however, our children do not know about forests and other natural ecosystems. Despite knowledge of the importance of education in nature and experiential learning, changes are slow, at least in Slovenia. The teaching profession has decided for this style of education in a very small number of cases. What are the barriers?

1) The fact is that both, the nursery school curriculum (Curriculum 1999), as well as educational programs for elementary schools (Medpredmetna..., 1999) in Slovenia provide educational activities in nature and the outdoors. However, the problem is that curricula for elementary schools do not have clearly distinct nature of environmental objectives. Nature education is somehow lost among general environmental education.

2) One factor is surely the teachers' concern for safety of pupils outside the classroom. Forest teacher training courses take responsibility and make a clear code of conduct in the forest, for example (Pädagogische ... Arbeit, 2007):

- Children should always be within eyeshot and earshot of the group. The area for playing the game could be marked out with rope, natural obstacles or orientation points.
- Children should immediately return to the forest teacher, when they hear a particular sound.
- No littering in the forest.

- Speak only if you have a megaphone.
- Do not eat unknown forest fruits.
- Do not climb the trees.
- Possible injuries must be immediately reported.

I must mention that in the last five years, preventive actions to protect against tick bites have been held, which has been well received by the public. The forest, in this way, becomes perceived as an unreasonably dangerous area, and one to avoid.

3) A further negative point of view is that while nursery schools and schools implement science-days for children and organize more days of school in nature, but only with sport themes. The Centre for School and Extracurricular Activities (hereafter CSOD) and schools have similarly determined general and operating didactic goals; however, the CSOD has promoted particular sports programs and reduced natural themes (Kranjec 2010).

4) An important factor for this type of education is teacher knowledge. Torkar (2008) and Kranjec (2010) have found that the teachers do not separate the concepts of nature and environment; they also do not know how to define concepts of nature conservation, protected areas, environment and protection of the environment, biodiversity, sustainable development. The teacher has an important role at this kind of education. Children, especially in the first triennium of the school, trust her and they respect her. If the teacher has a positive attitude toward nature and uses appropriate methods, it will result in children enthusiastically learning about nature.

5) For the wider promotion and implementation of such a method of education, it is also necessary to think about training teachers to use certain methods. A contradiction occurs here, because many believe that it is a waste of time and that pupils must first acquire basic knowledge, and then proceed to joint research, games, simulations, dialogues etc. (Marentič-Požarnik 2002). Teachers in the first triennium of primary school in the subject of Environmental Education mostly use methods of conversation, explanations and demonstrations; less so field and experimental work (Balažic 2008).

The expected results of forest pedagogy clearly outweigh the above negative aspects. Some of the more positive results are a heightened emotional approach to nature, the collection of direct experience, long-term knowledge, greater interest in learning, more self-initiative and autonomy at work, better observation and understanding of phenomena in nature, becoming accustomed to field work, becoming accustomed to interdisciplinary work and the creation of positive values. It can also be said that this type of teaching is encouraging, as children like to research activities, gaining knowledge in a fun and yet educational way.

Conclusion

Forest pedagogy is a new scientific discipline in Central and Western Europe. With the ongoing development of forest pedagogy in Slovenia, we want and to invite children and teachers in the forest, to emphasis the value of the forest and to motivate children to responsible treatment of nature. In a narrower sense, we provide information on the Slovenian forests, forest operations explained as an ecosystem and the importance of sustainable development in the case of forest management, encouraging creativity and learning in nature, based on an experiential basis.

Late this year, drafts and plans for education of children for sustainable development will be introduced to Slovenia. Only this can help children realise the values of education, which include a respect for nature and forest.

The question still remains whether it will be possible to establish links between schools and the natural environment. Probably such a mode of education (the nature of nature) has remained largely dependent on teacher interest in nature and the integration of it in the annual lesson plans. In the future, an interdisciplinary approach will bring together education and nature/engineering disciplines (foresters, biologists, geographers etc) in forest pedagogy. This has been done in other parts of Europe. Therefore, let Pestalozzi's rule be valid: go into the woods with your heart, head and hands! Because nature can offer more experiential knowledge as a teacher with the words, because the teacher has never lectured and taught in terms of things that a child can touch, see or hear.

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“The Children’s Forest School”

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“Come forth into the light of things. Let Nature be your teacher.”
William Wordsworth

Abstract

In this lecture ‘The Children Forest school’ will be presented as part of Grundschulle Wohra and as part of our educational philosophy. I will present nature awareness activities we practise in our Forest school and will work out the positive effects, which they have on the children: physical and social abilities, a strong trust in one’s abilities, team work, knowledge about nature, sense for spiritual connection, high identification with their own forest, respect for nature, different ways to preserve nature, work in the forest.

Besides information about the role of the teacher I will present photos and newspaper articles and diaries of the children in which write and paint about their Children Forest School. In my educational practise I’m deeply influenced by the American naturalist Joseph Cornell and will also present his method of ‘Flow learning’.

In 1983, I bought a small farm in the village of Langendorf in central Germany and for several years I grew vegetables and cared for our flock of goats. Then, 18 years ago, I began teaching in a small Primary School in the nearby village of Wohra. My colleagues and I are now teaching 60 children between the ages of 6 and 10 years old.

Our school is part of the German school system, which is mainly based on the importing of knowledge: knowledge is the main educational objective, with the process of learning merely a means of achieving knowledge.

In our small school the process of learning is central to the curriculum. We help the children find their own way of learning and what is more important, most of the time they learn by doing! Our outdoor activities are a main example of this way of learning.

In 2004, we established ‘The Children’s Forest School’ as our biggest classroom in a nearby forest. Once a week, a 20-minute walk brings us to our meeting place under a big old beech tree. It’s a marvellous tree, which spreads its huge branches over us. Two years ago some parents built a small open hut as a shelter, so we have a roof over our heads in extreme weather. Once a week I spend three to four hours here with my class of 23 children, whether in spring, summer, autumn or winter.

When I’m in the forest with the children, I’m not a teacher for them, but I’m their nature guide. My basic attitudes are respect for the children and reverence of nature. My educational principles are as follows:

- Teach less and share more

Besides telling children the bare facts of nature, I like to tell them of my feelings, e. g. when I see a special tree or when our forest is covered with morning mist.

- Be receptive, be sensitive

Receptivity means listening and being aware. I try to respond to a child's present mood and feelings and to stay alert to what nature is doing around us at the present moment. Something exciting or interesting is almost always happening. The lesson plan is written minute by minute by nature.

- Focus the children's attention without delay

I try to involve the children as much as I can and make them feel that their findings are interesting and important to me.

-Look and experience first, talk later

Children have a marvellous capacity for absorbing themselves in whatever they are looking at. They will gain a far better understanding of things outside themselves by becoming one with them rather than from second-hand talk.

- A sense of joy should be part of the experience

Whether in the form of gaiety or calm attentiveness, children are naturally drawn to learning if you can keep the spirit of the occasion happy and enthusiastic. One's enthusiasm is contagious and it is perhaps the greatest asset as a teacher and nature guide.

So what happens in our 'Children Forest School'? The first and a very important activity is ... That we share breakfast together under our big old beech tree. We are not in a hurry, we take our time. After breakfast we start our meeting in silence. We listen to nature's melody for one or two minutes - and I can tell you: it's never the same! Afterwards, the children love to share what they've heard, e. g. the different birds' songs they've heard. Often they even tell each other, what they've smelled or felt. They say for example, "I felt that spring is coming", or "today the sun looks like a big bright shadow flowing over the sky." The children are very alert to what happens around them and from week to week they realize the changes in our 'Children's Forest', whether it's a little baby beech beside our fireplace, which comes out of the earth in spring like a miracle or whether it's the song of a bird we've never heard before. This special alertness has developed over months and years in a way that is in strong contrast to our German school system - when we are in the forest, we have a lot of time! There is no stress! There is no hurry! There are no exams! There is no teacher waiting to start the next lesson! We're just there, outdoors, once a week, forty times a years, for four years. It feels like heaven!

And without realizing it the children become a part of the forest and its inhabitants, whether animals, plants, rocks or earth. And this is the main basis for the children's attitude towards their forest: They feel at home! They feel at home in their forest! And this strong identification is the basis for real learning, for a lasting learning!

In this way knowledge is not what we are looking for in our 'Children's Forest School'. It develops in a natural way, it really happens! For example, every child has his or her own special tree in our forest. They visit their tree every week - for one minute to say 'Hello' ... for two minutes to give it a hug ... for five minutes to listen to its latest story ... or for twenty minutes to sit down at its trunk and write a story or a poem. In winter the children are very careful, because they don't want to disturb or wake the tree up. It's a very emotional approach, but in this way the child becomes an expert about their tree and learns a lot about it, which will last for a long time. And what the children say about their trees is not second-hand talk, but it's first-hand experience!

After our meeting under the big old beech tree we do a nature activity or game together, e. g. Fox Hunting, Predator and Prey, Bat and Moth or Pyramid of Life. When we have finished our game, the children start their excursions. They visit their trees or have to fulfil special tasks - alone, with a

partner or in a group, e. g. Blind trail, Blind walk, Caterpillar walk or Camera. But the main part and at the heart of our visits to 'The Children's Forest School' is the 'forest free time'. Every time we are there the children go their own ways for at least 45 minutes. They can do whatever they want, as long as they follow our common rules: Stay within the limits of our 'Forest School'! Don't disturb forest life! Leave the forest in the same condition as you've entered it! Within these bounds, which also give safety to every member of the group, the children experience their freedom in different ways. There are so many things to do, e. g. swinging or climbing in a tree; collecting stones, flowers or other treasures; playing in the mud; catching lizards; building huts and houses out of fallen branches; working in their gardens; selling their sites and houses to one another for lots of leaves (this is the usual currency in our 'Forest School'); some children go hunting – especially boys love to play war games.

So they do what children love to do! And I, their nature guide, am simply around. I have the opportunity to appreciate their work and their treasures, to listen to their stories, hand out tools and give a helping hand in building their houses. I am also a mediator when the children can't solve a quarrel on their own. And for me this is very eventful and satisfying work, because the whole atmosphere in our open-air classroom is much more relaxed and free than in any other classroom within four walls with a concrete roof over our heads. It's an atmosphere of solitude and fulfilment and the children learn a lot about nature and it's circular connections. They also learn a lot about music - we sing together and play rhythms with our self-made rhythm sticks. They make land art in our forest and draw pictures. We also say prayers in German, English or Lakota. Here is one of our favourite prayers, written by Joseph Cornell, who has given me much inspiration for my work as a nature guide:

“The Birds of the Air

The birds of the air are my brothers,
All flowers my sisters,
The trees are my friends.
All living creatures,
Mountains and streams,
I take unto my care.
For this green earth is our mother.
Hidden in the sky is
the Spirit above.
I share one life with all who are here:
To everyone I give my love,
To everyone I give my love.”

So in our big, outdoor classroom we manage nearly all the subjects of our schedule: sports, art, handwork, biology, religion, German, English and music. And it doesn't matter which subject we do. All are one; all learning is based on interest and curiosity. It's the natural way of learning and the children do it very passionately because as I've mentioned before, they feel at home in their forest! It's their own! They identify fully with it! And without realizing it they appreciate the freedom they have in our 'Forest School' in a positive way. This freedom of learning and living together would never be possible in a normal, concrete classroom. But even back in our school rooms down in the valley of Wohra you can feel the positive influence of our 'Children's Forest School'.

A main condition for the identification and freedom in learning is trust. I'm the children's nature guide and I'm responsible for the group. When I let the children go into the forest, I must know them very well. In letting them find their own way, I must have confidence in them that they can handle unforeseen situations. I have to give every child the feeling, yes, you have it in you! Yes, you can do it! This is what makes them grow.

In winter e. g., I let some children build and light the fire. It may be a risk, when it's 10 degrees below zero, but when it works, it's marvellous, it's a fulfilling experience for every child and is appreciated by everybody. Appreciation is what children need in order to learn and to grow! And when children feel this trust, this confidence, they will move in their forest more confidently and fewer accidents or negative things will happen. That's my experience after 7 years working as a nature guide.

In our 'Children's Forest School' every child is growing in their own way and is developing their individual abilities. But the whole class is growing as a group as well and the social structure is strengthened in different ways. Every child has a different role than in our concrete classrooms: e. g., Nick, who often needs help in mathematics and German, is one of our best workers. Tim is our specialist in sawing. Roman is a fantastic observer. Yvonne does her best sketches in the forest. Marie works and runs and plays without getting tired. Jonas loves to be the leader of the gang. Marco is our favourite fire maker. Emilia is very creative in her garden. Leon loves the muddy places. Lucas always gives everybody a helping hand. Noah is a good mediator.

The change of role is very important for every child and for their position in the group. Especially during 'forest free time' there is often a natural change of partners or in the groups of three to six children. All this is very healthy for the group and a good basis for the development of solidarity and an atmosphere of give and take. Every visitor to our 'Forest School' realizes that there is an atmosphere of respect. The children do not only treat nature respectfully, but they treat one another respectfully, too. And one can even feel this respectful attitude when we are back in our concrete classroom.

The respect for nature and all living creatures is the basis for the next step the children take in our 'Forest School': They learn to feel responsible for what they do! When you are out in nature, you can learn responsibility better than in any concrete classroom. When four children cut down a dead oak tree for our next fire, they must know what can happen, they must act responsibly. When some children put their wooden sticks inside the fireplace, which they love to do, they must know, what can happen. They must act responsibly. When they climb a tree, it's the same. When they lead their partner blind through the forest, they must act very responsibly. In this way they even learn to take responsibility for their 'Children's Forest School'. The children know that our 'Forest School' is not only an ecological circle, but that it's also part of an economical system, that is the government wants to earn money with the forest. A few years ago a big machine, called a harvester, was cutting through our lovely forest not far away from our 'Forest School'. So we got into contact with the local forester and with the mayor of the community and invited them to our open-air classroom. A big discussion took place under the big old beech. The children had many questions, showed our guests their big classroom and told them that they didn't want the machine to cut any of the trees in their 'Forest School'. The officials were very impressed by the children's determination and promised that the harvester wouldn't enter the 'Forest School'. So the children painted signs and put up a red string to keep the harvester out. And it worked - not a single tree was cut and the children's effort was even appreciated in the newspapers. This was an overwhelming experience for the children. They saved their 'Forest School'! The adults had listened to their arguments and they had learned how democracy works. They had learned for life!

In this way our 'Children's Forest School' does not only have positive effects on the children, but even on the whole school community. The 'Forest School' has become an acknowledged part of our school life. Once or twice a year, every class holds festivities in the 'Forest School'. Children, parents and grandparents meet under the big old beech and especially the adults are always surprised what a relaxed time everybody has out there. Every winter we celebrate Christmas out in the forest. When our school had its 100th birthday three years ago, parents built a nice shelter next to the beech tree and all classes and visitors spent a day together in the 'Forest School'. Even at weekends children ask their parents to take a walk to the 'Forest School' and children's birthday parties are often celebrated there. The kindergarten groups sometimes go there, too. So it has become a favourite outdoor meeting place within our community.

But even outside of our community we try to make it public that another way of school education is possible and necessary. Once or twice a year there are articles about our outdoor activities in the local newspapers and from the nearby University of Marburg students sometimes join us to get an insight into our outdoor philosophy. Teachers from other schools are interested also and visit us. In this way we try to spread the idea of outdoor education and hope to be an example for other schools and to encourage them to discover their own ways in education, whether with a 'Forest School' or with other outdoor activities.

In my work as a nature guide I'm inspired by the American nature educator Joseph Cornell. The nature activities and games I mentioned above are derived from his books 'Sharing Nature with Children' and 'Sharing Nature with Children II'. In October 2005 I had the chance to take part in one of his workshops not far away from my hometown. It was a deeply moving experience for me. In his second book Joseph Cornell introduces his method of 'Flow Learning', a method of placing his nature activities in a thematic sequence, to ensure a genuinely uplifting experience.

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Folk Tradition in Outdoor Education

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Abstract

Primary task of outdoor education passed us already French philosopher Jean Jacques Rousseau, with his famous quotation: »Back to the Nature«. The most important mission of outdoor education is to approach nature to the children. Children would have to discover the nature once again. They should enjoy exploring, playing and learning outdoors. And most important, they should also develop responsibility for preserving it.

Implementation of outdoor education is on the other side inseparably connected with human being and cultural landscape he had created. Folklore is a treasury of knowledge based on life circumstances and experiences of individual region, which evolve during centuries. With this knowledge our ancestors harmoniously coexisted with nature.

Slovenia is a small country (20.273 km²). In spite of smallness it amazes us with diversity of regions and valuable folk tradition.

In this article we will introduce a part of folk tradition of two geographical completely different parts of Slovenia: Carinthia (Koroške) and a part of Styria (Štajerske) – Ptuj and surrounding area. With this presentation we will try to exemplify how regional features on small distances created different and unique folklore.

Historical development of folklore

Gathering of folk tradition began in 18th century (1760) in Great Britain, where a Scottish teacher James Macpherson published collection *Fragments of Ancient Poetry*. Right after him an Anglican bishop Percy published two collections of original old English songs: *Five peaces of unic poetry* and *Reliques of ancient poetry*.

European influence influenced on Slovene contemporaries. Marko Pohlin in his grammar *Kranjska gramatika* (1768) called for gathering of folk songs. Onto his initiative Dizma Zakotnik prepared first collection of Slovene folk songs. In 1788 Marko Pohlin published first collection of riddles. The first collection of Slovene proverbs published by Janez Mihelič was unfortunately lost. So the oldest collection of Slovene proverbs is kept in *Grammar* (1777) and *Dictionary* (1779) of Ožbalt Gutsman.

Word folklore is English origin (folk-lore) and means knowledge of people. Term folklore was first used by English archaeologist William Thoms (1846) in newspaper *The Athenaeum*. A new term include traditionally folk culture of less educated layer of population: songs, proverbs, customs, believing, rites,... New concept was well accepted in professional public and since year 1880 being used in all specialist literature.

Science that has been investigating folklore is folkloristic. It started in 19th century. Not only is folkloristic collecting folk material and knowledge, it also interpreting gathered material.

In contemporary Slovene folkloristic literature concept of folklore is capturing traditional folk occurrences and creations: folk music, dance, folk art, poetry, prose, believing, folk medicine, costume and architecture (Terseglav Marko, 1987).

Slovene literature folklore

As literature is art of literary language, folklore is art of dialects. Nowadays when frontiers between individual dialects are slowly disappearing, it is more appropriately to say that **literature folklore is art of spoken language** (Marija Stanonik, 1999).

Slovene dialects are geographical language types of Slovenian language. They differentiate by vocabulary, phonetics, accent,... There are over 40 dialects in Slovenia. They are united into 7 dialectal groups. Reasons for dialectal diversity of Slovenia are: geographical features of territory (which prevented regular contact between inhabitants of different regions), contact with neighbouring languages,...

In Slovenia we have well known proverb: »Every village has her own voice (Osaka vas imam so glass).« And it is very true. In unit Peca children meet Carinthia dialect, in unit Štrk meet Styria dialect. Although, teaching is in literary language melody of individual dialectal group is hidden and heard inside of it. Children can hear dialect also among our unofficial conversations (during spare time) and during fieldwork when they are in interaction with local population.

Short folk forms

They are the shortest forms of literature folklore.

Proverbs: are short and concise thoughts which are based on experiences of our ancestors.. We are engaging them in everyday conversations when we want to support our claims. Proverbs can also be a part of fairy tales. They are indispensable in fables as a moral lesson on the end.

Pleas: are short folklore forms with punctually prescribed shape. Their main intention is treatment with words (folk medicine). Healers believed that rite functions only if it is mysterious. Therefore the hillers intercede knowledge just before they died (on deathbed). If knowledge was revealed it lost mystical power

Riddles: are twisted questions, statements or descriptions, usually thickened in only one sentence. The receiver's task is to solve it. Riddles have great educational meaning. They are enriching imagination, training logical mind, reasoning, observation, train concentration. .. That is why they are placed among didactic word art

Child folklore forms: are short texts that live among the children and are part of their play. Those are teasers, harbs... (Marija Stanonik, 1999).

All above listed folk forms we regularly use at class. Most often used folk forms are proverbs and riddles. Proverbs have important educational meaning, because of hidden rules of life. Many proverbs of Slovene folk tradition speak about weather, while it influenced on food production and survival. Majority of them are widespread all around the country but some of them are used locally. They were formed in different geographical landscapes and climate. Examples: When Peca has a cap it forecasts bad weather (Carinthia). When Boč has a cap it forecasts bad weather (Styria).

Riddles are very popular among pupils, especially among younger ones (the first triad of primary school). They successfully motivate children for further exploration.

Poetry

Poetry is a very important part of literal and music folklore. Folk song is a sung song. Text is inseparably connected to the rhythm and melody of a folk song. It is very important, that folk songs

are alive and that they are still evolving among people. Language of Slovene folk songs is somewhere between literary language and Slovene dialects, therefore they are well understood in all dialect groups.

Epic folk songs are: mythical and fairy folk songs, heroic and historical folk songs and animal folk songs.

Lyric folk songs are: folk songs of annual cycle, songs of a living cycle (lullabies, marriage songs...) and songs of different interest groups (peasant songs, army songs, expatriate songs, drinking songs...).

At class we usually present recorded folk songs. Some of them are known all over the country. Those folk songs we sing together. As we already said, folk songs are still evolving, so we often get to know different versions of folk songs or even melodies of songs. Sometimes pupils even bring along folk instruments (accordion) and we use it within our interpretation of well known Slovene folk songs.

Folk tales

They are divided in two groups: fairy tales and tales.

Fairy tales are imaginative. They originate from ancient life, and they contain basic human values. Transition between fairy tales and tales represents fables. Those are animal short stories, which end with a lesson.

Tales are much more bounded with the local environment. They present realistic or at least possible events. They are usually short. They speak about famous people, settlements, historical events... They end either tragically or contain a life lesson.

Tales are:

- **Mythical tales**: myths are the oldest tales which are explaining the beginning of the world, celestial or terrestrial ghosts and severe natural disasters. Good and bad mythical creatures (fairies, dwarfs...) are appearing in them as well as people with special strengths (werewolves,...).
- **Legendary tales**: legends refer to Jewish and Christian tradition. They usually describe a miraculous event and holiness of people.
- **Historical tales**: history is giving them only time frames (Turkish invasions) and lends them personality (king Matjaž).
- **Interpretative tales**: represent a sort of science within folklore. They try to explain nature.
- **Social tales**: describe social life. You may not kill a mouse in mine.
- **Humorous tales**: are funny stories about local residents and humour events.

In outdoor education we mostly use tales, which refer to local environment. They help children understand both, culture landscape and nature in certain region. Most often presented tales are:

- Historical tales:
 - King Matjaž and Alenčica (Kralj Matjaž in Alenčica): he was a Slovene national hero, who successfully defended our land from Turkish invasions (Carinthia.)

- Najevnik lime tree (Najevska lipa): the tale is about the treasure hidden under very old lime tree, which happened to have the largest size of trunk in Slovenia (Carinthia)
- Mythical tales:
 - Cave dwarf (Berkmandeljc): the tale is about a cave dwarf who owns all the treasures of underworld (Carinthia).
 - Water man on Uršlja mountain (Povodni mož na Uršlji gori): the tale tells us, how Water man moved his lake from Uršlja mountain to Poharca (Carinthia).
- Social tales:
 - Kurent (Styria): it is a tale of a demon that is chasing winter away and awakening nature to the spring.

Arhitecture

Folk architecture is our priceless legacy on countryside. Those are professionally chosen village settlements, homesteads, residential and economic buildings. It includes also created cultural landscape which shows us all visible human interventions into nature (building, cultivation of land...). People were using local building material all the way up to the 19th century. Therefore we have got similar architecture within individual geographical regions.

Pannonia house (Panonska hiša)



(Foto: Nataša Sardinšek)

Carinthia house (Koroška hiša)



(Foto: Janja Gril)

As it is seen on photographs houses look very differently. They were built in totally different landscapes. Pannonia house was built in lowland, agricultural region. On the contrary Carinthia house was built in mountainous, woody region. They were made of different local building materials. Pannonia house is built of wooden base and roughcast made of loam. The roof is made of straw. Carinthia house is mostly made of wood (base, walls, roof), and partly of limestone (basement). Pupils on fieldwork get to know the landscape but with the knowledge of folk tradition they understand the present situation in area.

Conclusion

In outdoor education children learn about **nature** (regional climate, soils, ecosystems, local animal life and flora) and **human interaction with nature** (cultural landscape, cultivation of land, use of land, regional settlement, architecture...).

The primary task of outdoor education is to explore and understand our Mother Nature. But our exploration of nature is more effective and much easier, with knowledge and experiences of local people and their ancestors. With this knowledge we better understand their way of life and culture landscape they have created over centuries. Children became aware of priceless value of folk tradition.

We should be proud on our legacy, because it is original and has grown from our own experiences and interaction with nature. But we also have to ensure that our folk tradition is passed on to future generations.

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Inspiration to Play Outdoors in Various Environments

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Abstract

Our pupils don't often use the outdoors with their parents even though, in Sweden, there are excellent opportunities for such experiences. Both parents are working and family weekends are often very full of different organised activities, which mean that there is little room for less structured experiences in nature.

All children attend school and therefore school is the arena that meets all children and we have an important mission to ensure that our pupils encounter, experience and discover nature as part of their education. We want our pupils to experience nature and feel safe, get inspired and feel happiness so that they alone and together with friends and parents continue to discover and experience nature's possibilities. We try to use our local neighbourhood as much as we can in all lessons throughout the year. We have classes of about 60 minutes and sometimes a bit longer, even whole days. Our outdoor work is linked to the aims of the curriculum.

The first step is to try to make our pupils to feel safe in the outdoor environment by letting them play a lot in uneven terrain, and thus learn to control their bodies in relation to nature, use different senses, distance assessments, friends, cooperation, and social skill.

Children's balance is challenged constantly and so is their self-esteem when they are outdoor playing ...yet each lesson they need to feel

"Yes! I Made It! I reached my goal!"

We believe that if children feel control of their body then it also creates the joy of movement and the desire to move and then there are lots of lovely wild challenges that they feel ready for such as climbing in trees and balancing on stones.

We play both basic games mixed with educational games and we want to inspire the pupils to get involved in the development of our games and in creating new games. It is wonderful when creativity and imagination flow and creates desire, curiosity and inspiration.

We will invite you to join in some games (with basic equipment) that our pupils have been developing and where there are more opportunities for development.

A warm welcome to our presentation of our activities at Resarö School and to play with us outdoors.

Marie Aldener and Kerstin Nilsson work as teachers of physical education and health at Resarö School.

Resarö School is situated on an island called Resarö in the archipelago east of Stockholm in Sweden.

There is about 400 pupils aged 6 to 12 years old. Resarö School is a Council School.

Outdoor Education Facilities. – From Idea to Reality - *An example from Iceland*

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Abstract

The approach, the process, the craftsmanship, local engagement, landscape and nature qualities, play and recreation.

Examples of activities and use, such as from the students, teachers, local community, organised group and visitors.

Vision for the future, further development and our overall experience witch we have yielded from this work.

The process of establishing the outdoor education facilities started few years ago with high spirit and vision within the staff of a brand new elementary school. Following growing awareness of the importance of outdoor education that had been emerging in Scandinavia, the aim was set.

The local surroundings are in many ways special for a suburban school, located in a modern residential area, with densely built apartment buildings. The school is situated on the border, by a local forest and a lake. Being a part of the local urban infrastructure, but at the same time reaching out towards the natural landscape as an urban outpost.

The landscape and natural qualities were immediately incorporated in all levels of the school operative fields.

The school administration activated local resources and parent groups to gather support for establishment of the outdoor education facilities.

Varied work has been carried out in periods with local resources, school staff, city workers, students and professional. Learning and social aspect have been highlighted and important for all steps of the construction period.

Using only natural material and deriving concepts from the heritage and historical crafts, we bring history and sustainability into practical and tangible work.

Community work has in many ways changed the social landscape of the local community and its commitment towards the school.

Guðmundur Hrafn Arngrímsson is landscape architect and project manager.

Studied landscape architecture and planning at the University of Copenhagen and The royal Danish academy of arts.

14 years of experience in field work, working with traditional natural building materials, such as turf, rocks and timber.

President of a local community group, establishing community projects and local engagement.

Project manager at Sæmundarskóli, elementary school. Main focus is the outdoor areas, development of the outdoor education facilities and establish a field for outdoor education and experiential learning.

The Biology Classroom – The Classroom from Nature to Nature

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Abstract

When programming the equipment of the classroom we wished it to present the part of the environment we live in. It offers a supplementary explanation of the events and changes going on in the nature. The objectives in primary school are to promote self study connected with observing, comparing, and searching. All this is offered by this type of classroom.

According to applicable standards we have the classroom with high standard equipment which enables active participation of the learners. The lessons are higher quality, clearer, and more up to date.

Possibilities

Guided work with handouts and natural materials, adopted for different age groups and goals from the curriculum (at the classroom and other locations).

Together with our pedagogical and professional knowledge we offer with pleasure:

- *a visit to the classroom accompanied by a short presentation and explanations,*
- *individual research work with prepared handouts,*
- *watching video films: LIVE WITH THE NATURE, LIVE LONGER and THE DISAPPEARING WORLD,*
- *watching of slides together with interesting children`s comments about attitude towards nature.*

Degraded areas – rehabilitation and enlargement of a stone quarry

(Field exercises)

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Abstract

At the “Varstvo okolja in komunala” high school (for environment protection and sanitation) I hold a course on Rural planning and nature protection. The basic goals of the course are to encourage the students to start judging the situation analytically in respect to special planning and protecting natural resources, gaining skills and knowledge about protecting the environment and special planning for improving the quality of life in rural areas. In this respect I have held a field exercise on the subject of rehabilitation degraded areas, where the theoretical knowledge was supported by practical exercise. The goals of the exercise were to familiarize the students with:

- *With procedures and content of special and environmental documentation*
- *With the process, content and methodology of preparing environmental documents (ED)*
- *With actual and creative solutions in approaching environmental problems*

1. Introduction

I chose the Sotesta stone quarry, near the school, where there are many special documents being prepared in order to enlarge the exploitation area. I chose the preparation of the ED in the process of the whole study on the impact on the environment. The purpose of ED preparation was to ensure an objective insight and estimate the probability of environmental impacts the procedure will have in all phases of the preparation of special laws and decrees. Preparing an environmental report happened parallel to the preparation of special documentation, for it insures the conjuncture of environmental and environment protection of the area. With ED the effects on the environment are seen on time as all effects are identified and procedures to minimize their impact can be implemented from the beginning stages forward. In order to get a license to start taking action, you need to consider and implement these measures.

Here is a presentation of the exercise and the discussion connected to it.

2. Execution of the field exercise

The lectures dealt with preparing EP, the prescribed content and methodology of making an environmental report. The purpose of the field exercise was to make a simplified version of the environmental report.

2.1 Getting familiarized with the task

The work took place in four groups of four students. Each group took into consideration only one segment of the environment. Due to the limited number of students, the chosen segments were: noise and vibrations, air, ground and underground waters, landscape with protection of natural heritage. All groups received working materials with a description and management scheme of the quarry and the

area to be rehabilitated, with the specifics connected with the group task being explained in further details. They have also received the instructions with scales and methods for determining and quantifying the effects. They had to determine direct, remote, cumulative, synergetic, short-, mid- and long-term effects as well as non-permanent effects on the environment, which they had to classify into five categories (A – no impact, B – insignificant impact, C – insignificant impact, if the measures are being implemented, D – significant, E - devastating). Each group had to find the environmental regulations that regulate the certain aspect and take it into consideration, find the sources that effect the environment, describe the effects of rehabilitation and function of the quarry on the environment and foresee the dampening measures, which would minimize the effects on the environment. The final result was to prepare the environmental report.

2.2 Field work

A quarry was a classroom in the open. The students mostly watched daily routine of the quarry, the security procedures, machinery and equipment used.

Each group had the following tasks:

- Determine the areas to be rehabilitated and areas, which the quarry will incorporate, once the enlargement is complete
- Specify which sources, in respect to groups assignment, will impact the environment
- Make a list of environmental measures already in power
- Make a list of possible weak point from the assigned point of view
- Preparing the photo-documentation

2.3 Work results

Representatives of each group presented the complete work of the group to the whole class. Other members of the group supported the representative in preparing additional material for the presentation

Results of individual groups were then put together into a sample of an environmental report. The field exercise concluded when the sample ED was made.

3. Organizing the discussion

The results of the EP were in some cases unrealistic, for they were hard to implement, unnecessary or simply unacceptable (for economic, technologic, time consuming... reasons). To encourage critical thinking about their own results, I prepared a discussion in order to further extend the experience gained with the field exercise. Stakeholders with different interests of special planning were there to face their opinions with one another. The discussion was led by a moderator, but all the participants were active in discussion. The goal was, to hear compare and take into account different aspects connected to the same topic. The final result was to get the edited version of the final report.

3.1 Getting familiar with the task

At the discussion the students were playing the roles of different stakeholders, who were making decisions about making changes in the environment. Each member of a group involved in the field exercise got a different role. The roles were:

- Author of the environmental document
- Investor
- Local community
- Green initiative

In each new group the members could then present their aspect and arguments about the environment. Each group had to study the results of the ED to prepare the defense of their arguments in respect with their role. The roles were:

- The makers of the ED were in the role of environmentalists, who were defending the measures to diminish the impacts on the environment. A moderator for the discussion was taken from their group.
- The investors were supporting the functions of the quarry with minimal investments and the lowest possible number of measures.
- The local community was interested in having the quarry open, because of the jobs, but under certain circumstances (maintenance of local roads, financial compensation for degradation of the real-estate...)
- The green initiative was for the rehabilitation of the quarry and putting the area into the original state and clearly against any enlargement. They wanted the quarry to shut down.

3.2 Organizing a discussion

After the initial un-comfort the debate had developed and shortly turned into a passionate defense of individual suggestions. The moderator showed great skill with leading the conversation. This method showed, how difficult it is to negotiate in real life, when different interests meet in the space for which all included are responsible.

3.3 Results of the Work

The result of the discussion was the edited environmental document, which separately took into consideration areas to be rehabilitated and areas where the quarry will be expanded.

For the rehabilitation area the measurements for visual perception of the area were applied.

For the area where the quarry expansion is to take place, the more sensitive measurements were applied, considering the function of the quarry. These measures consider emissions, noise pollution and the landscape outlook, due to the visible location of the quarry. Other things were considered minor, as the effects of an operating quarry on the environment, which was seen as a technical-technological but manageable aspect. To minimize the impacts, they have also added some other measures to be taken.

Apart from the theoretical result, the discussion also showed the social aspect of problem solving.

The students gained experience in:

- Specifics of team work
- The danger of blindly repeating your argument without accepting the views of others
- The necessity of making compromises, but not on the account of protecting the environment

4. Conclusion

It was an interesting experience for the students, for they got a chance to test their knowledge on specific tasks and further develop it. The discussion also gave them the experience with crossing interests in society. So the field exercise and the discussion started preparing them to apply their theoretical knowledge in real life situations they will meet once they start their employment.

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Active Cognition of the Karst Caves and Surface

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Abstract

The aim of the nature-study days for pupils on the karst regions are to get to know the speleogenic processes, speleobiology, importance of the environmental protection, fragility of the karst ecosystems, efforts for cave explorations, etc. Effort will be more successful with involving of the guests in active cognition. The teacher presents the problems and help the students to solve them with all didactic methods.

The participants of the conference will be treated as pupils on the study days organised by the Centre for School and Outdoor Education. Devided in working groups will receive sheets with exercises of geomorphology, physics, nature protection,, speleobotic, speleoclimatology,....After following the natural historical path from the village Slivje through the blind valley Mrzlice till the cave Dimnice, we' ll enter in the the most didactical cave in Slovenia. We'll stop on observation points to determine the position of the plants, observe the nutrition of the cave animals, experience the cave dark with the game »bat-moth« which imitates tha bats catching flies, calculate the depth of the shaft,....Sollutions will be checked by participants and the best will receive the prize.

Biodiversity – Orchid Registrarion on Dry Carst Meadows

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Biodiversity describes all richness and variety of life on Earth, which includes in complex relationships variety of individuum of individual of species, variety in number of species and diversity of differen processes in nature. The awareness of biodiversity, its importance and goals of research work, is easily reached with direct contact with nature, where special places could be selected as classrooms in the field.

Park Škocjanske jame, Slovenija, the only Slovene UNESCO World Heritage site, established the schools network of the park in 2003. It linked schools from buffer zone and core area in Slovenia and also elementary schools from Italy.

Network enables the exchange of experiences of pedagogic workers in the field of education and training, presentation of the park and international conventions UNESCO and Ramsar and MAB programme to the pupils. School children are able to participate in different research projects of the park with social or naturalistic content. Network enables also performance of schools activities in public, which participate to rise in quality of social and intergenerational relations. Besides gaining knowledge of environment and society, network offers possibility in cognition of Slovene and European nature and society. With proper education programme it plays an important role in creating the responsible attitude and knowledge in fulfilling the tasks of nature protection and conservation of natural and cultural heritage.

Park Škocjanske jame, Slovenija, has prepared an interdisciplinary programme “Observing for knowledge”. It includes several research projects for schools in parks network, were children perform chemical and biological analysis of water in the Reka River and various types of wetlands, perform a monitoring of trees and dry karst meadows.

With the research work, that will be presented, we were engaged in establishing the basis for participatory monitoring of the Park Škocjanske jame, Slovenia. We managed to present high diversity of habitat types regarding karst meadows, were wonderful wild orchids are growing. Plants, protected by Natura 2000, were selected for this task because of its uniqueness and challenging field work in schools surroundings and children homes.

The research work was performed in cooperation with experts from the Park Škocjanske jame and Centre for Cartography of Flora and Fauna.

*The variety of plants was presented to pupils on the field. They have got to know the diversity inside one family of species Orchidaceae which are listed as most endangered. During the inventory we have found four species typical for karst meadows **Green-Winged Orchid** (*Orchis morio*), **Burnt Orchid** (*Orchis ustulata*), **Military Orchid** (*Orchis militaris*) and **Three-toothed orchid** (*Orchis tridentate*). Wild orchids have been found on pristine wild meadows, while on the others there were not any. The majority of pupils were surprised to know that the most common *Orchis morio* belongs to the family of orchids.*

Different habitat types of meadows, according of human use, have been confronted for variety of species and human impact on changing the ecosystems has been evaluated as well. All activities have been oriented towards the individual features of individual organisms, guided research with observation and comparison of the presence of certain species in habitat types.



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