ENGAGING STUDENT TEACHERS IN SUSTAINABLE PRAXIS
IN AOTEAROA IN NEW ZEALAND

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Abstract
This paper draws on the narratives of three teaching staff as they collaborate to transform student teachers’ thinking and praxis about sustainability through a bicultural perspective that acknowledges indigenous and Western ideologies. It will discuss some of the experiences that the student teachers found to be transformational such as: whakapapa (our connectedness to all things, both living and non-living), and a mini action research project on the ‘rubbish’ generated on their class days. The question the co researchers pose is “how is the [bicultural] conceptual framework visible in our teaching and learning about sustainability?”. Our findings suggest that student teachers become articulate and passionate about sustainability through engagement in activities that challenge the ‘taken-for-granted’ everyday practices. As confidence and competence increases student teachers can realise their potential to make significant curriculum changes as they work alongside children and their families to care for planet earth.

Key words: early childhood, teacher education, Māori (indigenous) perspectives, bicultural.

Introduction
The whakatauki or traditional proverb “Mai te kore, ki te pō, ki te whaiāo, ki te āo marama” lies at the heart of a conceptual framework that guides teacher education in the early childhood degree programme of Te Tari Puna Ora o Aotearoa/ New Zealand Childcare Association. Students are challenged to become aware of the potential (mai te kore), and the possibilities and uncertainties (ki te pō), as they move into the world of light (ki te whaiāo) towards enlightenment and understanding (ki te āo marama) about their responsibilities as human beings and as teachers of infants, toddlers and young children.

In 2009 our organisation (Te Tari Puna Ora o Aotearoa/ New Zealand Childcare Association) developed a bicultural conceptual framework to guide the development of a Bachelor of Teaching (Early Childhood Education) degree, with sustainability as a curriculum thread. This provided an opportunity for three members of a teaching team to engage in dialogue and learn from each other about sustainability from different cultural perspectives. One member of the team in this project is Māori and as tangata whenua (indigenous people of the land, Aotearoa/New Zealand) brings a critical lens to effect praxis. Alongside students, co-researchers are challenged to become aware of the potential of integrating a Māori perspective of sustainability moving towards enlightenment and understanding. The question the co researchers pose is “how is the [bicultural] conceptual framework visible in our teaching and learning about sustainability?”

Background
New Zealand’s constitutional document The Treaty of Waitangi /Te Tiriti o Waitangi (Orange, 1987), guides the policies and teacher education programme of Te Tari Puna Ora o Aotearoa/NZCA. Our organisation’s bicultural strategy (2008-2010) strengthens this commitment, to increase bicultural praxis in the degree. Te Tari Puna Ora o Aotearoa/ NZCA provides a field based teacher education programme whereby student teachers attend class one day a week and work in an early childhood setting for the majority of each week. Many students are mature women with families returning to study. Twenty seven percent of students in the programme in 2010 were Māori (Meade, Kirikiri, Paratene, & Allan, 2011).

An Indigenous articulation
Whakapapa (origins) is an indigenous word representative of Māori beginnings as interconnected beings resonating spiritual, human, physical and environmental elements. The individual is integral to a pedagogical process which recognises that Māori are connected to all things that exist in the universe: “We are linked through our whakapapa to insects, fishes, trees, stones and other life forms” (Mead, 1996, p. 211). Knowing
your whakapapa establishes your place of belonging, the connecting of grandchildren to ancestors, family, sub tribes, tribes, to the land, the sea and the mountains:

Māori knowledge, values and beliefs are bound in the pro-creative pūrakau/Māori reality. It is a narrative that highlights qualities of integrity and relatedness to Ranginui (sky father) and Papatuanuku (earth mother), to an intertwined spiritual and cultural relationship with nature. It is within these embedded energies and aspects that Te Ao Māori (Maori worldview) ecological principles reside (Ritchie, Duhn, Rau, & Craw, 2010).

The notion of kaitiakitanga (sustainability) is an indigenous cultural conceptualisation which upholds whakapapa, acknowledging interconnectedness through ecological conservation. This term inculcates the emergence of an ethical responsibility to be guardians and trustees of the natural world (Benton, Frame & Meredith, 2007). A Māori worldview prioritises the significance of reciprocity, and the active engagement of caring for, rather than merely caretaking of taonga/treasures (Waitangi Tribunal, 2004).

It is significant that the New Zealand government delayed signing the United Nations Declaration on the Rights of Indigenous People (UNDRIP) (United Nations, 2007). Article 15.1 recognises “Indigenous peoples have the right to the dignity and diversity of their cultures, traditions, histories and aspirations which shall be appropriately reflected in education and public information” (United Nations, 2007).

The indigenous co researcher voice has been to illuminate a Māori worldview by exploring philosophical, theoretical and pedagogical understandings with fellow co researchers, both of whom derive their knowledges and understandings from a Western perspective Co-researcher philosophical positioning of sustainability, whilst anchored in western discourse, also aligns with Māori ecological values and beliefs. A praxis of kaitiakitanga, of caring for the planet is enacted on a daily basis at the Palmerston North teaching base alongside colleagues and students. A respectful reciprocity exists; the co-researchers upholding the prestige of the earth through deliberate interventions designed to potentialise transformative change of students and staff.

Approach to sustainability

In New Zealand early childhood settings children are viewed as “competent, confident learners who ask questions and make discoveries” (Ministry of Education, 1996, p.88). This allows children to make choices about their engagement in the environment/curriculum. We would argue this places an additional responsibility on early childhood educators to ensure that all children are provided opportunities to engage in experiences that promote education for sustainability. Furthermore, in a curriculum supported by assessment procedures that focus on children’s interests (Ministry of Education, 2004, 2007), it is up to the educator to “notice, recognise and respond” to children’s emerging interests (Cowie, 2000 cited in Ministry of Education, 2004) in ways that are meaningful to the child. This requires skilful planning and documentation by educators to support children’s learning, as well as sound content knowledge and pedagogy about the topic of education for sustainability. Increasingly, educator knowledge (or a lack of) is being fore-fronted in the New Zealand context. Educators need to take personal responsibility for their own environmental knowledge so that education for sustainability becomes an integral part of the early childhood curriculum (Prince, 2010). In a bicultural curriculum such as the New Zealand early childhood curriculum document Te whāriki: He whāriki mātauranga mō ngā mokopuna o Aotearoa (Ministry of Education, 1996) it can be expected that this will include consideration of indigenous knowledge as included in the te reo (Māori language) text and throughout the remaining document.

Two learning outcomes from Te whāriki: He whāriki mātauranga mō ngā mokopuna o Aotearoa (Ministry of Education, 1996) that guide this study include firstly, the notion that ‘infants, toddlers and young children’ develop “a relationship with the natural environment and a knowledge of their own place in the environment” (Ministry of Education, 1996. p 90). On one level, this statement recognises an approach that leans towards environmental education based on children’s engagement in the environment, however when a Māori world view is applied and concepts such as whakapapa (origins) or kaitiakitanga are considered, then the child becomes an active agent through his/her relationship with the environment. This then allows for discussion about issues of social justice and children’s competence in acting for the environment. Davis refers to a new conceptualisation as in Early Childhood Education for Sustainability (ECEfS) described as:

transformation early childhood education that values, encourages and supports children as problem-seekers, problem-solvers and action-takers around sustainability issues and topics related to their own lives (Davis, 2009, p. 230).
We argue that this is as relevant to ourselves as co-constructors of knowledge (Jordon, 2009) as it is to our student teachers/teachers in training and the children and families that they work with in early childhood centres.

The second learning outcome requires that children develop “respect and a developing sense of responsibility for the wellbeing of both the living and the non-living environment as well as” ..., “develop working theories about the living world and knowledge of how to care for it” (Ministry of Education, 1996, p. 90), again positioning children as active agents in caring for the environment which includes caring for all elements as noted under the concepts of whakapapa (origins) and kaitiakitanga discussed above.

In their study of New Zealand kindergarten children’s “action competence” Mackey and Vaealiki (2011) argue that young children are critically aware of environmental issues. Elliot and Young (2005) consider the importance of early connection with the natural environment suggesting that environmental education begins at birth and on a developmental continuum, such as espoused in Te whāriki: He whāriki mātauranga mō ngā mokopuna o Aotearoa (Ministry of Education, 1996, p. 90), again positioning children as active agents in caring for the environment which includes caring for all elements as noted under the concepts of whakapapa (origins) and kaitiakitanga discussed above.

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Methodology

The research methodologies that underpin this study are grounded in both indigenous and western research design (Clandinin, 2007) Kaupapa (philosophy) Māori and narrative research align with a qualitative approach, the emphasis in the study being on dialogue for reflection and change in praxis (Denzin, Lincoln, & Smith, 2008). Action research (Cardno, 2003) is also a key underpinning.

Meier and Stremmel (2010, p. 249) define narrative research as a “process of studying and understanding experience through story telling or narrative writing”. They discuss the application of narrative inquiry to early childhood teacher education as a tool that “prompts reflection and encourages the authentic expression of lived experiences” (p. 250). This suggests that it is through telling of their stories teachers gain a sense of who are they as teachers and as human beings; one of the core elements in the conceptual framework of the degree is the notion of teacher identity and the relationship of the self as a teacher and the self as a person (Gibbs, 2006). We would add that in terms of education for sustainability, an acknowledgment of the self as kaitiaki (guardian) is an important part of being a teacher, and that it is in the acting out of our everyday lives that we express these values.

In her study of self-study research through narrative inquiry, Ajodhia-Andrews (2011) notes the value of collaborative partnerships with colleagues as a way of affording opportunities to construct fresh understandings and thinking, through shared dialogue with others who may not share familiar perspectives. This has been an important element of our collaboration as we come to know and understand ourselves and the perspectives of others. Moen (2006) emphasises the collaborative nature of narrative research and the importance of a caring relationship between the researcher and those being researched. While this is collaborative research and one colleague is not researching on another, we are exposing our world views and values as we share thoughts and ideas and open ourselves to new ways of thinking. Sensitivity to cultural beliefs and values has been an important part of our story telling, supported by a shared responsibility to mānau (to uphold the prestige of and to care for each other).

Kaupapa Māori methodology upholds storying as integral to the transference of values and beliefs across time (King, 2005; Metge, 2010). Kaupapa Māori research recognizes its value as a methodological tool, a way of understanding and making sense of people’s lives and experiences. Storying aligns with Māori concepts of interconnectedness between whānau (family), hapu (sub-tribe), iwi (tribe) and the environment. This is affirmed in Ritchie, Duhn, Rau and Craw, (2010); Linda Smith (1999, p. 120), highlights Māori research principles of:

Kanohi kitea (the face that is seen, being present with people face to face)
Aroha ki te tangata (highlights respect for people)
Kaua e takahia te mana o te tangata (reminds us to uphold not trample on the prestige of people)
Titiro, whakarongo korero (reminds us to look, listen and speak)
Kia tupato (tells us to be cautious)

These principles are viewed as rights imbued with ethical underpinnings that honour the integrity of all those involved within research.

Method

The opportunities for thinking about sustainability through a new lens occurred as all three researchers shared their reflections; at first informally around the morning tea table and later as we worked together on a shared presentation for the 47th Te Tari Puna Ora o Aotearoa/NZ Childcare Association’s conference

A bicultural research collaborative method was instigated which involved a multi layered approach whereby two co researchers would guide and implement the student inquiry of sustainability. The non-Māori lecturers and their classes were to implement an action research project to investigate the amount of rubbish generated at the teaching base. Following this the indigenous co researcher role was to facilitate conversations to analyse and make visible Māori conceptual understandings.

Our approach to teaching and learning about education for sustainability.

At the outset of our co-research collaboration, we were teaching a course that covered a number of key curriculum areas focused on science, technology and environmental science in early childhood settings as well as working in partnership with family and community, with a minor focus on an introduction to practitioner research. Throughout the course we worked to integrate these areas in meaningful ways as in a holistic curriculum, while weaving the theory around the practice.

It was important to us that our students take their learning back into their early childhood centres and communities, which is a notion that fits well within a centre-based model of teacher education such as ours, where students are also practicing teachers. This meant that the experiences we provided must be relevant and meaningful not only to our student teachers but also to the colleagues in their early childhood centres and to children and families with whom they work. For us, this meant providing ‘hands on’ experiences that students could replicate or adapt in their centres, with a particular consideration for infants and toddler programmes.

Findings: A story of Identity and Kaitiakitanga

As a way of modelling the action research component of the course, we involved students in physically collecting and sorting the rubbish on the Teaching Base generated by them on their class day. The ‘problem’ we posed to them was: is the amount of rubbish we generate an issue and if so, how could we reduce / reuse / recycle more?

While sorting the rubbish was met with some reluctance initially from class members, the messages from their readings and discussions about sustainability were strong enough to motivate them to engage in the activity. In the first week of the course, with our support, students sorted, weighed, counted and documented visually how much and what type of rubbish they were generating and disposing of in the rubbish bin. This gave us base line data. Each week a small group continued with the research task, documenting and making their findings visible to their classmates. Each student had a turn in the group responsible for recycling over the period of the 10 week course. This became a self monitoring activity with very little lecturer input after the initial 3 weeks.

Changes in student practice on the Teaching Base included:

- The use of lunchboxes, instead of plastic wrap
- Healthier morning teas (fruit or home baking - after a student observed that the wrappers in the bin contained largely unhealthy food choices)
- A reduction from a 50 litre bin of refuse → 10 litre bin!

There was a reduction in green waste in the rubbish bin. A worm farm made from recycled products was set up on the Teaching Base. A bokashi bin was established when the worms were unable to keep pace with food rubbish. Learning about the science involved in composting became relevant as students needed to understand the conditions conducive for both the worm farm and bokashi bin to operate. As a result of this activity many of the students returned to their centres and revived discarded worm farms; some made new worm farms from recycled materials with the children. Students also began seeing that children, with teacher support, are competent and interested in environmental activities, and for some centres, this meant a move towards integrating these activities into the everyday curriculum offered to children.

There was an increase in the amount of plastic, glass and metal put out for recycling. This in itself required some knowledge of the symbols of recycling and learning about what our local council would accept as part of their newly launched recycling project. A visit to the local recycling centre created an awareness of the physical amount of recyclable rubbish created by the city and gave students knowledge about the end use of materials such as the glass being crushed locally and used as fill in regional road projects.

These student outcomes reflected shifts in thinking; their “kanohi ki te kanohi” engagement with the ‘rubbish’ and visit to the ‘recycling centre’ generating new thinking - a differing relationship anchored in a sense of reciprocity, of taking responsibility, and not seeing oneself as separate from the artifacts.
Students also began to think about what could be reused in their centre; for example there was an increase in the variety of materials (all recycled) for children to use in collage/construction. Students began working with children to create new resources/learning experiences such as sorting and counting coloured milk bottle lids as part of the spontaneous construction of curriculum.

Weekly reflective discussion took place based on the excursion or experience encountered the week before. A passion developed amongst the students for what they were discovering and how, they as individuals could make a difference. Many students found out that children attending their centres were already knowledgeable about environmental sustainable practice and were able to engage with families to do more in relation to environmental learning. This also helped strengthen relationships and partnerships within the centre environment.

The group experienced kaitiakitanga as opportunities for thoughts, energies and passions to collude together as a transformed collective. Discussions between colleagues were enriched as our enthusiasm was swept along with our own learning alongside the students. A greater connectedness between participants was established alongside a developing deepened respect for what we all could offer on the topic. Students became passionate about the environment and began to advocate for social justice surrounding environmental sustainability and practice.

There was a deepened connectedness, “Aroha ki te tangata” enacted resulting in a new student ‘re-lensed’ relationship with their environment. Changes were made to personal choices based on the new knowledge students had gained and after a trip to the waste water treatment plant there was much discussion and seeking out of non-prosperous products in supermarket. Documentation of the action research provided evidence to reflect upon. For example, sorting the rubbish provided data that indeed the amount of rubbish being generated on the base was a problem.

Concluding reflections

This research prioritized student involvement “Titiro, whakarongo…korero” (Look, listen, speak) as integral to a visioning of individual voice adding to the strength of all. As lecturers we made taken for granted assumptions about students knowledge surrounding sustainable practices before we began these classes. It was not until we engaged in ‘real experiences’ that students began to understand their personal and professional obligations in this area. Narrative as methodology validates collaboration; as people engage in storying new visions emerge.

Identity is integral to our conceptual framework. In this research narrative students came to see themselves as kaitiaki (trustees) taking on the mantle of sustainability and being transformed. Inspired and empowered the students took their new knowledge and understanding of education for sustainability, back into their early childhood centres with strength, voice and a sense of advocacy. Kaitiakitanga was affirmed through establishing a deeper respect for the living and non-living world. Manaakitanga (caring for all), for the environment was upheld by student reciprocity towards viewing nature from a newly found ethical position.

The Aotearoa/New Zealand context as a nation with a dual heritage recognised through Te Tiriti o Waitangi/The Treaty of Waitangi offers an opportunity to reconceptualise our thinking about sustainability (kaitiakitanga). Co researcher collaboration and passion for re-positioning sustainability at the heart of curriculum has inspired transformative praxis that prioritises the collective rather than the individual.

References:


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POSITIVE YOUTH ACTION TOWARDS CLIMATE CHANGE

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Abstract
This study focuses on the experiences of young people who are leaders of change in the environmental field. This study views environmental activism as a personal commitment towards pro-environmental behaviour. The motivations and challenges of such work are viewed as important to learn more not only about volunteering in environmental organisations, but also about pro-environmental behaviour. The main research problem was to explore these individuals’ present and past life experiences, in the light of their activism, towards the issue of climate change.

Narrative inquiry was chosen as a methodology for this research as it gives importance to experience and facilitates the study of an issue in all of its wholeness and complexity. The research involved in-depth interviews with three participants as well as living alongside the participants in an effort to build a relationship with them and to experience being an environmental activist. The participants were members of a local environmental organisation – Friends of the Earth (Malta).

The outcomes of this study provide an opportunity for reflection on the factors that affect pro-environmental attitudes and behaviour and their implications on environmental education. This reflection will enable informed efforts to engage more young people in environmental activism. From the narratives produced, it is clear that there is no single factor that is optimal for promoting pro-environmental behaviour and environmental activism. These are in fact determined by a combination of interrelated factors.

Keywords: Narrative Inquiry; Youth; Education for Sustainable Development; Activism; Climate Change; Friends of the Earth

Introduction
Environmental problems are ultimately a result of human behaviour and can thus be mitigated and reversed also through human behaviour – not just through scientific and technological solutions (Oskamp, 2000). This means that Education for Sustainable Development (ESD) has a key role in the resolution to such problems (UNESCO, 2005). The 2007 High-Level Planning meeting acknowledged climate change as a world concern that needs to be part of the awareness, learning and education for a sustainable future (UNESCO, 2007).

The world’s 1.2 billion young people aged 15-24 constitute 18 per cent of the global population (United Nations, 2007). Agenda 21 (UNCED, 1992) identified youths as key stakeholders that have a unique contribution to make towards sustainable development, and dedicated Chapter 25 to the importance of children’s and young people’s participation in decision making to create their own future. The participation of young people in sustainable development efforts will determine the success of these efforts. Research though has shown that there is an attitude-action gap in young people. For example, Mifsud (2008) reports that the overall attitude of Maltese post-secondary students towards the environment appears to be strongly positive, but they generally seem to perform little positive environmental action. One reason for this attitudes-behaviour gap might be the way in which ESD is presented.

This research explores factors that encourage a change in behaviour in young people that have bridged the attitude-action gap and are actively involved in positive work for the environment. Whilst Tanner (1998) argues that ‘it is imperative that we understand how activists (informed, responsible activists) got to be the way they are’ (p. 400), there has been in fact little research conducted on young people who are leaders in environmental action (Arnold, Cohen and Warner, 2009). The study aims to provide information and insights that will influence the development of more effective ESD programmes for young people – programmes that encourage young people to take the lead in sustainable development.

While both authors shared in the analysis of and reflection on the experiences gathered during this research, the use of the first person active voice was preferred over the passive voice in the writing of the
research methodology of this paper. This was done to highlight that it was the main researcher (i.e. the first author) who, as a situated participant in the research, was doing the telling.

**Research methodology**

The story is a universal form of human sense making and narrative inquiry values human experience as a way of generating knowledge and interpreting it. Narrative researchers collect and interpret these narratives to study how humans experience and understand the world. (Gudmundsdottir, 2001). People reveal themselves to others by the stories that they tell. Narrative inquiry can thus help us understand reasons for our actions which are motivated by beliefs, desires, theories, and values (Bruner, 1990). Narratives often seem able to give us understandings of people in a way that more traditional positivist methodologies cannot, because they recognise the value of the whole person and human life in its complexity (Freeman, 1997).

Narrative inquiry is not fragmentary and has thus enabled me to study the experiences of my participants in a holistic manner. I have positioned myself and my research within the experience-centred narrative research domain that involves ‘texts which bring stories of personal experience into being by means of the first person oral narration of past, present, future or imaginary experience’ (Patterson, 2008, p.37). I have chosen this position, since I was interested in general experiences, themes within the stories, participant’s thoughts and feelings and in building a relationship with participants in which they could share the responsibility of construction of the stories.

In this study I was focused on trying to understand the life experiences of three individuals who chose to dedicate a portion of their lives towards the issue of climate change. The research problem can thus be seen as trying to think of the wholeness of these individuals’ life experiences and to explore its complexity in the light of their activism towards climate change. I wanted to be able to see their past, present and future, what they thought, and why they thought that way.

**Entering the field**

Most studies measure environmental behaviour through self-reporting, but the link between self-reported behaviour (or behavioural intentions) and actual behaviour can be quite weak. Various studies report that people claiming to possess pro-environmental attitudes often do not act accordingly (De Young, 2000; Finger, 1994; Pelletier, Tuson, Green-Demers, Noels and Beaton, 1998; Shultz, Oskamp, and Mainieri, 1995). In studies that involve self-reporting, participants tend to report more engagement in pro-environmental behaviour than they actually do, since it is easier to report such behaviour than to actually practice it, and it is also quite tempting to exaggerate positive actions (Schultz and Oskamp, 1996). Participants would usually want to show the researcher how ‘environmental’ they are, and thus, over-reporting is somewhat an inevitable outcome of self-reporting (Barr, 2007). Over-reporting is becoming more pronounced as environmental discourse is becoming more mainstream.

Stern (2000a) considers environmental activism – including active participation in environmental organisations – as an environmentally significant behaviour. Members in environmental organisations are expected to engage more in pro-environmental behaviour than the general public (Ellis and Thompson, 1997; Hines, Hungerford, and Tomera, 1986-1987; Olli, Grendstad and Wollebaek, 2001). If they are volunteering time and energy, it must be (at least partly) because they believe in the issue and in the possibility of change. Moreover, belonging to an environmental organisation is in itself a motivator towards adopting the group’s shared pro-environmental behaviours.

My study was thus conducted with Friends of the Earth Malta (FoE Malta) – a local organisation affiliated with Friends of the Earth International (FoEI) and Friends of the Earth Europe (FoEE). I chose this NGO since, at the time, it was the only one in Malta that was involving young people in the fight against climate change. I did not only choose an activist environmental organisation, but from within I chose participants that had an activist role. Paying the organisation’s membership fee does not imply commitment towards the organisation and its vision. There are different levels of membership within an environmental group, and out of all possible types of membership, environmental activism is the most committed (Stern, Dietz, Abel, Guagnano and Kalof, 1999). Being an activist within an environmental organisation involves trying to actively influence policy-making and public opinion to take and support environmental measures. Finger (1994) unsurprisingly found that environmental activism is directly related to pro-environmental behaviour. Emmons (1997) defined pro-environmental actions as ‘a deliberate strategy that involves decisions, planning, implementation, and reflection . . . to achieve a specific positive environmental outcome’ (p. 35).

There are two starting points for narrative inquiry: listening to participants as they tell their stories, and living alongside participants as they live their stories (Clandinin and Connelly, 2000). I chose the latter and
sought to first settle in, live and work alongside the participants, and experience being an activist in an environmental organisation. During this time I persisted in trying to become part of the group and join the group narrative. I recorded actions, happenings and feelings which became part of my field notes. I started the interviews, four months after I first joined the group. This time spent living with the participants enabled me to get to know them first and also offered the participants the time and space to feel comfortable with the relationship between us. Trust is one of the most important aspects of the life story interview.

**Interviewing participants**

Narrative inquiry usually uses small numbers of interviewees, often sampled opportunistically (Squire, 2008). I was not interested in interviewing any member listed in the organisation’s database, but in active young members. So I interviewed only those young volunteers that were committed to attending the climate change campaign meetings and actions. There were only three such volunteers – Charlene, Robert and Mary – who agreed to take part in the research.

The life story interview has different roles as a tool in narrative inquiry and provides a practical and holistic methodological approach for the collection of personal narratives (Atkinson, 1998). The narrative produced, not only seeks to represent the storyteller, but also offers a way for the researcher and others, to explore and interpret the personal world of the storyteller (Atkinson, 2007). Prior to the interview, I prepared the participants by explaining what the interview was going to be about. I also gave them an empty time-line that they could fill with events that happened during their life – events that shaped their environmental values and influenced their choice to be active within FoE. The time-line allowed them to write down the year or how old they were when the event happened and to give a title or a short description of the event. They had time to think of these events on their own, at home and without any pressure, and when they were ready they gave me the time-line they had constructed. This time-line served as an initial basis for the interview. It enabled me and the participants to go into and discuss these events together in greater detail. These were events which the participants themselves deemed important without having any suggestions from me as the researcher. I also prepared a general interview guide with some open-ended questions that I discussed with the co-author of this paper. These questions addressed areas that did not feature in the time-lines but which I wanted the participants to delve deeper into. Participants chose where they wanted their interviews to take place. For me this was important, because I wanted them to feel comfortable, ‘at home’. So sometimes we met in their favourite coffee shop or at the FoE office or in a public garden.

During the interviews, I guided the participants through the telling of their life story while recording it on an audio tape. I allowed participants to say whatever they wanted to say by refraining from asking a lot of questions or commenting about what they had just said (Riessman, 1993). However, when I thought that what they shared was just the tip of a big iceberg, I tried to elicit more by encouraging them to reflect on the events that had happened. The interviews can thus be described as semi-structured as the overall agenda was set by me, yet there was plenty of room for the participants’ own personal agenda and spontaneous descriptions and narratives (Brinkmann, 2008). The direction of each interview was mostly determined by the participant’s responses to ensure that the participant shared the role of deciding the course of the interview. I am aware of the fact that the stories elicited are very much a result of the interactions between me as an interviewer and the participants and that different types of interaction would most probably have produced different stories (Riessman, 1993).

**Producing narrative texts**

I transcribed and translated (from Maltese to English) all the audio recordings of the interviews. Although this took a painstakingly long amount of time, it allowed me to become more familiar with the narrative texts and feel closer to the participants. Transcription is also an interpretative process and thus I also wanted to make sure that I had full responsibility of the interpretation. After transcribing, I omitted the questions asked during the interview, any utterances from my part and some repetitions. Content had to be restructured into sentences and paragraphs and reordered to make it chronological and thus to create a story which was clear and readable (Atkinson, 2007). This was important as people often do not conceptualise their stories in sequential categories, especially when they are speaking (Greedy, 2008).

For both empirical and ethical reasons, to come up with narrative texts that truly reflect how the participants view themselves and their experiences and how they want to appear to the audience of the study (Freeman, 2003). Thus I made sure that my relationship with the participants did not end with the interview. I gave them first the transcript and then the narrative text to review and change as they saw fit thus valuing their intentions and agendas both during the interview and the production of narrative texts (Connelly and
Clandinin, 1990). This gave the participants the final say in what their life story will look like in its final form giving them more power over the narrative (Squire, 2008). I cannot say that I was not hesitant about taking the narrative texts back to the participants as I feared that they would not like the texts and would want to drop out of the study. My fears were nevertheless unfounded and all participants contributed to changes to the research texts.

The conversations between us did not stop when the interviews were finished, but I still remained part of the group and the narratives evolved throughout the research process. The final product became the narrative texts which took the form of a first-person narrative/story that retained the words and the voice of the participants. The narrative texts were thus created with the purpose of telling a story that provides the basic building blocks of narrative inquiry (Franzosi, 1998). Without a story there is no narrative. Sequence and meaningfulness were guaranteed through the following of the participants’ life-course, but some ‘non-story’ material like descriptions and reflections were also included. This text became the essence of what happened to the participants, whilst presenting their perspective on, and understanding of, their lived environmental life. What the participants chose to tell me is what is most real and important to them and is what gives the clearest sense of their subjective understanding of their lived experiences (Atkinson, 2007).

**Analysis of the narratives**

There is no universal fixed approach in narrative analysis, but according to Plummer (2001), one of the central elements of narrative research is the analysis of key themes that help to organise the way a life story is told. These themes – that may be stories of events, or particular thoughts and philosophies (Phoenix, 2008) – cluster around recurrent content in stories (Mc Adams, 1997). The identification of key themes does not imply a lack of value to the uniqueness of individuals and their stories, but an opportunity to identify and understand common patterns whilst taking into consideration differentiating aspects of lived experiences (Josselson, 2006).

In thematic coding, the researcher frequently begins with a list of themes known (or at least anticipated) to be found in the data (Ayress, 2008). In this study, the initial codes used came from a review of the literature and allowed me to identify tentative key themes across the stories. I also paid attention to the sequencing and progression of themes within the narrative texts (Squire, 2008). I moved back and forth between the narrative texts themselves and identified themes using interpretative procedures. Pieces of ‘data’ were decontextualised from the narrative text and recontextualised into a theme. Coding categories were reconceptualised, renamed, reorganised, merged, or separated as the analysis progressed. It is through repeated reviewing and coding of the data that links between various codes were then made and the relationships among categories began to solidify (Benaquisto, 2008).

Every step of narrative research is always interpretive (Josselson, 2006): from choosing the participants; deciding what to ask them and what to delve deeper into; transcribing from speech to text; making sense of the transcript; deciding what to highlight and what to give less importance to; and giving meaning to the narratives. Narrative inquirers work with an attitude of knowing that other possibilities, interpretations, and ways of explaining things are possible (Clandinin and Rosiek, 2007). The narrative texts produced can be considered as an ‘open work’ where meaning-making is continued by those who read it (Moen, 2006). Looking at narrative texts in this way extends the many possibilities of interpretation.

**Analysis and interpretation of data**

This section of the paper outlines the key themes that emerged from the analysis of narratives. Even though participants had the power to modify and interpret their experiences during the study, we – as authors of this paper – would like to point out that the final interpretation of the text is based on our understanding of these experiences.

**Values**

The values-beliefs-norms theory (Stern, 2000a) proposes that values influence our beliefs about the environment and the consequences of environmental degradation on the things and people we hold dear. Values influence pro-environmental behaviour (Nordlund and Garvil, 2002, Stern, 2000a, Thompson and Barton, 1994) and environmental activism. Although very hard to change, value changes may be the most effective means to achieve sustainable lifestyles. Society, culture, and conditions in which we live tend to shape our values and thus behaviours.

*It seems that today’s children do not know how to really enjoy themselves. It is not their fault; it is the way in which life has changed since I was a child. Life is faster and they have adapted to this lifestyle, and the stress that it brings along with it. They do not even have the patience to read a book.* (Charlene)
Environmental values are often connected and intertwined with other values, such as values associated with family, community, and economy that lead to pro-environmental behaviour (Jenkins, Bauer, Bruton, Austin, and McGuire, 2006). Typical examples of such values are the post-war traditional values of ‘non-consumerism’, saving money, non-wastage and taking good care of material possessions. Charlene’s traditional values were handed to her by her family not for pure environmental reasons, but rather for social and economic ones. Still these values are guiding her efforts to live a more pro-environmental life.

Funds are also quite limited. We are quite a big family with five children so money was always an issue. I am not grumbling, mind you, because we have always managed to live with what we have and we never wanted or wished things that were a luxury. I remember that for many years, we did not have a car, and it took us quite some time and sacrifices to buy one as a family. You learn that you cannot buy everything and that some things are purely a waste of money. You also learn to appreciate what you already have. I have also learnt the importance of saving for the future, a concept that most youth nowadays do not even conceive. (Charlene)

Elgin (2010) would describe Charlene’s experience as voluntary simplicity – a lifestyle that is outwardly simple and uses the minimum amount of natural resources and technology necessary. According to Elgin (2010), this way of life is inwardly rich in its appreciation of simple experiences and pleasures. However, not everyone is happy to cut back on life’s comforts and having to do with less. Doing this is often seen as a sacrifice and, according to Kaplan (2000), describing sustainable living in terms of making sacrifices is bound to be counterproductive.

Contrary to the dominant social paradigm of disposability, Charlene is also guided by traditional values in the way she appreciates and takes care of her things, with the notion that they will last longer if taken care of.

Being the oldest child, I was always quite responsible. I take really good care of everything that I have, and I appreciate everything. Even when I receive a present, I try to conserve the wrapping paper, so I can use it some other time. I still have toys from when I was a child that are still in their boxes. I want everything to be as it should be. (Charlene)

This quote provides evidence how a value is seamlessly translated into pro-environmental behaviour. A person that sees value in taking care of personal material possessions is more likely to understand, respect and take care of the planet’s resources so that they will last longer. Thompson and Barton (1994) identified two motives for the adoption of pro-environmental behaviour:

(a) anthropocentric motives – based on the belief that the value of the environment is relative to its importance and usefulness to humans; and

(b) ecocentric motives – based on the belief that nature should be preserved because of its intrinsic value.

Thompson and Barton (1994) argued that individuals engaging in pro-environment with anthropocentric motives are easily inhibited by other human-centred values, such as time-efficiency and material quality of life. Their studies show that the correlation between pro-environmental behaviour and anthropocentric motives was either negative or not significant. This was corroborated by Mary’s perception that people often give up doing positive environmental actions because they think that they will interfere with their quality of life or become a hassle.

Often, people still want to retain the quality of life they have, and at the same time they want to change because of future generations, because they know that this is a moral issue in a way. Some people are just not ready to change. For example, even though separated waste is collected from in front of each house, still a lot of people do not bother to separate waste. (Mary)

An ecocentric perspective towards decision making is one that takes into consideration the interests of the natural environment even when there is no apparent instrumental value to humans (Eckersley, 1992). As opposed to anthropocentric individuals, according to Thompson and Barton (1994), ecocentric individuals are more likely to show pro-environmental behaviour, even if it requires some sort of sacrifice from the individual. This is clearly demonstrated by Robert’s attitude towards driving and by his conversion to vegetarianism.

I really do not like the fact, that when people turn eighteen, they become obsessed with buying a car and so when I turned eighteen I did not do it, and I actually still refuse to buy one. Maybe my stubbornness is because of laziness, but I’d like to think that it is because I don’t want to increase pollution. I still get into my friends’ cars, but I also use public transport a lot. (Robert)

I started understanding very slowly, the logic and importance of cutting meat from my diet. . . . I completely eliminated meat and started eating fish and vegetables. Then I took a decision that I would not eat meat anymore. It was not that difficult actually. In summer 2008 I also stopped eating fish, as I started
seeing that there was a big problem with tuna, and the fish that I was actually eating the most was tuna. I was also realising that there were a lot of endangered fish that I was eating. My mother was buying fish that were coming from all parts of the world, like Canada for example, to try to adapt her cooking to my diet. So I was actually making things worse. (Robert)

The values that individuals attribute to themselves, other people, other living organisms and the environment also guide their environmental decisions and behaviour (Stern, 2000a; Stern and Dietz, 1994; Stern, Dietz and Kalof, 1993). According to Stern (2000a) pro-environmental behaviour is activated by beliefs that environmental problems will threaten things and persons that are valued. Stern and Dietz (1994) identified three value-based environmental concerns and termed these concerns as egoistic, social-altruistic, and biospheric.

Egoistic concerns are based on the belief that the self has more value than other people and other living things. People with high egoistic values are expected to be concerned about environmental problems when the environmental damage is perceived as a threat to the self. They engage in pro-environmental behaviour when this provides personal benefit. Social-altruistic concerns are based on the belief that humanity has more value than other living things. People with high social-altruistic values are expected to be environmentally concerned when there is a perceived threat to other people. They engage in pro-environmental behaviour when it benefits others. For example, Charlene is concerned about the environment that will be inherited by her future children.

Even if I happen to never see the fruit of the work that I do or that FoE does, I would like to think that my children will have the opportunity to enjoy the natural environment, in the same way that I have enjoyed it before them. (Charlene)

Biospheric environmental concerns are based on the belief that all living things have an intrinsic value. Individuals with high biospheric environmental values are concerned when this intrinsic value is threatened. They engage in pro-environmental behaviour even when this does not have an apparent benefit for the self or other people. Mary exhibits such biospheric values and concerns in the way that she has always taken care for animals, since she was a child.

Once, before going to school I heard a cat crying and I wanted to go and look for it, but my mum did not let me as I was late for school. You can imagine what a day I spent. I could not concentrate at all at school. I was just thinking of the cat the whole day, and then, when I went back home from school, it was still there. I could hear it, and then I found it amongst some vegetation in the yard. Obviously after so much angst, we kept it as a pet. I also had a pigeon that came to me once and I also took care of it. (Mary)

Stern et al. (1993) conclude that people engage in pro-environmental behaviour as a result of a combination of different values. Individuals do not just harbour egoistic, social-altruistic or biospheric values exclusively, but have differing levels of each of these values, which lead to a combination of concerns, and serve as guidance for personal behaviour. Furthermore, Dietz and Stern (1995) suggest that when taking decisions, people may give different weight to the various values depending on their role and circumstances at that particular situation. Poortinga, Steg and Vlek (2002) claim that these relationships between values, environmental concern and behaviour are far more complex. Decisions may not always be the result of thoughtful decisions. In certain situations, when required to take quick decisions, the influence of values is lessened or the importance which we give to different values is altered (Dietz, Fitzgerald and Shwom, 2005).

**Self-efficacy and locus of control**

The locus of control represents an individual’s perception of whether s/he has the ability to influence life events through her/his own behaviour (Hungerford and Volk, 1990; Newhouse, 1990; Ozmete, 2007). Individuals possessing an external locus of control feel that luck, destiny or powerful others shape their future. Such individuals believe they are powerless and that the outcomes of situations are beyond their control. On the other hand, individuals having an internal locus of control perceive themselves to be in control and that their actions can bring about change and affect the outcomes of situations.

If people feel that they can control some feature of their external world, they are more likely to work actively toward improving it (Cleveland, Kalamas and Laroche, 2005). According to research, individuals with an internal locus of control are more likely to engage in pro-environmental behaviours (Bamberg and Moser, 2007; Hines et al., 1986-1987; Hwang, Kim and Jeng, 2000; Smith-Sebasto and Fortner, 1994). For example, an internal locus of control has been found to specifically influence energy conservation behaviour (Balderjahn, 1988), and recycling (McCarty and Shrum, 2001; Shrum, Lowrey and McCarty, 1994). Yet, some studies (e.g. Hamid and Cheng, 1995) contradict this.
The participants’ narratives indicate that they all have a strong internal locus of control. Robert believes that through his actions with the local council he can help to improve the area in which he used to play during his childhood.

I am, at the present moment, reviewing a development plan of Wied Blandun that was sent to me by the local counsellor in charge of its upkeep. This is the area in which I used to play when I was younger. I know what the problems in the area are, because I have grown up there. Some areas are derelict and used by drug addicts, so cameras have to be placed in strategic locations. The little undeveloped land that remains needs to be protected and more indigenous trees should be planted. The area will hopefully regain its former glory and be used in a positive way for and by residents. (Robert)

Charlene believes that she can improve ecotourism in Malta by helping farmers to apply for European Union funding to upgrade their farms.

I am at a point where I would really like to do something. I would like to make things change and to see more locals and tourists alike appreciate Maltese nature and its products. In fact I am working on a project with a friend of mine, and together we are trying to secure some funds, for a particular farmer in Gozo. He has asked us to help him make his farm more attractive to tourists and locals, to come and visit. (Charlene)

Self-efficacy is the belief in a personal capability to achieve a goal. Believing that you can perform an action will increase your chances of actually doing it. Mary has shown high self-efficacy by significantly affecting the environment at her workplace with regards to recycling, even convincing others to participate (Stern, 2000b).

I remember that one of the first things that I did when I joined the office was that I spoke to my boss and told him that it would be a good idea to start some waste separation; at least we start from paper, because paper is something that in an office is used all the time. I used to discuss a lot with my colleagues during coffee breaks, in the kitchen and there were people that used to really try to convince me otherwise telling me: ‘but why are we going to go through this hassle to do these things?’ There was one particular person that used to say that our separation would be useless as rubbish trucks still mix everything together. I used to tell them that if we take the paper directly to the collection site, and we see that it actually gets there, we would be sure that our efforts were not in vain. (Mary)

People who are unmotivated towards the environment often have a sense of helplessness regarding the environment (Pelletier, Dion, Tuson and Green-Demers, 1999). Individuals with low self-efficacy are still concerned about environmental issues, but when challenged with complex issues like climate change, they do not know where to even begin, and the tendency is to do nothing. In fact, Kaplan (2000) found that people do not engage in pro-environmental behaviours not because of a lack of interest or concern for environmental issues, but rather because they are inhibited by a sense of helplessness. This is understandable since most environmental problems are large and complex with no immediate and simple solutions, so people feel helpless on their own. People with an external locus of control and low self-efficacy, need to be convinced that there are things that they can do to contribute towards the solution of environmental problems. This can be done with the help of campaigns that illustrate how they can help the environment in small yet significant ways. In fact FoE Malta launched a number of projects which directly target such individuals.

One such project was called ‘The Climate is Changing … Are You?’. Rather than just frightening people about the effects of climate change, the project aimed at informing the public through posters, leaflets and media clips about climate change and what individuals could do to mitigate its impact thus empowering people to look for and become part of the solutions. When people learn about, understand and engage in pro-environmental behaviours they will feel more competent about the solutions, and are then more likely to adopt such behaviours (De Young, 2000). Encouraging specific, concrete actions that are effective, even if small, is a promising initial approach because everyone can do this easily and the collective result is quite considerable.

Since becoming a climate change campaigner, I have also become more aware of the issue and my energy consumption. I am very careful with not wasting energy, wherever I am. I am always the one that switches lights off all the time,bugging my family incessantly. I know that it is a rather small contribution, but I believe that first steps are very important. If everyone had to be conscious about their energy consumption, the problem would be very much reduced. (Charlene)

Experiences with this group revealed that even though the internal locus of control seemed to dominate, both internal and external dispositions coexist within young environmentalists. Their experience with the group dynamics and the local and international political scene taught them whether and to what degree they can exert control over situations. For example, Robert gets many ideas from his involvement with Young FoEE, but he feels that he cannot implement them because of the really small number of volunteers. He also
feels that his ideas are often shot down by others. On a more general scale, the environmentally inappropriate behaviour of large corporations and the government makes the participants feel powerless at times, stirring up feelings of anger that are not only directed towards the entities and the system, but also towards their sense of helplessness.

In Malta, we speak a lot about ideas like ‘ecotourism’ and lately ‘ecoGozo’, but often nearly nothing gets done, and people do not even get to know about these things. (Charlene)

Even public consultations are a bit of a sham in Malta, where people do not have a real opportunity to give their opinion, like having a consultation over one day in the morning, the peak time when people work. [...] The Maltese way of doing things ensures that the people with the money and power are the ones who always acquire even more, and the people that have neither, remain empty-handed. (Charlene)

When I was at university, I had to find some part-time work because I needed money, and so I started working with a multinational burger company. [...] I used to be disgusted by the amount of rubbish generated and food that is thrown away. The amount of packaging used for example, was horrific. [...] The room, in which we used to throw the rubbish, used to be literally packed till the roof. I did not last long, as I quit from working there. (Robert)

Then recently, there was the new power station issue. A new power station and it is still going to be using fossil fuel, and thus old technology. There were also a lot of intricacies in the way the contract was given. All of this dampens any hope that things are going to change in Malta. We have been playing around too much on the wind energy issue. First, having turbines on land was a definite no no and then it was a yes and then a maybe. It is true that we have little space on which to locate the wind turbines, but still all of these games tend to confuse people. (Robert)

Green jobs are really limited in Malta, not just in the governmental sector, but also in private industries and companies. I believe that a lot needs to be done about jobs in this sector. There is a gap that we need to try to fill up. (Mary)

This sense of helplessness is relieved when there is an actual contribution to a successful outcome and the volunteers again gain confidence in their power and ability to bring about change. Political activism requires loads of energy and perseverance, but at the same time it can make you feel that you are the agent of a ‘revolution’ – of change!

At least we reached a point where our goal was actually mentioned at parliament. Other NGOs were also agreeing with us on the media. It was very positive. I think this was one of the top things that we managed to achieve through the campaign, and I think everyone was really proud of that moment. (Mary)

Organised group activity can build a sense of collective efficacy (Oskamp, 2002). Even though individual action is important, organised activism is frequently necessary when dealing with large-scale issues since the culprits are very often governments or powerful corporations, against whom, individual action would go unnoticed (Oskamp, 2002). Being part of an international organisation brings about the realisation that other groups in other places are also working for the same goals. Knowing that other young people are successfully achieving results may reduce the feelings of helplessness, and the notion that nothing can be done (Kaplan, 2000).

... the first Young FoEE summer camp. [...] It was really awesome, because even though we are still young, we already have lots of things to share. A camp like this mobilises young people and enables them to learn from each other. It is a source of inspiration and motivation to try bringing about change around you. Networking is also important in such events and we started to work together to plan actions for the upcoming Copenhagen climate change negotiations. [...] I was so energised, that as soon as I came back from the conference, in January, I coordinated the climate change campaign before the Big Ask campaign started. (Robert)

Knowledge

Whether and how we react to knowledge about environmental problems depends on whether we understand and accept that knowledge, which in turn depends on our past and present experiences, our sensitivity and so on. In other words our reaction towards new knowledge will depend on our perception of it. Mary in fact noticed that during her university course not everyone reacted to knowledge in the same way that she did.

I was always usually the one most irritated during lectures when I hear about some things that are not carried out as they should be in the environment sector, as these finally would have an effect on us. (Mary)

This difference in reaction might be rooted in the different values held by Mary and the other students. Values may function as filters for information. Information that agrees with our values tends to be accepted while information that clashes is rejected. Habits might also result in selective attention. People are more
likely to consider new information that is already in line with their behaviour, than information that will require changes to their habitual behaviour. Ignoring information that challenges our comfortable lifestyles is a coping mechanism that makes living with incongruencies less difficult (Jensen, 2006).

**Experiences in nature**

Tanner (1980) tried to identify significant life experiences in conservation activists and leaders and claimed that ‘youthful experience of outdoors and relatively pristine environments emerges as a dominant influence in these lives’ (p. 23). All three participants in this study have vivid childhood experiences in rural areas where they bonded with the natural environment. For Charlene, the time spent at her grandparents’ farm that she visited regularly as she grew up was a very important memory.

*I have many memories of this time, such as when I tried to get on my grandfather’s mare and she threw me off. My siblings and I spent our childhood running in the fields picking capers and flowers, and looking for snails. This was the best time of my life and it will not come back. These things have sort of ended nowadays. I wish I had the time to relive those moments.* (Charlene)

Even for Robert being in the family fields when he was a child was something that he thought was important in shaping his love for nature.

*My father has fields in Marsaxlokk, and ever since I was a small boy, I used to spend time in my father’s fields, playing. It was a very happy time in my life.* (Robert)

Mary’s family did not own fields, but they still lived in an area close to fields and her childhood play was surrounded by these fields.

*When I was a child, I used to live with my family in Xgħajra. There was a really big field in front of our house and the whole area was very rural, with passageways that lead to the sea. When I looked out, in the distance I could see the sea. My brother and I used to spend a lot of time playing outside and in the fields. My brother was always a little bit more naughty and daring than me, and he used to jump over rubble walls. [...] This contact with nature when I was a child was very important in shaping who I am today, it was a very happy childhood and I look back on it with nostalgia.* (Mary)

It seems that experiences of engagement with the natural environment during childhood cling on to the individual shaping his or her subsequent environmental path. It is easier to love what you know through a cherished association. Regular positive experiences in the natural environment allows children to form a relationship with it, encouraging a love of nature (White and Stoecklin, 2008) and the fostering of pro-environmental values are fostered by regular in nature (Chawla, 2007). Other researchers have noted that significant life experiences in natural settings are important in developing positive perceptions of nature, positive environmental attitudes and more importantly, environmental action (Bögeholz, 2006; Palmer, 1993).

Wells and Lekies (2006) found that experiences in the natural environment before the age of eleven were the best predictor of adult environmental behaviour. Moreover, they claim that although domesticated nature activities (like caring for plants and gardens) fostered pro-environmental attitudes, their effects were not as strong as participating in ‘wild’ nature activities such as camping and hiking. However, the study by Wells and Lekies (2006) did not consider post-childhood experiences. Adolescent, youth and adult experiences might also be important in instilling a love for the natural environment. Robert remembers with nostalgia not only his childhood carefree days in nature but also his teenage years with his friends.

*I live in Fgura, in front of the only agricultural fields left, and I think that this has allowed me to appreciate nature and the environment a little bit more. When I was a teenager, my friends and I, used to play in the fields in front of my house. Every Saturday morning we used to go and spend whole days running in the fields.* (Robert)

Charlene also speaks enthusiastically about her experiences in nature when she was researching for her dissertation.

*It was a really fantastic experience that I would definitely try again. I was in contact with animals, milking sheep and collecting eggs. I held a chicken with my hands and for me, touching an animal is already a valuable experience in itself. My boyfriend came with me and he participated in things that he had never imagined that he would do, not even in his wildest dreams. I did not think that he would be such a sport, being from an urban city and lacking any contact with nature. But he definitely enjoyed it. It was literally a wow experience, even my boyfriend agrees, and that is saying something.* (Charlene)

The experience of nature’s beauty leads people to regard nature with respect and reverence because it helps them realize its intrinsic value. Robert appreciates the opportunity he had to travel and experience living in nature – something that is very difficult to do in Malta.
I went to a youth exchange in Romania on Green Therapy! The programme was conducted in nature all the time and the feel of it was so intense. (Robert)

For Mary, the contact with nature also instils in her an experience of freedom.

I remember that I really used to enjoy the fact that I was often outside and not enclosed at home. I really loved the open space and the sense of freedom that it gives you. Today as an adult, the sense of carefree days may not happen so often, although the sense of freedom is still with me, and thus I tend to appreciate such opportunities much more. (Mary)

Ironically we live in a time in which many people experience nature virtually though online information or nature documentaries rather than direct physical contact with the environment. Pergams and Zaradic (2006) reported a significant relationship between a steady annual decline in visitation to National Parks and an increase in virtual entertainment such as playing video games and surfing the internet. They suggested that in childhood, outdoor activities are in fact being replaced by such virtual activities. A study of primary schoolchildren in the UK revealed that children aged eight and over were better at identifying characters from Pokemon (a card-trading game) than familiar organisms such as a beetle (Balmford, Clegg, Coulson and Taylor, 2002). This disconnection from the natural environment was termed ‘nature-deficit disorder’ by Louv (2005). Today, most children and youth live in urban areas and experience artificial environments more than they do the natural outdoors. This was duly noted by Charlene.

I think there should also be more recreational areas where children can play and be in contact with nature rather than having artificial playgrounds with plastic floors, and plastic houses and plastic everything. If people have more opportunities to enjoy the natural environment, then they will start caring more for it. (Charlene)

At the end of a school day, most Maltese children are shuttled from one activity to another – ranging from football, dance and drama classes to piano and private lessons – and their little free time is then spent in front of the TV or a computer screen. With all the good parental intentions most children are being subjected to a hectic, artificial and electronic childhood that is interfering with their holistic development.

Today’s children cannot appreciate these things. My younger siblings did not experience this, as there is quite a gap between my sister and I, and the twins. When the twins where young, my mother had to go to work, something that she did not have to do when I was a child. So she had much more time to spend with my sister and I, and we often spent that time outside, near the beach, or in the countryside. [...] Sometimes though, I actually feel sorry for them as their childhood was much less fun compared to mine. They spend most of their free time playing on the computer or watching television. (Charlene)

The number of studies showing that environmentalists tend to report significant childhood experience in nature leads one to assume that the lack of such experiences in the lives of today’s children may negatively impact the availability of environmentally responsible citizens. The introduction of ESD programmes in a number of schools can be viewed as step in the right direction to address this lacuna. However, the type ESD that is really needed should go beyond the school gate. The problem with most current ESD programmes is that they try to feed knowledge and demand responsibility and action before children have been allowed to develop an intimate relationship and connection with the natural world (Sobel, 2008; White and Stoecklin, 2008). In the past, Maltese children could experience unstructured ESD on weekends and after school with their family or friends, in the fields and/or in natural settings. Nowadays, this time seems to have been taken up by other activities.

On winter Sundays, up till the age of about fourteen, I used to go hiking and camping with my family in nature. We often used to go to Buskett or Chadwick Lakes for our Sunday outing, or to other places in the countryside. It was a very relaxing time spent with my family. We used to play games such as hide and seek. [...] Sometimes we used to go as a whole family with aunts, uncles and cousins. We used to go to Kennedy Grove, riding bicycles, running, and playing. These were memorable times in my life and I really treasure them. These were also times that bonded us closer together as a family. (Charlene)

There is huge potential for parents to both instil this love of nature in their children and spend valuable time with them (Cleary, 2007). Positive direct experiences in nature with a significant adult, such as a parent or a grandparent, stimulate a love for nature, a genuine interest in environmental knowledge (provided in formal ESD programmes) and eventually generate environmental action (Chawla, 1998; 2006; Kals, Schumacher and Montada, 1999; Palmer, 1993; Schultz, 2000; Sobel, 2008; Wells and Lekies, 2006; White and Stoecklin, 2008).

Young children also have a natural affinity for animals (Sobel, 1996). Animals are an infinite source of wonder and curiosity for children. Taking care of animals at home can also help to promote an attitude of care and responsibility towards living things.
We always had pets at home, either a cat or a dog or anything really. We really loved them, as a family. [...] A pet teaches you how to care for something living. It takes a lot of care and patience to have a pet at home. Especially if you have a dog, you need to feed him, play with him, and take him out for walks. I was always interested in animals. (Mary)

Having a direct contact with nature, allows you to appreciate it more. There are children that have never seen live animals. I have always been in contact with animals, and it must be the reason why I love them so much. (Charlene)

Animals and children seem to have a close connection, and in fact studies of small children’s dreams reveal that about 90% of their dreams are about animals (Patterson, 2000). Children have the ability to interact with animals in an instinctive way. They often talk to them as if talking to a friend and invest in them emotionally.

I remember that once, in our garden, we had an insect pupa and it fascinated me so much that I used to go and observe and keep an eye on it. Until one day it wasn’t there anymore. It vanished. I realised that obviously it had turned into a butterfly. Even though I knew that, I was still very much in awe of it all. (Mary)

The experience of nature is also an important motivation for people when they involve themselves in the environmental political sphere (Trittin, 2009). This experience does not have to be positive; negative experiences can also instigate political actions. For example, environmental activists often mention the loss associated with the destruction of their childhood special place as a reason for their activism (Shaw, 2000). This is certainly Robert’s experience.

Through time, I watched a lot of fields in Figura being destroyed. This has pained me and in fact I have become part of a committee within the Figura local council with the aim of conserving Wied Blandun which is a valley of ecological importance. (Robert)

**Role models**

According to the social learning theory, behaviours can be learned by observing others, who are referred to as ‘models’ (Bandura, 1977). When asked what prompted their environmental commitment, environmentalists mention special childhood places in nature and family role models who showed them the value of the natural world (Chawla, 1999; 2007). This trend was also confirmed by Berkowitz (1987) while investigating a group of people who initiated grassroots community organisations. Children need to see significant adults respecting and loving the environment in order to develop that same respect and love.

The participants in this study also had or still have a beloved family member that exposed them to nature and taught them to appreciate life in all its forms. Charlene’s father has always been a lover of nature and she realises that his attitude towards it was important in shaping her own environmental attitudes and values.

I would like to think that I have inherited my father’s character. He is a lover of nature. Every spare time that he has, he goes out somewhere where there is some greenery. He has always filled our home with life, building a greenhouse, having pets and other animals. I think that he has influenced me a lot and my efforts to improve the local environment, would be worth it, even if they were just for him. (Charlene)

Through what they attend to with care or fascination, parents indicate to their children what has value. Mary’s parents are keen gardeners and through gardening they have influenced Mary’s perception of the natural environment.

My parents are really into gardening, and we had quite a big garden with trees. They actually also extended it, to have more space for trees. They have all kinds of plants at home. I was always surrounded with plant life and learnt a lot about nature through them. I am not really knowledgeable about plants and plant life and I really wish that I knew more. I really admire people who are really into nature and know the names of plants and where they grow and their characteristics. I really enjoy listening to explanations about plants and how they grow. I am always eager to know more and more about these things. [...] My mum also used to listen to a lot of radio programmes about growing plants so these were always at the background and I guess I was subconsciously listening to them as well. It is later on in life that you realise that these things leave an impact on you, even though they do not seem so important at the time. (Mary)

Through their own relationship with nature, significant adults communicate nature’s value and thus promote the child’s interest and care towards it (Chawla, 2007). Apart from giving a sense of value to nature through her care for plants, Mary’s mother tried to teach her that insects are an important part of nature and that they are not scary. Mary sees her mother’s efforts as important in shaping her perception of the environment.

I am really afraid of insects, and my mum often used to send me cutting fresh herbs from the garden for cooking. I used to be really afraid, having to pass through so much vegetation, always with the fear that an insect was going to fly on me. Later on, I discovered that mum used to send me cutting herbs on purpose, to
reduce my fear of insects. I think that the family’s attitude towards nature and the environment, in one’s upbringing as very important to shape one’s values. I was always surrounded by a love for nature and living things. Maybe that is why I have grown up with this same love. (Mary)

According to Kollmuss and Agyeman (2002), nature experiences and environmental family values are meaningful to children, whereas environmental role models such as friends become important for adolescents and youth. Peers were mentioned by Robert as a factor which helped him turn to vegetarianism.

I also had some positive peer pressure as well, from some friends who are members of ‘Graffitti’, a radical NGO in Malta, and from other FoE members. (Robert)

Peers were also found to be influential in convincing participants to join FoE, and becoming authentically involved later on.

**Formal education**

Formal education is often assumed to increase an individual’s concern about the environment (Ignatow, 2006). This assumption is not totally unfounded. Klineberg, McKeever and Rothenbach (1998) reported that ‘younger and better educated members of the public do indeed appear to be more concerned about issues of environmental quality and are more committed to environmental protection’ (p. 749). A number of studies reviewed confirmed a positive relationship between environmental attitudes and level of education (Aytülkasapoglu and Ecevit, 2002; Eckersley, 1989; Hines et al., 1986-1987; Tognacci, Weigal, Widen and Vernon, 1972).

I think that in my case, though, it was education that had the greatest impact in shaping my environmental values and beliefs. (Robert)

Although ESD has always featured in various subjects, in Maltese schools, it has never been a compulsory component of the curriculum (Pace, 1997). The introduction of ESD in the curriculum as a cross-curricular theme is only a recent development (Ministry of Education, Employment and the Family, 2011). For Mary and Robert the subject that seems to have helped in transferring knowledge and shape their attitudes was geography.

Geography has satisfied my curiosity of the world. [...] I like especially the human impacts part of geography. It makes you realise how much things are connected and how if you change one thing, it will have like a ripple effect on so many other things. (Mary)

[...] probably choosing geography was quite a coincidence, since it was offered in conjunction with the subject I really liked. [...] Then, I continued studying geography and history at Junior College as Advanced level subjects and I also went on to read for a degree in geography and archaeology. I guess studying geography, was a very constant feature in my life. In geography you always learn about environmental issues, like global warming and other such issues. I think that as a subject it gives you a wider perspective of the things that surround you, or rather the environment. (Robert)

The participants in this study all have a first degree. One participant also has a Masters degree (Robert) and another is reading for one (Mary). They see their studies at university as a period of consolidation of their interest in environmental issues.

At the end of my course, I started asking myself what was going to happen once I finish university, and how I was going to get more involved in the area of environment. Geography, being a vast subject, had prepared me to open up to different aspects of issues. (Mary)

Then at university we started a credit on sustainability and one of the sessions was on alternative tourism and ecotourism, and I realised that I had found what I was looking for. (Charlene)

From my experience at university and FoE, I started realising that it was not waste that was interesting me the most, but I was becoming more interested in aspects of human environment. I met up with an expert from university, and we discussed a lot about the United Nations, conventions, education for sustainable development, and I started opening more to what is happening on an international level and what is not happening in Malta. From there I had a growing interest in sustainability issues. I started reading more to fine tune what I really wanted to focus on. I decided that I did not want to read for my master’s degree with the University of Malta. I found a degree on Sustainable Development, with a foreign university. I am finding it really interesting, because it touches on a lot of topics, and I am the sort of person, that prefers to know about many different things, without needing to get into depth. I prefer to have a sort of global perspective of different issues and in this degree I am having the opportunity to study different modules that have got to do with sustainable development. (Mary)

However, Mifsud (2008) points out that although there is a correlation between knowledge and attitudes and between attitudes and action, there is no significant correlation between knowledge and action. This
might be the result of the predominant content-based teaching methods that are structured around teaching as opposed to learner-centred approaches that depend on learning.

**Non-formal education**

An important but generally forgotten aspect of ESD is environmental political education, which focuses on how changes can be achieved via political activism directed at governments, international organisations and corporations (United Nations, 2004). This seems to be exactly the type of non-formal education that participants are receiving from FoE – an education that is also made available through training projects in other countries. These projects seem to impart a sense of partnership with others and a widening of perspectives about a variety of global social and ecological problems. However, the dominant benefit reported by the participants of this study is the educational impact of first-hand action oriented activities they experienced.

To help us start off with the campaign, and to strengthen the organisation, we took part in a capacity building project. This was a training project that took place in England and some other countries that were involved in the project. [...] This was one of the most challenging moments of my experience with FoE, and it helped me to grow a lot. During this project, I had the chance to take part in training, and then to apply, what I had learnt, here in Malta. I went for this training with another person from the board, so that we could support each other. It was a really good training, in which I learnt about areas that the university course that I followed did not present. I learnt about things that are important in practice, like communication, public relations, campaigning, activism, and about strategies such as how to push for an agenda, how to approach different types of people, different sectors, like the government, or the public. This opportunity was like a springboard to me. It also enabled me to relate aspects of the Maltese society with others from other countries and helped me to start seeing the common aspects and differences between FoE in Malta and FoE in other countries. I learnt about the particular issues that each organisation fights for, and about different cultures and how they influence environmental issues. It was a wonderful experience for me and I think that it was during this time, that I really felt that FoE is MY organisation – this was and still is my kind of thing. (Mary)

The conference was a turning point for me. I experienced being a vegetarian for the first time. I also met people who were hard core environmental activists, and I did some activist work myself, like being body painted in front of the parliament in Berlin. I also learnt a lot from people, during workshops and lectures. Some were actually experts in the fields of energy and climate. It was an excellent experience for me. One that has changed me, I would say. […] Also, in June, I went together with three other members of FoE Malta, to the YouPEC 2008, in the Netherlands. The theme for 2008 was about the sustainable consumption of resources. We followed workshops, participated in discussions and gave and gathered ideas for projects in open space sessions. We also met with a lot of environmental activists, especially from Scandinavia and the Netherlands who are radical on climate change and consumption in a way that has definitely not yet been seen in Malta. […] I learnt a lot about the different projects that are doing in their countries. You realise that you are not alone, no matter how lonely you might feel in your respective country. (Robert)

**Informal education**

In the 1990’s the Secretariat for the Environment (a government agency), launched the Xummiemu campaign targeting school children. The campaign aimed at developing pro-environmental behaviour through a well planned media spots featuring Xummiemu – a cartoon hedgehog adopted as the Secretariat’s mascot (Pace, 1997). The campaign also seems to have strongly influenced all three of the participants.

When I was about nine, there was the Xummiemu campaign. It was an excellent campaign against littering especially. I was exposed to it at school, through the student magazine, […] and through the media. As kids we were really on to Xummiemu. […] We used to be like brainwashed against littering. If other kids saw you picking up some rubbish they used to tell you, ‘you are like Xummiemu’. I was so into it that I used to actually pick up litter near my house from the street. My mum was not so keen though, she did not like seeing me pick up rubbish with my hands. It was not very hygienic, but I still did it. (Mary)

When I was seven, there was the Xummiemu campaign, and I remember that I was crazy about the Xummiemu books. [...] The campaign also featured good promotional material like stands at the Malta Trade Fair, and I also remember the letters that I used to receive from the Klabb Xummiemu. There was also a section about the campaign on the student magazine. [...] The campaign and its promotion must have been really good, as I remember nearly everything about it. It has probably influenced me, even if just a little bit. It created a lot of awareness against doing certain things. The emphasis was on littering. I remember all kids my age being really obsessed about not littering. It was definitely a good brainwash. (Robert)
When I was in primary school, I was given an application to become a member of the Klabb Xummiemu, and my mum filled it up for me. I used to receive a lot of things from Xummiemu, and I still have the birthday cards that I received from him. The Xummiemu campaign was quite successful and the character was portrayed as a friend, and someone that young children could associate with the environment. There used to be a lot of activities for children in the campaign, even though I do not remember ever going to any of them. It was sort of a start in environmental education campaigning and it was successful enough to have all kids really keen on not littering and actually collecting litter. (Charlene)

Robert also highlights the power of the media when he recounts that a documentary about hunting in Malta pushed him and other young people to do something about the issue.

This year, I went to see the documentary, ‘Birds, Bins and Bullets’ at the cinema. This documentary is about a group of English birdwatchers that worked together with the police and volunteers from BirdLife Malta to help in the fight against illegal bird hunting. I was so impressed by the volunteers whose cars were badly damaged and also shot at, that exactly after the documentary had finished, I looked for the conservation manager and told him ‘I want to help you’. BirdLife then organised a meeting for new volunteers so the documentary must have touched others like me and one or two weeks later I was helping them in the spring camp. (Robert)

**Personal challenges in environmental volunteering**

The personal challenges of individual volunteers influence their capacity to work with an organisation. Volunteering exerts additional pressures on volunteers who are already finding it difficult to cope with life’s pressures, such as family, work and professional development.

I think that in Malta, we have quite a problem with volunteers. Everyone seems to be really busy including the coordinators. FAA [another NGO] for example, has a coordinator who is a full-time volunteer. But we do not have that. Our reality is quite different. Our coordinator has a full-time job apart from his voluntary work, and it is quite difficult to manage giving one hundred percent in both. […] Sometimes, even I feel like giving up, and every now and then I spend some time when I am not active, either because I cannot keep up with things or because I am discouraged. (Robert)

Maybe the climate change law is achievable, and we need to do more events, but we cannot do them with all the things that we have on our hands. Volunteers work, have relationships, children and you realise that there is a limit to how much things we can do. Everyone pitches in, whatever they can and you just need to appreciate that. (Mary)

Sometimes volunteers are assigned too many tasks, and they experience a ‘burn out’. This usually happens to volunteers who find it difficult to say no and continuously undertake more and more work and responsibilities even though they know that they cannot cope with them.

Sometimes it becomes difficult to keep up with everything. I usually attend meetings regarding Young FoEE as I am in the steering group, meetings to plan conferences and actions and so on. Sometimes I become overloaded and then I switch into slow mode. (Robert)

Teamwork is very important in an organisation and members often need to feel part of a team to be able to give their utmost in a project. This is exactly the case with Robert.

I was working on a photographic exhibition on climate change, on my own, but it did not work out. When I am not working in a team, I become lethargic, like when you feel really hot and feel like you cannot absolutely do anything except sleep, and lately the team-work has been missing a bit from FoE Malta. […] When you have a strong team, actions will work much better. (Robert)

Teamwork is an important concept in organisations, but it is not always easy to achieve it. Teamwork does not only mean working in a group, but it implies nurturing a sense of oneness, and the belief that the organisation’s mission and vision can best be achieved by working together. Consequently, a very challenging time for a volunteer is when s/he experiences little or no sense of achievement after giving so much time and energy towards the aims of the organisation.

Sometimes the results that I see from our work are minimal. I don’t know if I am being pessimist in this case. It could be because I am an ambitious person and I am not seeing enough results. Sometimes I speak to friends and they tell me that FoE is not really loud, and it’s true, probably because we are all volunteers. I think we have to concentrate our energy more, especially on particular areas. This is maybe the reason why I am being a pessimist in the way I see things, because I fear that we are not making a lot of change. There is some short term effect, when we have events and speak to people, or when we sometimes attended informal meetings and consultation meetings, but you don’t necessarily see the change. Each action, or event, is probably a very small step towards a bigger goal that is not necessarily understood by the organisation. I wish to see more change, and results that are more tangible. (Mary)
To be honest though, I am not very happy with the way things are going with FoE in Malta. I am afraid that the current campaign will not be successful. We need to be much more constant in our work, barging on the media incessantly. If we keep on doing sporadic activities, people will keep on not knowing much about us. (Robert)

Motivators

People volunteer for a variety of reasons, some altruistic and some based on self-interest. Omoto and Snyder (1995) suggest that having personal and self-orientated needs served by volunteering is what keeps volunteers actively involved. There are many ‘benefits’ that an active membership in a voluntary organisation provides and different people gain very different things. Nevertheless, it is very difficult to pinpoint one ultimate motive why someone keeps on volunteering because human beings want many things – not just one (Midgley, 1978).

The sense of competence experienced when challenges are met and the organisation is successful in its outcomes, provides an intrinsic satisfaction for volunteers (De Young, 1996). Manzo and Weinstein (1987) claim that this feel good factor motivates people into taking an active role.

There are challenges that give you a real satisfaction, like when you meet with different people and speak face to face, and when you discuss things with other volunteers. [...] Whatever action we do, however small or big it is, we always feel good afterwards. [...] I feel proud that I am doing this practically. (Mary)

Even though Mary has a full-time job in the environment sector, she still feels that volunteering gives her more satisfaction.

Even though you still feel that you are giving a contribution towards the environment, and it is something that I enjoy doing, it is always work and the satisfaction that you get from doing it is sometimes less than when you do something voluntarily. (Mary)

She also feels that her work with FoE gives her the opportunity to address areas that are neglected in her work.

With FoE, I try to give more priority to areas that I do not give to at work, so that I am also doing something different. From the full-time work that I do, and I get paid for, sometimes I miss that I don’t see society’s pulse. I do a lot of bureaucratic things, which are part of the job, and which are needed. [...] At work, I miss the face to face contact with people outside, and that is something that FoE gives me. (Mary)

Members sometimes feel that they are very much needed by the organisation, and thus they cannot just walk out of it. Their volunteering is powered by their commitment to help.

I do not find it in my heart to stop though as I know that the issues are there, and that I have to help in any way possible. (Robert)

I am also involved in so many activities and projects within the group that I have to stay to see them through. (Charlene)

The three participants also find working with others toward a common goal as motivating.

However one of the most amazing things is working with a group of like-minded people and then effectively see changes in the things you campaign about. So it has been a great and rewarding experience. (Robert)

Working in a team, always leaves a positive feeling. Sometimes we speak to people after an action, and then we all enthusiastically share the feedback from the public. I think this really builds us. (Mary)

I know that it sounds like too much work, and sometimes it is, but I am very much encouraged when I see other people in the team working, because they are all busy people, but they still dedicate all the extra time that they have towards the environment. (Charlene)

Working together in a team, not only offers the opportunity to interact with other people on an acquaintance level but it ignites even deeper relationships with others.

I feel really at home and comfortable with FoE. I enjoy meeting new people when they join in, and building relationships with the people already there. The greatest friendships I think are built, when people go abroad together, because you build something together. When you literally live with others, even if for a very short time, you can identify their values, knowing that they are sort of on the same track as you, and you feel that you are doing something together, something that you really believe in. It’s challenging, and it’s fun. (Mary)

The importance of friendships among members is viewed by Mary as a motivation to stay within the organisation.

I think it is a circle that won’t die easily, as each person, each volunteer, strengthens it. [...] I also met some really nice people in the process, who will definitely remain my friends. (Mary)
Getting recognition for the work that you do makes you feel appreciated, and this feeling could be another motivation for staying on.

Within FoE, I found people that really care about others and that appreciate the work that you do. The first time that I was thanked for giving a good idea, I was speechless. I was never treated that way. I always feel that people are somewhat using me. Sometimes, I really feel down, because I try to give everything when I am working on something and then others do not give back as much, they just rely on what I have done. This breaks your spirit, but with FoE I feel that I receive a lot in return, even if it is just appreciation. I also feel very welcome. I think these are the things that really keep me going with FoE. (Charlene)

Being part of the group seems to provide Mary and Charlene with an opportunity for learning. The type of learning gained is more focused on holistic personal development such as thinking skills, self-esteem and social skills. It is also more practical and the knowledge obtained is more in line with local issues than that gained through formal education.

I am continuously learning from this experience. I am learning new skills, meeting new friends, seeing different perspectives and believing more in myself. (Charlene)

As soon as I joined, I also had the opportunity to also become a member of the board, so I had the chance to listen and learn more about certain areas and issues that FoE was lobbying for. The type of knowledge that I get from being involved with FoE is more practical than the knowledge that I gained from university. Being active in the environmental field, puts you more into the actual situations. You become more in touch with the real issues that are affecting Malta and the rest of the world. […] On the other hand my background with FoE, and my studies also help my thinking skills and […] take a different approach to various issues at work. For example, when I have a meeting about an issue, I usually go beyond, since some issues are very much linked to others. Since some experts, in view of their expertise, are focused on one or two matters, other areas may be overlooked. I ask about the other areas, I feel it is important not to overlook things. (Mary)

Mary also thinks that her work with FoE complements her studies.

Being part of FoE really helps my studies, because I constantly learn about environmental matters and work on issues, which are important for Malta. At the moment there is a big question mark about what I am going to do for my thesis. Slowly, I am finding out which are the areas that I want to tap into. The fact that through FoE, I meet people that are sort of the gurus on particular issues, helps me to get more informed about the situations in Malta and globally. (Mary)

Mary acknowledges that through her involvement with FoE she became very interested in pursuing a job within the environmental sector.

Through FoE, I started to get really interested into even working within the environmental sector full-time. It was becoming quite important for me, because I have a passion towards the environment, and I felt that I wanted to find a job that matches that passion. […] I managed to start working in the environmental sector within the Office of the Prime Minister. I felt really pleased when I found this work; because I knew that I was going to learn more about issues that Malta is facing, and that in some way or another I could also give my contribution. (Mary)

On the other hand, Charlene who is also trying to find a job in the environment and tourism sector has been so far unsuccessful. Still she feels that her work with FoE is giving her the opportunity to learn new things, and to obtain experiences which will help her in the job market.

Right now I am working on sponsorship for FoE Malta and I get to meet people, like businessmen, talk to them to convince them about our work and to sponsor us for events like the photographic exhibition that we are launching soon. Recently for example I met up with someone who sells solar panels. This is all valuable experience for me. (Charlene)

Robert really loves travelling and getting to know other young people from around the world. His narrative and his energy is fuelled by his various international experiences that his involvement with FoE and Young FoEE has provided. However, he admits that his constant travelling goes somewhat against his campaign against carbon dioxide emissions.

International experiences have enhanced my work with FoE in Malta. I am not very comfortable though with the fact that I have to always catch a plane to go to another country. This obviously has a really big impact on my carbon footprint. My footprint for this year is monstrous. This is a big dilemma, as I really like to travel. (Robert)
Conclusion

Pro-environmental discourse has permeated everyday life, however, we definitely have not all developed a suitable pro-environmental behavioural response. Narrative inquiry studies an issue in all of its complexity and when seen together, these narratives highlight the limits of single-variable explanations for pro-environmental behaviour and environmental activism. These texts reveal that there is no single factor that is optimal for promoting pro-environmental behaviour and environmental activism. The participants in this study have different values and value frameworks, different levels of self-efficacy and different loci of control dispositions. Not only are these factors different in the different participants, but they also differ within the individual, at different circumstances. Pro-environmental behaviour is determined by a combination of all of these factors interacting together and it is impossible to understand exactly how such combinations work to generate action.

The participants have also gone through different experiences throughout the course of their lives. Even though as stated, our intention was not to generalise, the narratives seem to suggest that an individual’s experiences in nature tend to develop pro-environmental attitudes and behaviour. The participants in this study all had vivid memories of experiences in nature that seem to be quite important for them. The obvious implication on ESD is that educational programmes should provide firsthand experiences in nature.

Knowledge is definitely important and its importance comes out very clearly in the narratives, but knowledge on its own is often not enough. ESD programmes need to provide environmental knowledge that is coupled with direct experiences in nature that provide learners with an enduring sense of personal interconnectedness with nature that fosters environmental concern and respect (Palmer et al., 1998). Otherwise, the environment will be perceived as ‘something out there’, something not to be very concerned about, and ESD will be treated like any other knowledge-based venture.

These thoughts clash significantly with the fact that in Malta natural areas are on the decrease. Moreover, children seem to be spending a considerable part of their free time engaged in virtual indoor activities becoming less and less exposed to nature and more and more environmentally desensitised. For the sake of more effective ESD, it is of utmost importance to promote the preservation and creation of local natural areas where children can experience nature directly as part of their everyday lives. The narratives have also shown that parents have quite an important role to play in fostering pro-environmental attitudes and behaviour in children through their own attitudes and behaviour. Although other role models, such as peers, may then take over throughout the life course of an individual, parental influence in the early childhood years seems to have a stronger influence. The narratives also highlight the importance of education in all its forms and throughout an individual’s life, in promoting pro-environmental attitudes and behaviour.

Through tackling the issue of climate change, this study has made us realise the local and global political dimension of environmental issues. It is also clear that fundamental change in societal behaviour requires more than just a few individuals acting on a voluntary basis – it requires societal norms and rules that compel pro-environmental behaviour (Booth, 2009). FoE, both as a transnational and as a local organisation, tries hard to bring about such political changes. Environmental activists work hard to shape the way governments, multinationals and societies in general, respond to environmental issues. In this study environmental activism is viewed as the epitome of a personal commitment towards pro-environmental behaviour, and so the motivations and challenges behind such work are viewed as important not only to learn more about volunteering in environmental organisations, but also about pro-environmental behaviour.

It is quite clear that pro-environmental attitudes and behaviour are a result of different factors and experiences. Humans are complex creatures and their behaviour reflects their complexity. This means that behaviour cannot be easily explained and any attempts to do so are bound to be simplistic. Thus we will resist from doing so ourselves. We picture all of the factors and experiences outlined in the narratives as possibilities, together with others, which can be present in any combination inside an individual. Each individual is unique, and thus their combination is also bound to be so. Before making an attempt at promoting pro-environmental behaviour, we believe that we must appreciate and understand the complexity of such behaviour and the diversity of possible factors affecting it. Trying to change behaviour by promoting just one of these factors, like knowledge, is bound to be unsuccessful. Because of its complexity, behaviour is also very difficult to change. It is easier to influence attitudes and behaviour in the childhood years than it is to change behaviour later on in life, when that behaviour has become habitual. The implication is that ESD efforts will probably yield more positive outcomes when addressed at children and young people. This does not imply, that we should focus all our ESD efforts towards a younger audience, but rather that attempts towards adult ESD should be even more intense and unrelenting rather than weak and sporadic.
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COUNTRY’S COMPETITIVENESS AND SUSTAINABILITY IN THE CONTEXT OF THE HIGHER EDUCATION SYSTEM REFORMATION

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Abstract

The European countries are facing new tendencies. Among the most essential changing dimensions the following should be mentioned: influence of the globalization, continuously increasing significance of knowledge as the most important driving force of the growth, as well as the rapid development of information and communication. The accumulation of knowledge and its use have become the most important factors in the development of economics, and they determine the country’s competitiveness in global economics more and more. In such conditions the basic significance of research is obtained by the search for new approaches in the organization, functioning and efficiency of the higher education system (HES) by emphasizing its qualitative aspects.

The higher education system and its results influence considerably the development of the country. The perfection of the HES is a condition for successful development of the country and ensuring of competitiveness. The assessment of the higher education efficiency must be performed within the framework of particular socio-economic, historical, legal and political environment, taking into account not only strategies of national economy’s development, but also global priorities of the system development.

Interaction of education stages (bachelor, master and doctor) with consistent integration of all stakeholders will increase efficiency and become an important element for reformation of the higher education system. Moreover, the interaction efficiency is anticipated not only within the framework of the very education system, but also as an integrating element that links the development of the education system with the economic growth.

The aim of the article is to describe the influence of education reform in economic competitiveness paying special attention to the analysis and evaluation of international experience and to interdisciplinary perspective that includes economic as well as pedagogic and other challenges. Quantitative indicators are used to characterize specific features of the HES and the interaction of this system within the overall context of the state development. There are some aspects of the HES of Latvia analyzed to evaluate and to improve this sector.

The main conclusions of the study: the economic activity of inhabitants and their involvement in processes taking place in the country are directly dependent on the person’s level of education. In order to accomplish the reorganization of the HES that will result in increased competitiveness and efficiency of the higher education thus ensuring quality and availability, the Latvian education system must create a middle-term (4-5 years) and long-term (10-15 years) development conceptions. That would be coordinated with the planning documents and the vision of Latvian national economy.

Keywords: higher education system, sustainability, innovations, economic competitiveness, education reform.

Introduction

Knowledge management, its coordinated and directed creation, accumulation, distribution, and use of this knowledge as a complex process becomes the basis of the economic and social life covering the whole country and society. The functioning of the higher education system and activities of individual higher educational institutions (HEI) take place in a very complex and not completely explicable milieu. It is an unpredictable changing social, political and economic environment. The education economics must interact with the policy of the education branch since it is necessary to ensure their complex analysis and planning by using a strictly set system of indicators. The interdisciplinary perspective that includes economic as well as pedagogic, social and other challenges considerably influences the choice of corresponding indicators and the results of efficiency measurements. Thus, if there is no successful interaction of external and internal
factors in the higher education system, if the level of the HES efficiency does not correspond to the existing condition and the total goals of the society, in this case balanced development of the country, its competitiveness is hindered. The HES and its results influence considerably the development of the country. On the other hand, the change of the context, is the reason why stronger attention should be paid to the development of the HES. In this way the perfection of the higher education is promoted with the aim to ensure the sustainable development and competitiveness of the country. Respectively, the improvement of the higher education system must be realized in close relation to the society development in general.

Changes in the higher education in Latvia and all over the world are connected to the general development of the state and society. The higher education system of Latvia has experienced fast and important changes during the last 20 years while moving from elitist to widely accessible higher education (the number of students has more than doubled though the number of inhabitants has significantly decreased). Study of the Latvia HES activities indicates several positive tendencies: the studying possibilities (offer - number and availability of study programmes, technologically advanced facilities and equipment for studies and research) are increasing, the institutional base has been created, the financing allocation sources and mechanisms are constantly being improved, and a unified system of degrees and qualifications has been ensured.

But at the same time new actual challenges arise that are determined by international tendencies and by internal factors of the system: the HES financing is not regular and stable (especially in the result of the global crisis and its consequences), the negative character of demographic tendencies, lack of the innovation capacity and potential, obstacles for the knowledge transfer. These factors together with the globalisation process and development of knowledge based economy as well as the internal structural imperfections of the system create significant challenges for the sustainable development of the system in general.

**Conceptual Framework and Research Methods**

The European countries are facing considerably new tendencies in the global environment that influence not only the way how the HES is operating but even the aims and objectives of this system. The scientific basis of the education changes that makes grounds of education reforms in practically all education systems has undergone significant changes during previous thirty years (Carnoy, 1999; Fullan, 2005). Experts underline that the contemporary higher education in Western Europe is reliving the already third wave of reforms that was promoted by such global tendencies as massification, internationalisation and autonomy of the education services (Hargreaves, Goodson, 2006). Many countries are reforming their education systems to provide their citizens with knowledge and skills that enable them to engage actively in democratic societies and dynamic knowledge-based economies (Riley, 2004).

Individual experts also note the development of the marketisation tendency since the 90’s in the 20th century (Apple, 2001). Such market values as labour productivity, efficiency, responsibility and competitiveness are actively included in global education reforms. As the result, the standardisation and, as the consequence, responsibility and reporting were offered as means for the increase of education and education efficiency. Educational requirements of building democratic societies and enhancing economic competitiveness often contradict the changes introduced in these global education reforms (Sahlberg, 2004).

Interaction of education periods with logical integration of all stakeholders becomes an important element of the higher education system reforming. The methodological approaches that ensure the integral evaluation of the socio-economic impact of the HES were the following: systemic, synergetic and qualitative; it includes the following methods: monographic method, institutional analysis, statistically economic analysis, graphic method, and abstract-logical method. Quantitative indicators are used to characterize specific features of HES and the interaction of this system within the overall context of the state development. For the calculations, methodology and definitions by Eurostat, and the Ministry of Education and Science of the Republic of Latvia, data collection on education statistics as well as the Global Competitiveness Report were used.

In order to process and analyze the research data, both descriptive and experimental analytical methods were used, in the first case – in order to obtain quantitative-qualitative description of the research object, its properties and condition, in the second case – in order to construct a model of functional and causational interactions that would provide with an opportunity to develop appropriate policy alternatives.

**Findings and Discussion**

Successful economies compete on the basis of high value, not only low cost. High value is best guaranteed by well-trained and educated personnel and flexible lifelong learning opportunities for all citizens (Hargreaves, 2003). Competitiveness is based on the determinants of the complex process of economic
growth and development. When the competitiveness of economies is compared, a set of institutions, policies and structures is constructed using sub-indices that attempt to grasp the heterogeneity of different countries. (Porter et al., 2004) Based on these commonly used determinants of economic competitiveness and various indicators of knowledge economy, three core domains have been utilized to explain economic growth:

- education and training (human capital),
- use of information and communication technologies,
- innovations and technological adaptation (Porter et al., 2004).

The perfection of the HES is a condition for successful development of the country and ensuring of competitiveness. When combining them with the education reform structure, quality and finance dimensions, we get more precise activity principles of HEI and other groups involved. The figure 1 shows how the education reform influences the factors of the increase in economic competitiveness (Sahlberg, 2004).

![Diagram showing changes intended in economic competitiveness and education reform]

Figure 1. Factors of the economic competitiveness and education reform.

From the macro point of view, the country’s education system, including the higher education sub-system, is linked in its external environment with three universal bonds: with society’s education needs (demand for the higher education) and resources needed to satisfy these needs; possibilities of the education system (higher education offer), and satisfaction of the society’s education needs (the result) (Paņina, 2010). The concept of the education system must include 4 basic components: values, goals, politics, and mechanisms of decision making and execution (mechanisms of need and financing, or resource distribution) (Broks, et al., 1998, p. 27).

Thereby, if there is no successful interaction of external and internal factors put into practice in the higher education system, if the efficiency level does not correspond to the existing state and overall goals of the society, in this case balanced development and competitiveness of the country is hindered.

The goals of the education system are complex, they include both preparation of people for labour market and the broader long-term objective – personality development. For instance, according to the data of the Flash Eurobarometer survey Students and Higher Education Reform 2009, (the total number of students questioned N = 14964, in Latvia N = 525), 74% of students indicated that the main objective of the higher education is to ensure employment. It should be noted that in Latvia the estimation of students was similar to the average EU indicators, respectively, 84% of students of higher educational institutions stressed that the objective of the higher education is to ensure employment, 56% indicated that an important aim of the higher education is to enhance the personality development, also 49% noted – to educate an active citizen (Students and Higher Education Reform 2009, p. 15, 17).
Thus, the assessment of the higher education efficiency must be performed within the framework of particular socio-economic, historical, legal and political environment, taking into account not only strategies of national economy’s development, but also global priorities of the system development. Of course, aims and objectives of the education in different countries may mean different things; they may be different even for different groups of inhabitants of one country since there are differences in microeconomic tendencies among geographical areas, in the quality of the state institutes and technological developments.

Beginning from the 90’s of the previous century, considerable changes have taken place in the higher education systems of the EU that determined the need for reform in many countries. Amongst the most important change dimensions is the influence of globalisation as well as the constantly increasing value of knowledge as the main power of the growth, and the fast development of information and communication. The accumulation and the use of knowledge have become the most important factors of the economy development, and they determine more and more the country’s competitiveness in the global economy. In such conditions the principal significance is acquired by the search of new approaches for the organisation, functioning and increase of the efficiency of the HEI emphasising its qualitative aspects.
The most important reforms in the fields of the higher education management and economy in Scandinavian and Baltic countries during the previous decade are shown in the Table 1 (Progress in higher education reform..., Vol.2, 2008).

Table 1. Targeted funding to address education-related goals: areas where initiatives took place, 1995-2008

<table>
<thead>
<tr>
<th>Country</th>
<th>Initiatives on area of Access</th>
<th>Initiatives on area of Efficiency</th>
<th>Initiatives on area of Quality</th>
<th>Initiatives on area of Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td></td>
<td>Completion &amp; Time to degree (E)</td>
<td>Excellence (C)</td>
<td>Attracting int’l students (E)</td>
</tr>
<tr>
<td>Finland</td>
<td>Special programmes (C)</td>
<td>Mergers (N)</td>
<td>Quality of teaching (C)</td>
<td></td>
</tr>
<tr>
<td>Norway</td>
<td></td>
<td></td>
<td></td>
<td>Student exchange (E)</td>
</tr>
<tr>
<td>Sweden</td>
<td>Capacity, Low SES, Lifelong Learning, E-learning (C, N)</td>
<td>Mergers (C,N)</td>
<td>Curriculum innovation, Strategic programs (C, N)</td>
<td>Student exchange (C, N)</td>
</tr>
<tr>
<td>Estonia</td>
<td>Social economic status participation (N, C)</td>
<td></td>
<td>Curriculum innovations &amp; strategic programmes (N, C)</td>
<td></td>
</tr>
<tr>
<td>Latvia</td>
<td>Enhance capacity (N)</td>
<td></td>
<td></td>
<td>Sending abroad (N)</td>
</tr>
<tr>
<td>Lithuania</td>
<td></td>
<td></td>
<td></td>
<td>Sending abroad (N)</td>
</tr>
</tbody>
</table>

C indicates competitive; N indicates negotiations-based; E indicates evenly distributed across institutions. **Source:** Progress in higher education reform..., 2008, p.57-58.

One of the most important driving forces of reforms in modern times is the improvement of efficiency of the HES. This higher education component is related to several aspects. Firstly, it is linked with the constantly increasing diversity of the HEI resources and, consequently, the number of participants involved and diversity of their demands. Secondly, it is related to the global competition between the education systems. Thirdly, the global recession has created financial difficulties for students to pay for studies and for governments and businesses to finance the work of HEI.

The ranking of the global competitiveness index is an important source of information about the economic situation of countries; it uses a unified system to reveal the strengths and weaknesses of every country in the field of competitiveness. One of the determining factors of the competitiveness is also the quality of the higher education, and the latest available data (2011) show that among 131 countries the competitiveness of Latvia’s higher education is placed in the 35th position (Estonia – 22nd place, Lithuania – 25th place). The analysis of the pillars and factors determining the competitiveness in Latvia when compared to other Baltic and Scandinavian countries is carried out within the global competitiveness monitoring (Shwab, 2010).
Figure 2. Comparison of the indicators of the global competitiveness index among countries in 2010-2011. Source: Shwab, 2010.

Latvia lags behind the Scandinavian countries both by the rating of the higher education and by other indicators related to the education: innovations, level of technologies, and efficiency of the labour market. The innovation index in Finland is 5.56, in Sweden – 5.45, in the USA – 5.65, but in Latvia – only 3.02. Latvia shows the lowest indicator among the neighbouring countries. Innovations and the qualitative aspects of the entrepreneurship development is the determining factor of the economic development for the creation and development of the knowledge-based economy. Latvia has a very low rating both among the world countries and among our neighbour countries. The low level of cluster development (113th place), the low quality of research institutions (66th place) as well as the low cooperation of higher educational institutions and branches in the field of research (86th place) deserve particular attention (see table 2).

Table 2. Indices of competitiveness, higher education quality, innovation and knowledge based economy in different countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Global competitiveness index (GCI) 2010-2011</th>
<th>Higher education quality index 2010-2011</th>
<th>Knowledge based economy index (KEI) 2009</th>
<th>Global innovation index (GII) 2009-2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norway</td>
<td>14</td>
<td>12</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Sweden</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Finland</td>
<td>7</td>
<td>1</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Denmark</td>
<td>9</td>
<td>3</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Estonia</td>
<td>33</td>
<td>22</td>
<td>21</td>
<td>29</td>
</tr>
<tr>
<td>Lithuania</td>
<td>47</td>
<td>25</td>
<td>31</td>
<td>39</td>
</tr>
<tr>
<td>Latvia</td>
<td>70</td>
<td>35</td>
<td>32</td>
<td>44</td>
</tr>
</tbody>
</table>

Source: Shwab, 2010; Global Innovation Index.. 2011; Knowledge Economy Index 2011.

There is a similar situation also with innovation and knowledge based economy indices. The World Bank evaluates the knowledge based economy (KEI) of Latvia being in the 32nd place, which is the lowest indicator among the Baltic countries, but the Northern countries are leading in the field of knowledge based economy development. Also for the innovation index (GII) Latvia takes only the 44th position, while Lithuania and Estonia – 39th and 29th correspondingly. Higher level of education promotes both fundamental innovations and adoption and imitation of the global high-tech practice. Still, Latvia does not use these possibilities (see table 2.).

Such countries as Denmark, Sweden, Norway and Finland are consistently performing HES reforms, constantly improving the efficiency stimuli both in the system in general and in its components. The most
actual changes were directed to the improvement of the higher education improvement: the structure of the resource investment indicators was improved, the system reorganization was conducted, the students’ mobility is actively developing (stressing the importance of the mobility of outgoing students), also the systems of the HES performance indicators are being improved in order to motivate the HEI for the self-improvement process. In this way the HES of these countries have gradually ensured the competitiveness and sustainable development of the country and this is confirmed by their leading positions in the global competitiveness index, global innovation index and other indicators. The reforms of the previous decade include the associations, integration, structural cooperation and creation of strategic alliances in Norway, Denmark, Finland and other European countries. Many of these processes had been initiated by the country.

Paying more detailed attention to the higher education system of Finland and examining its correlations with processes of national economy, it can be concluded:

1) the economic policy of Finland was created on the basis of integration of different branches (Aho, et al., 2006). The basis of the education system development is taken by mid-term political decisions that are based on stable state values: equality of education opportunities, general scope of secondary education, and state-financed all-round education. This mid-term policy anticipates integration of education and vocational training systems, involvement of the private sector and participants of industry in the evaluation of the education system’s quality, in formulation of requirements and in monitoring of process (Salberg, 2006).

2) The strategic framework of the education system development and reforming has a long-term character; 3) the influence of the state administration and institutions has a significant role in the policy of the higher education and in the implementation of the education and economic reforms (Sahlberg, 2009). Efficient state administration and high development level of public institutions have a significant role in the creation and execution of the policy of society’s subsystems as well as in the implementation of the changes planned.

4) Well-educated human resources and their wide involvement in continuous education guarantees improvement of human capital that is necessary to ensure higher education services and economic growth. One of the main qualities of the Finnish education and economic systems is flexibility.

The most important changes in the higher education of Finland took place in the beginning of 90’s of the 20th century when the majority of state regulatory functions was cancelled but education opportunities and directions – widened (Aho, et al., 2006; Routti, Yla-Anttila, 2005). In the same way, the state regulatory influence in the private sector was diminished, while more flexible standards were introduced. It all together ensured the development of network interaction in the field of HEI – business – state and region. The integrated policy and the long-term state strategic planning ensured the Finnish higher education system took a leading position in the whole world as well as the country’s competitiveness and successful development of the private sector. A constant dialogue between state and private higher educational institutions permitted a mutual understanding about the anticipated results and factors of society and knowledge economy development. As the result, education institutions, too, are more actively involved in the introduction of experiments by using creative technologies, developing business skills and positive attitude of students towards work. Strong integrated policy frameworks and long-term strategic visions have enhanced sustainable leadership in education and private sector developments. (Sahlberg, 2006)

The world practice shows that the increasing distribution of higher education is strongly related to the work productivity and the economy competitiveness in general. Linking of knowledge with capital, technologies and manpower, their constantly increasing proportion in every product and activity create necessity for education, knowledge and competences. One more indicator is important that proves the correlation of education and economy development (see figure 3). Also in this aspect the tendency in Baltic and Scandinavian countries is similar.
Researchers stress that one of the contributing factors for regional development could be a partnership between HEI and regional businesses that integrates the higher educational institution in the regional context more efficiently (Eglitis, Panina, 2010). Integration of higher educational institutions and the business environment is the usual practice in developed countries (Huggins, at al., 2008; Higher education and regions, 2007; Goddard, 2006). Higher educational institutions are one of the important factors of regional development (Pawlovski, 2009).

The development experience of the world’s economically most powerful countries shows that these countries have opened their economies to innovative solutions for several decades. Despite the comparatively high indicators of the higher education achievements, the higher education systems in the Scandinavian countries are still in the reforming process. The same is true about the Baltic countries where the higher education systems have undergone intensive reforms since 1990’s and whose performance is not yet outstanding, but they continue to search for a better system management and governance mechanism and directions for a general system development. When analysing interconnections, one of the most important conclusions is the following: the economic activity of inhabitants and their involvement in processes taking place in the country is directly dependant on the person’s level of education.

Higher education provides opportunities and benefits not only for HEI graduates, but there are “external benefits”, too, that are related to the science progress, innovation potential, economic growth, culture development, decrease of crime level. The society is directly interested in the correspondence of the higher education system to the economic and social needs of the society in order to ensure international competitiveness.

On the other hand, the macroeconomic policy may provide a considerable impulse for the development of higher education (demand-driven higher education) in different ways. For instance, when supporting the business sector and promoting the stability of the labour market, it is also possible to achieve the development of the HES, of course, it is a long-term activity, and vice versa – a highly developed HES with the help of synergy effect promotes the macroeconomic growth, providing balanced development of regions and increase of the country’s competitiveness.

Conclusions
The economic activity of inhabitants and their involvement in socio-economic life directly dependent on the person’s level of education. The higher education system and its results have a clear impact on the development of the country. The improvement of the HES is a condition for successful development of the country and its competitiveness. Target-oriented reforms in the HES depend on positive synergy of education structure and participation of all stakeholders of. This positive synergy is important for both – education system itself and economic growth of the country. Reforms in the education system witness not only its significance in the society’s life, but also reflect processes taking place in the socio-economic life. HES

Figure 3. Expenditure per 1 student compared to GDP per capita in the EU countries in 2008, in euro. Source: author created according to the Nama_gdp_c-GDP and.., 2011; Educ_thexp-Investments in education and training, 2011
could be a tool which helped the state to influence the society and economy by subordinating it to the national tasks.

Experience of the economically advanced countries shows they have opened their economies to innovative solutions several decades ago. For some countries economic globalization and rapid technological development create a unique opportunity for fast development, for other countries - particular threats of stagnation or even recession. Such countries as Denmark, Sweden, Norway and Finland are consequently conducting reforms of higher education systems, constantly improving efficiency of the system in general and in its separate elements. During the previous decade the most important changes are directed towards improving performance of higher education: the structure of the resource investment indicators has been improved, activities of system reorganization have been carried out, the student mobility is actively developing (emphasising the significance of outgoing student’s mobility). The system and performance indicators of higher education have also been improved, aiming to motivate higher educational institutions for the self-improvement process. The higher education systems of these countries have gradually ensured competitiveness and sustainable development, proven by the leading positions in the Global Competitiveness Index, Knowledge Economy Index, Global Innovation Index, and other indicators.

In Latvia it is necessary to create conditions in the economic policy to contribute to the competitiveness of Latvia, and fostering development of knowledge-based economy, export sectors, including high technology sectors with high added value that will have the leading role in further economy development.

To accomplish reorganization of the HES resulting in increased competitiveness and efficiency of the higher education, the Latvian education system must create a middle-term (4-5 years) and long-term (10-15 years) development conceptions. That would be coordinated with the planning documents and the vision of Latvian national economy.

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REFLECTIONS OF DESIGN-ORIENTED PEDAGOGY FOR SUSTAINABLE LEARNING: AN INTERNATIONAL PERSPECTIVE

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Abstract
This paper focuses on the expansion of design-oriented pedagogy that encourages approaching global phenomena such as sustainable development from the perspective of local environments, cultures, and associated ways of doing things. It aims to determine how project members and teachers from eight different European countries (N=221) who had participated in the project Case Forest-pedagogy towards sustainable development experienced the pedagogical model and evaluated its usability from the perspectives of their own educational cultures. The main sources of both theory and data-driven qualitative content analysis are the reports obtained from each country and transcripts of the oral presentations and collaborative discussions. The results indicated that the teachers found current school practices, belief systems, and traditional teaching models problematic, and saw the model as one way to change their schools’ practices towards sustainable learning.

Keywords: pedagogical model, design-oriented pedagogy, design-based research

1 Introduction
Sustainable development is related to the values, activities, and practices of individuals, communities, and organizations, required for a sustainable society and future. The key challenge of our time should be addressed in multiple ways from different vantage points in locally grounded but globally connected ways (UNESCO, 2009). As stated in UNESCO documents (1998; 2005; 2009), education is essential for moving toward a more sustainable future as the world’s hopes for the future rest with today’s children and young people, and their readiness to take up the complex challenges of today and the future.

Education for sustainable development calls for new kinds of learning that are not so much of a transmissive nature but rather of a transformative and continuous engagement in sustainability in formal, non-formal, and informal settings. The complex and multi-disciplinary nature of sustainable development requires intensive collaboration between disciplines, schools, and the wider community, along with the capacity to connect and reconcile multiple ways of looking at the world (UNESCO, 2005; 2009).

To meet these challenges and to offer teachers tools to facilitate teaching and learning of sustainable development, a consortium consisting of 12 partners from 8 different countries was formed: Sweden, Finland, Estonia, Latvia, Lithuania, the Czech Republic, Slovakia, and Bulgaria. This study focuses on the project titled “Case forest pedagogics towards sustainable development,” which was based on design-oriented pedagogy, developed by a research group led by Professor Jorma Enkenberg. The present study aimed to determine how teachers that represent different educational cultures and backgrounds experience the pedagogy and evaluate its usability.

2 Towards sustainable learning
In a recent UNESCO publication, Kozma (2011) argued that while people in the “outside world” work collaboratively and use a variety of digital tools and resources to solve complex problems and create new ideas and products, students in schools have remained in structured classrooms where teachers cover the standard content by lecturing a large class of students; students work individually and reproduce this knowledge that is then assessed; and their use of ICT is limited. Furthermore, an international survey of teachers from 23 countries (Law, Pelgrum, & Plomp, 2008) supported this argument as the three most common classroom pedagogical practices were: having students fill out worksheets, working at the same pace and sequence, and answering tests. ICT was rarely used. Given the role of education and schools in society, the question that arises is: Is this type of educational system capable of educating individuals to meet the challenges they will face in the emerging society?
As the pace of change in the twenty-first century increases, many researchers have shifted their focus from education to life-long learning. Learning is a lifelong process that occurs in various situations (life-wide) and in cultural practices in which we participate (life-deep). It is proposed that these practices are also the most powerful mediators in learning and that most of the learning that occurs across an individual’s lifetime appears to occur outside schools, in various informal and non-formal environments (Banks et al., 2007). If we wish to deeply affect our students’ learning, learning environments, including authentic and technology-enhanced activities, should be seen as part of an extended school environment (Edelson & Reiser, 2006).

Complex challenges such as sustainable development as global phenomena are multifaceted in nature and require individuals with different points of view to collaboratively design and redesign solutions from various perspectives. According to Schank (2011), one major problem in current school systems is that teachers teach subjects instead of teaching students to think and act. If students are to participate in a society in which the construction, sharing, and use of new knowledge and cultural artifacts are the basis for sustained development, their education should go beyond the learning of established knowledge (Kozma, 2011). We must also take into account that professions and personal lives have changed as compared to life in the industrial society, and schools no longer educate students about everything there is to know in a lifetime. Most students will tend to follow a working trajectory encompassing multiple careers, and students should be prepared for jobs that do not exist at the time of their schooling. Therefore, we need to enhance adaptive learning skills with the ability to learn and work in cross-disciplinary teams (National Education Technology Plan [NETP], 2010; Thomas & Brown, 2011). Many researchers underline so-called “twenty-first century skills” such as communicating and collaborating to solve complex problems, adapting and innovating in response to new demands and changing circumstances, and using technology to create new knowledge and expand human capacity and productivity (Binkley, Erstad, Herman, Raizen, Ripley & Rumble, 2011).

Sustained knowledge development is essential for social progress of all kinds and the fundamental task of education is to enculturate youth into this knowledge-creating civilization and to help them find a place in it (Scardamalia & Bereiter, 2006). From a social perspective, there is a well-grounded need to move from individual learning and solo teaching to work in cross-disciplinary teams that encompass multiple ways of knowing (NETP, 2010). Classroom educators should build learning communities consisting of students; fellow educators; and professional experts from museums, community centers, and other settings, who can support a student’s learning on demand (NETP, 2010) and enhance the activities in which students learn and work together with different roles, perspectives, and responsibilities, and apply their own expertise. This process would require confidence that the students can create knowledge that can be shared with their community for further knowledge building that is a legitimate part of civilization (Scardamalia & Bereiter, 2006).

Fischer and Redmiles (2008) proposed that if the world outside school relies on collaboration, creativity, and problem solving, and requires dealing with uncertainty, change, and intelligence distributed across cultures, disciplines, and tools, then education should foster transdisciplinary activities that prepare students for having meaningful and productive lives in such a world. Having students become active agents in their lives and learning in settings far beyond classrooms, we must change our perception of what and how we teach in schools (NETP, 2010). If an innovation- and knowledge-based society is anticipated in the future, it calls for developing and implementing such pedagogy in teaching and learning for learners of all ages.

3 Design-oriented pedagogy
Building on the above-mentioned perspectives of learning, design-oriented pedagogy (Vartiainen, Liljeström, & Enkenberg, 2012) was developed to enhance collaborative learning activities situated both in and out of school. The pedagogy is based on collaborative designing (Seitamaa-Hakkarainen, Viilo & Hakkarainen, 2010), highlighting the role of real-world phenomenon and mediating objects and artifacts as a basis of the design and inquiry process. The pedagogy encourages approaching global phenomena such as SD from the perspective of learners’ own ideas and interpretations, scaffolded by open-ended learning tasks that give students the opportunities to design and choose different kinds of perspectives and paths to engage inquiry (Liljeström, Enkenberg, & Pöllänen, 2012).

The learning community consists of from student, fellow students, and teachers, working with domain experts and other adults. New technology, especially social media and mobile technologies, provide great tools for collaboration, data collection, and to transform ideas into digital representations that can be jointly negotiated, developed, and shared with a wider community. The structure of the design-oriented learning environment is like dynamic activity systems, where a community of learners negotiates common goals, divides duties, and focuses their object-oriented and tool-mediated activities to accomplish the multifaceted
learning task (c.f. Engeström, 1987). The learning process is described in Figure 1 below (described in greater detail in Vartiainen, Liljeström, & Enkenberg, 2012).

Figure 1. Instructional model for design-oriented pedagogy

3 Research methods

New educational innovations call for systematic research supporting development and implementation processes in a variety of contexts (Plomp 2010). Therefore, many studies utilize the “design-based research” approach to promote learning, create usable knowledge, and advance theories of learning and teaching in complex settings (Design-Based Research Collective 2003). Following the principles of design-based research, the model of design-oriented pedagogy has been tested and validated in several design experiments (iterative case studies) (Vartiainen et al., 2012; Liljeström et al., 2013). After several stages of development and prototyping research of the design-oriented pedagogy model, the main interest of the present study was to achieve a fuller implementation of the pedagogical model and to determine how teachers that represent different educational cultures and backgrounds experience this pedagogy (practicality) and their willingness to apply it in their teaching (relevance and sustainability) (Plomp, 2010). Based on these findings, the study then aimed to find answers to the following questions:

1. What could be the problems, possibilities, and possible users of the design-oriented pedagogy according to the participating teachers?
2. How did the teachers of the project envision the possibilities of the design-oriented pedagogy?

3.1 Research object

Some of the Case Forest project participants had previously formed a network, aiming to increase the education about sustainable development and to improve the communication between foresters and the public. They found that a research group at the University of Eastern Finland had developed a new kind of instructional model that they thought would suit their goals and ought to be spread to other countries. Since the project focused on design-oriented pedagogy and involved teaching and learning of the forest’s role in a
sustainable society, the pedagogy was termed “Case Forest pedagogy.” The role of the researchers was to introduce the model and its theoretical background, and analyze the data produced by the participants.

The instructional model and its background were initially presented to the project participants in Estonia in January 2009. In the spring of 2009, the project participants and two teachers from each country attended a workshop in Finland. In this model course, the participants implemented their own learning projects related to the common theme of “sustainable development” by designing learning objects from samples selected from the collections of the Finnish Forest Museum. Then, a similar course was arranged in every country. The project members and teachers attending the model course were responsible for implementing this teacher course in each country, with ten teachers per course. More than 80% of the participants in these teacher courses were women. Most of them had been teaching for more than ten years and had taught in a secondary school. Table 1 describes the responsible organizations and total number of project participants from each of the participating countries.

Table 1. Responsible organizations and total number of participants in involved countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of participants (N)</th>
<th>The responsible organizations and number of project participants</th>
<th>Participants in teacher courses organized by the project participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>16</td>
<td>• Swedish Forest Agency (N=4) • Umea University (N=2)</td>
<td>Teacher in primary school (N=10)</td>
</tr>
<tr>
<td>Finland</td>
<td>14</td>
<td>• Finnish Forest Association (N=2) • University of Eastern Finland (N=2)</td>
<td>Teacher in pre-school (N=1) Teacher in primary school (N=3) Teacher in secondary school (N=1) Other: Steinerpedagogue, Professor of education, 3 Teacher students (N=5)</td>
</tr>
<tr>
<td>Estonia</td>
<td>23</td>
<td>• Estonian Forest Industries Association (N=3) • State Forest Management Center (N=2) • Estonian Biology and Geography Teachers Association (N=1)</td>
<td>Teacher in primary school (N=2) Teacher in secondary school (N=13) Other: Nature school teacher, University student, Communication expert (N=2)</td>
</tr>
<tr>
<td>Latvia</td>
<td>110</td>
<td>• Stora Enso (N=1)</td>
<td>Teachers in primary school, secondary school and high school (N=109)*</td>
</tr>
<tr>
<td>Lithuania</td>
<td>18</td>
<td>• Kaunas College of Forestry and Environmental Engineering (N=2)</td>
<td>Teacher in primary school (N=2) Teacher in secondary school (N=12) Other: Teacher in High school, Teacher in Agricultural school (N=2)</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>15</td>
<td>• University of Forestry (N=3)</td>
<td>Teacher in secondary school (N=12)</td>
</tr>
<tr>
<td>Slovakia</td>
<td>16</td>
<td>• National Forest Centre (N=1)</td>
<td>Teacher in primary school (N=9) Teacher in secondary school (N=4) Other: Representatives from Methodical- Pedagogical Centre for Teachers (N=2)</td>
</tr>
</tbody>
</table>
The Czech Republic 9 • Forest Management Institute (N=1) • Teacher in secondary school (N=5) • Other: University teacher, Teacher in special education school, Forest pedagogy (N=3)

*Details of the teachers’ prior work experience were not included in the report from Latvia

The final meeting was held in Bulgaria in the summer of 2010.

4 Data collection and analysis

4.1 Country reports and presentations
To evaluate the teacher course, the project leaders from the Swedish Forest Agency designed a compulsory questionnaire that sought to identify teachers’ backgrounds and their attitudes towards the model. The project members in each country translated the questionnaire into their native language and then summarized the results in English. In these the country reports, the project members were asked to describe the teacher course that they organized, summarize the result of the course evaluation, and answer to the following questions (designed by the project leaders) related to the pedagogy: 1) Problems, 2) Possibilities, 3) Users, 4) Dissemination of results and 5) EU policies and education systems. These country reports (N = 8) were used as the main source to answer the first research question. This paper focuses on the first four questions (because very few short answers were obtained in response to the question related to EU policies and education systems).

In the final meeting the project members from each country also gave an approximately thirty-minute PowerPoint presentation on the basis of their written reports and experiences. All the presentations were recorded, transcribed, and used as supplementary material in the data analysis.

4.2 E-Questionnaire
Before meeting in Bulgaria, the project members were asked to participate in a short online questionnaire conducted by the researchers. The questionnaire focused on views about and experiences of the Case Forest pedagogy. Thirteen people answered the questionnaire: project members from Lithuania (N = 4), Bulgaria (N = 1), the Czech Republic (N = 1), Sweden (N = 1), Latvia (N = 1), Estonia (N = 1), and Finland (N = 4). The questionnaire was used as supplementary material in the data analysis.

4.3 Collaborative discussions
The collaborative discussions held in Bulgaria after the presentations in each country were used as the main source to answer the second research question. The project participants were asked to divide themselves in two groups and discuss the following questions: What solutions can be provided by Case Forest pedagogy to address the challenges we face in teaching and learning?

The discussions lasted about 40 minutes. The discussions of both groups were recorded and transcribed with comprehensive coding. The first group had one member from Bulgaria, two from Finland, one from Latvia, two from Lithuania, and one from Sweden. The second group had one member from Bulgaria, two from Estonia, one from Slovakia, one from the Czech Republic, two from Sweden.

4.4 Data analysis
We employed both theory- and data-driven qualitative content analysis (Mayring, 2000). For the first research question, the teachers’ responses were coded after deductive, theory-dependent content analysis. categorization was based on the questions used in the country reports. For the second research question, the teachers’ responses were coded following inductive data analysis. the analysis involved three iterative phases (c.f. Zhang, Hong, Scardamalia, Teo & Morley, 2011): (a) identifying initial categories based on the teachers’ responses (b) identifying similarities and differences among the initial categories and creating sub-categories; (c) aggregating the categories into abstract interpretations about problems and possibilities of the pedagogy, elaborated more detailed in the following.
5 Results

5.1 Problems in implementing the pedagogy

All countries except Finland, Bulgaria, and the Czech Republic cited the lack of technological tools in schools. According to project participants from Slovakia, another problem encountered is that the students are more skilled in ICT than the teachers. The reports of Slovakia and Latvia mentioned the problem of the insufficient IT skills of teachers and the recognition of this issue:

“It is hard to aware that majority of teachers knew about IT possibilities nothing. They are afraid to loose reputation”. (country report; Latvia)

The participants also emphasized the activities and attitudes of the teachers. According to project participants from Estonia, Slovakia, Sweden, Finland, and Lithuania, the teachers’ attitudes present a problem, especially their attitudes towards new pedagogical approaches and new technology:

“Older teachers are conservative and feel respect and fear to use new methods” (presentation; Slovakia)

Also, the routine and lack of cooperation among teachers were mentioned in the report from Latvia. According to project participants from Finland, problems also exist in the general attitudes of students, colleagues, and principals.

Also problems related to organizational and administrative activities, such as the lack of time and financial resources, were mentioned. The Czech Republic and Latvia further stressed on the political regulation of education:

“school reform (reduction of number of teachers; increasing amount of work; increasing demand for paper work; reduction of salary) - > very hard to be optimistic and creative in such kind conditions “(country report; Latvia)

“Forest pedagogy isn’t certified by Ministry of Education as a educational topic and schools don’t want to spend their money on uncertified courses; Ministry of Agriculture doesn’t have enough money to provide such courses for free”. (presentation; Czech Republic)

The time constraints, structure of the school system, and curriculum were broached by many project participants. However, the problem does not always exist in the curriculum itself, but rather in its implementation:

“We don’t have any constraints regarding the curriculum in Sweden. Outdoor teaching is a natural part of the schoolday in many schools, but many schools do not offer any outdoor education at all to their students.” (questionnaire; Sweden)

Table 2 summarizes the problems in implementing the design-oriented pedagogy.

Table 2. Problems in implementing the pedagogy

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>Problems of implementation</th>
<th>CZ*</th>
<th>EE</th>
<th>LV</th>
<th>SK</th>
<th>FI</th>
<th>LT</th>
<th>BG**</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technological problems</strong></td>
<td>Lack of equipment</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachers with insufficient IT-skills</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Social attitude problems</strong></td>
<td>Attitudes of teachers towards new technology</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitudes of teachers towards new pedagogical approaches</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitudes of pupils, colleagues, or principal</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Contextual problems</strong></td>
<td>Lack of financial resources</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of time</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curriculum</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Political regulation of education</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Czech Republic, Estonia, Latvia, Slovakia, Finland, Lithuania, Bulgaria, Sweden
Note that one teacher from the Czech Republic present at the Czech workshop discussed how to adapt the pedagogy to meet the mental level and technical abilities of the students. All the other teachers checked “no problems” to this question, but one teacher mentioned the lack of cameras and another mentioned the students’ interest level as a problem.

According to the report from Bulgaria, implementing this methodology would pose no problems. In the presentation, they mentioned “obligatory problems,” but no further explanation was provided.

5.2 Possibilities of the Case Forest pedagogy

The project participants from each country presented several possible future users for the method, from kindergarten to university, and programs outside of formal education, e.g., School educational programmes (the Czech Republic), RMK Nature Centers and Environmental Education Department of Environmental Board and Camp-schools (Estonia), kindergarten, primary school and secondary school teachers, youth education programmes (Finland), Professional Schools on Forestry and University of Forestry (Bulgaria), and high school schoolchildren, teachers themselves, primary schools, young forest friends cluster, seminars, extracurricular activities, camps, family gathering, distance studies (Lithuania).

The project participants from Estonia saw several possibilities for collaboration: “[The] Case Forest methodology develops cooperation between formal education system (schools) and informal education (museums/nature education centers), which strengthens networks for sustainable development.” The pedagogical model was also deemed appropriate for integrating different subjects in Estonia and Finland. In Sweden, the project members planned to continue collaboration with the teachers who attended their teacher course.

Many project participants also discussed the learning possibilities created by the pedagogy:

It enables working outside the classroom, allows us to use inquiry as a learning method, makes learning methods more versatile, allows a child to be a subject of his learning, allows the co-operation of the pupils and changes the role of the teacher from a teacher to a co-learner (questionnaire; Finland)

It is very good also this is not traditional way for education and …it will be…very interesting for pupils for scholars (presentation; Bulgaria)

Also, in the reports of participants from Latvia and Slovakia, the Case Forest pedagogy was seen as a way of changing the current models of education:

It also has a potential to be one of the important tools for realisation of reform in education system to change a traditional school to an advanced school by new methods implementation and innovation involvement. (country report; Slovakia)

5.3 Collaborative reflection of design-oriented pedagogy

After reading the collaborative discussion transcripts several times, four discussion themes were identified in both the discussions (research question 2). Based on the teachers’ responses, the initial categories were identified and divided into sub-categories (elaborated below), and ultimately into abstract interpretations about problems and possibilities of the pedagogy.

Knowledge

The nature of knowledge was the most common topic of discussion. For instance, a participant from Estonia in Discussion 1 said, “they (teachers) wanted to control this learning … ...it is (pedagogy) very open they they can’t say that …this knowledge and these skills”. Several comments were indicating that the pedagogy had challenged the teachers to see knowledge as developmental in nature. In Discussion 2, a participant from Sweden commented: “we don’t give them (students) the answers either they have to think for themselves”. In Discussion 1, the participants saw the children taking on greater responsibility in knowledge development and started envisioning new possibilities in student learning by building bridges between the students and experts in terms of knowledge and practices. As an example, a participant from Finland said in Discussion 1: “Where could we find the answer and let’s go to ask some professional who could help us”. In Discussion 1, another participant from Finland saw knowledge advancement as a community rather than individual achievement: “And questions might be also might be so complicated that you need …several opinions …and several people for them…not one person can know all the answers…you need the network”.

Another example from the same discussion 2 elaborates the skills needed for living in the world, where all the students do not have to have the same knowledge and competencies:

Sweden 2: …people who grow up now, they change jobs many times and it is impossible for the school to …to prepare them for everything … to know everything about everything… it’s not possible…but you can
help them to ...know how to find ...how to learn ...the tools for managing ...in situations ...that is that the project is about

Swedish 3: So Case Forest methodology is the part of life long learning

**Learning task**

In discussion 1, a participant from Finland strongly criticized the current practices: “the school system now and what kind of adults it ... brings out ... ...they always want some manuals or how to behave...what to do, they are not making decisions by themselves because if there is a curriculum it says what you are supposed to learn and they are used to that system and there is somebody .. who is saying what you are going to learn ”. In the same discussion, a participant from Bulgaria brought up the challenge set by the extant curriculum: “…teacher have should have some more freedom in curriculum because the curriculum is obligatory... ...because they have to implement their curriculum and it is not possible to give some different questions and different objects et cetera”.

However, in Discussion 2, some comments about the open-learning task emphasized in the design-oriented pedagogy indicated a desire for clearer goals. A participant from the Czech Republic commented: “I think that there should be some kind of aim or target were to guide the students... ...there must be sort of result”. A participant from Slovakia responded similarly: “In Slovakia teachers are used to set the object... for doing something... ...so our teachers wanted us to help them formulate those subjectives, set the goals... ...to have clear objectives what pupils should know after this project”. In Discussion 1, a participant from Latvia commented that she experienced that real-life learning tasks can make learning more meaningful by giving the students the feeling of ownership of their own learning: “I know that pupils feel that it maybe necessary to learn because its real life...not his previous method of books and answers”.

**Instructional model**

In Discussion 1, a participant from Lithuania described the current practices as follows: “Our teachers have very frameable models... ...our students have trained how to answer, how to make some exercises...and this Case Forest method is ...new way ...more creative, more free”. In discussion 2, one of the Estonian participants described the design-oriented pedagogy as collaborative inquiry, where students co-construct the process: “they have to discuss what problems they have to solve and they have to do something to solve the problems”.

The practices of today challenge the implementation of a new instructional model, as observed by a participant from Slovakia in discussion 1: “It might be difficult to organize it in normally school life...because they have some lessons which are mattering and each teacher are responsible for different lessons so they have to main an agreement to this topic, have enough space, enough time to ...use this methodology”. Despite such challenges, the participants suggested that the pedagogy can be seen as a cross-disciplinary inquiry that integrates multiple goals of curriculum and school subjects.

**Learning community**

In both groups, the role created by the pedagogy for the teachers provoked much discussion. The teacher still needs to interest students in the learning process, and facilitate the inquiry process. However, the teacher does not have to control and know everything, as emphasized in Discussion 2, by a participant from Estonia: “The teachers are ...also learners...teacher can learn from students...and also these specialist from centers and museums they do co-operation”.

The trust in student’s agency and peer-to-peer teaching and learning also emerged in both discussions. In Discussion 2, a participant from Sweden stated: “they help each other ...and perhaps they have more fresh knowledge than teachers have... ...it is some kind of team work “. A participant from Estonia describes the emerged learning community and connected teaching: “learning communities that we created during this methodology... ...there are team there must be specialist and teachers and also students”.

6 **Discussion and conclusions**

The results of the study indicate that in most of these countries, participants perceived teachers’ attitudes towards technology and new pedagogical approaches, lack of equipment, financial resources, and time as problems to implementing this new approach. Many project members criticized the current subject-based school curriculum that offers limited opportunities to implement these deeply engaging and time-consuming learning methods. Overall, it seems that some of the Eastern European countries experienced problems related to political regulations of education and the financial constraints of learning institutes. In the Nordic
countries, the problems were related to the teachers’ attitudes and the strict division between school subjects and lessons.

Data analyses of collaborative discussion revealed four interconnected themes, providing an insight into the tension of current school practices and principles of the design-oriented pedagogy. Figure 2 describes the vast variation of teachers’ reflections to knowledge, learning tasks, instructional models, and social settings in learning.

<table>
<thead>
<tr>
<th>CURRENT PRACTICES</th>
<th>TEACHER</th>
<th>STUDENTS</th>
<th>COMMUNITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic knowledge, correct answers, teacher-centric expertise</td>
<td>Bridges students and experts in terms of knowledge and practices</td>
<td>Development and ownership of the knowledge</td>
<td>Community knowledge and shared expertise</td>
</tr>
<tr>
<td>NATURE OF KNOWLEDGE</td>
<td></td>
<td></td>
<td>Skills for living in the world</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NATURE OF LEARNING TASK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher or curriculum set the goals, specific tasks and controlled results</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INSTRUCTIONAL MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scripted procedures and fixed routines</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEARNING COMMUNITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher as learner and member of the learning community</td>
</tr>
</tbody>
</table>

Figure 2. Challenges and possibilities of the design-oriented pedagogy

To summarize, the traditional forms of instruction, in which students study something constructed or announced by someone else, still seem to value factual knowledge and correct answers, where the teacher tries to guide the students with specific tasks, scripted procedures, and fixed routines. Schools and teachers are used to thinking about what is needed to be learned in terms of school subjects (Schank, 2011), and teachers do not necessarily invent and implement new ways of using technology in their work (Valtonen et al. 2011). Yet the complex challenges of society, such as SD, seem to generate pressing demands for teachers to transform their teaching methods. Beyond transmission of prevailing knowledge, design-oriented pedagogy was considered to be a co-developmental process that occurs in groups, communities, and networks. A further step is to organize the students to work as a learning community pursuing to develop community knowledge by solving real-life problems with a diversity of perspectives. Breaking boundaries between school and cultural communities open possibilities for connected teaching and facilitate the students learning in settings beyond the classroom. However, this poses greater demands on teachers; they have to re-think the core issues of learning and teaching, create new meanings for themselves; and understand the cultural contexts, practical conditions, and barriers in different classroom settings to accordingly develop effective strategies (Zhang, 2010).

Design-oriented pedagogy is characteristic of what Zhang et al. (2011) referred to as a principle-based approach that defines core values and principles, leaving to teachers the challenge of reflective interpretation when applying these principles in different educational contexts. The four perspectives emphasized in collaborative discussions indicate that the current school practices and the new pedagogical approach affect one another in many ways, so that the actual pedagogical practices implemented in schools may share characteristics of both rather than correspond with the defined core values and principles. This reflects Zhang’s (2010) argument that implementing new innovations provided by researchers is difficult, as the new practices are often assimilated into ongoing practice and are ritualized as surface procedures in implementation, without resulting in significant change.
The results of the study suggest that the participating teachers, coming from different educational backgrounds, perceived the pedagogy as an effective approach to facilitating a sustainable future. However, the differences in learning cultures and available resources are creating various challenges for the teachers to implement and sustain a design-oriented pedagogy. To some extent, the result of the study reflects the beliefs, traditions and norms that organize the educational practices in these countries. One of the limitations in this study is that it cannot thoroughly explain the possible cultural differences in implementation of design-oriented pedagogy.

The most obvious limitation of the present study was the language barrier. The project members served as brokers (Wenger, 1998) between the teaching communities and researchers that created important opportunities to cross over the language differences and disseminate the pedagogical model, but also created a transparency issue. Also, the on-line questionnaire was in English, which could explain the very low response rate. According to Penuel et al. (2011), because design-based researchers often seek to collaborate with teachers that are also “ready for change,” that may be a necessary condition for partnerships, but leaves open the question as to the scalability of the innovation.

After the final seminar, we have had the opportunity to observe the work of some Finnish project members (see Finnish Forest Association) and teachers (at the University of Helsinki, University Teacher Training School), who have organized workshops for other teachers and several learning projects with their students since their introduction to the program four years ago. These cases provide valuable avenues for future research for sustained innovation and understanding of the new ideas, designs and practices derived from the design-oriented pedagogy.

Acknowledgements
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WHY EDUCATION FOR SUSTAINABLE DEVELOPMENT NEEDS EARLY CHILDHOOD EDUCATION: THE CASE OF NORWAY

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Telemark University College, Norway

Abstract
With this article, the author intends to outline a legitimizing basis for implementing Education for Sustainable Development (ESD) in Early Childhood Education (ECE), in juridical, pedagogical and political terms. Starting from our current ecological crisis, the ontological assumptions of modern culture are considered obstructive to possibilities for mitigation. The author affirms a need for constructing new conceptual frameworks in the field of Education for Sustainable Development suitable also for the youngest children. The very logic of the reigning notion of knowledge requires revision in order to secure successful implementation, as well as fostering citizens with the moral agency required to meet calamity. Ontological insights from deep ecology are suggested integrated with the more practical epistemological concept ecological habitus is suggested as starting point. Possible gains are not exclusively related to sustainability, but also include positive impacts on the life quality of young children as such.

Key Words: Early Childhood Education, Kindergarten, Norway, Cultural Formation, Habitus

Introduction
Following up on international initiatives on Education for Sustainable Development (ESD) such as the UN Bonn Declaration (UNESCO 2009), the Norwegian Directorate for Education and Training (UDIR) stated in a central strategic policy document that knowledge on sustainable development should imbue all levels of the educational system (UDIR 2006). However, empirical studies implicate that this seldom pan out in practice (Raabs, 2010; Sinnes and Jegstad 2011). While sustainable development as such has become an integral part of the language and justification of policy in Norway, educational practices tells of a different story. The absenteeism of sustainability issues might partly be related to the lack of competence and confidence in interdisciplinarity, a central pillar of and necessary methodological prerequisite for ESD, in current praxis. More significantly, the paradigmatic idea of modernity implicating that problems are to be split up and understood in purely atomistic ways seems to permeate educational thinking (Morin 2001). The system is serving as apologist for the modern industrial society that brought about our current environmental struggles, as parts of the broad hegemonic process for “consumer dreamstructures” (O’ Sullivan 1999, p. 43). Focus of learning is weighted towards developing and accumulating technical knowledge, whilst emancipatory and agentive dimensions are principally deficient. The ecological crisis we are faced with today challenges this epistemology based on substantial dualism, with its fundamental ontological division between nature and culture. Such a logic has allowed natural resources to appear as inexhaustible sources that the promethean human being can advantage from (White 1967; Ingold 1992). Approaches towards dealing with environmental and distributive challenges are in light of this characterized by a techno-rational logic (Bell 1991). However, the complexities of environmental issues today reveal the inadequacy of the corresponding understanding of knowledge and epistemology.

Moreover, the understanding of ESD seems to be locked into a traditional logic of education in general and more specifically what has commonly been termed as environmental education, with hegemonic weight placed on the traditional “hard” sciences. The importance of cultural and social aspects is not recognized, contradictory to the very purpose of the sustainable development with its three interdependent dimensions (economy, ecology and the social). Importantly, this leads to a lack of integration of democracy and participation in educational practice and learning processes. However, seeing children as competent agents of change is integral to the implementation of ESD. Davies (2009) recognizes this as the difference between education about, in and for the environment, arguing that the latter is commonly left out. In addition to the obvious pedagogical arguments in this context, this is not least highly problematic in light of children’s relatively new won formal rights as citizens through the UN Declaration of the Rights of the Child (UNCRC,
UN 1989). This also holds extensively true concerning the core values of the local juridical framework on education in Norway.

Article aims
As this article argues, if we are to obtain the goals of ESD it is a necessary logical step to reconceptualise our very notions of environmental education, pedagogy and children’s development as such. Fundamentally, this includes recognizing the important role of Early Childhood Education (ECE). As Sarronmaa and Sarronmaa (2009) points out, the educational system commonly meets ecological challenges either with suggesting isolated practical didactic solutions, or emphasizing the unclear relation between school policy and political will. The last strategy they suggest, that of establishing theoretical perspectives as foundations for pedagogic praxis, seems to be quite absent from the picture. Hereunder, the forthcoming work is intended as a contribution in this regard, but almost as much purely a legitimating basis for the necessity of turning efforts at the very ontological and epistemological foundations of current educational thinking, and including also the very youngest of the system. Interestingly, the article shows that by integrating elements from ecological philosophy and practice theory with educational thinking, the conceptualization of life quality for young children can also be addressed through the concept of ESD.

Thus there are two inter-reliant aspects to be elucidated in the forthcoming, hereunder
1) The importance of understanding ESD as a process of social learning and a fundamentally value-based approach in order to develop new theoretical understandings, and
2) The significance of an emerging new understanding of young children as citizens for transforming theoretical concepts into educational practice

As the article is primarily intended to function as an outline of a situation and context, the scope is more broad than deep. However, a concept of ecological habitus is tentatively suggested as starting point for further development of new theoretical frameworks.

Presentation of the field

The Norwegian Kindergarten Tradition and ESD
In the undoubtedly quite gloomy context of the conditions for ESD in Norway, a lacking focus on the youngest children is a particularly severe precedence. In the governmental strategy on ESD, ECE is briefly mentioned but not treated in further depth at all. On the one hand this might be understood to reflect the above mentioned focus on rationalistic knowledge, in that the preschool sector in Norway traditionally have held an ambivalent attitude towards being included in the school system as such, given the strong and dominant social-pedagogic tradition in the field (White paper 41 (2008-2009)). This is especially connected with a resistance towards the concept of education. Discourses on kindergartens have been colored by a parallel need of defining it as “something different” in relation to school, and at the same time legitimizing it as school preparatory in response to international as well as national political pressures (Ødegaard and Krüger 2012, p. 33). Moreover, it might be related to views on the nature of the type of knowledge ESD involves, as it is a common view to see the youngest children as too cognitively immature to be faced with the harsh realities of global environmental issues such as climate change (Edlev 2008, p. 232).

Not necessarily all wrong, this fails to recognize the dual advantages both in terms of children’s cognitive development and well being, as well as reaching societal goals of sustainable development with the implementation of ESD into ECE. UNESCO states that ESD “should be of a quality that provides the values, knowledge, skills, and competencies for sustainable living and participation in society” (UNESCO 2009, p. 4). These values correspond strikingly well with the core goals in the Norwegian curriculum document for kindergartens (R-11), where the holist process of development and learning as Bildung (Norwegian danning) has precedence over pure knowledge acquisition. Additionally, the absence of ESD perspectives reflects the lack of an adequate conceptual framework for politically acknowledging, theoretically understanding as well as practically operationalizing the connections between young children, participation and sustainability.

A Field with a Plan
In the curriculum and core strategic documents of the Norwegian kindergarten system, issues related to the environment and sustainability is commonly placed in a ”nature-category”. Thus the foundations are to be found in natural science subjects, whilst the crucial cultural dimension is disregarded. In R-11, aspects related to sustainable development is placed under the headline Nature, environment and technique, and only implicitly mentioned in terms of ”environmental protection” (R-11, p.45). This reflects the permeating externalist idea of nature described above, as substantially different from us and something which needs to
be protected due to its instrumental value to humans, neglecting its inherent value. More deeply, it is not sensitive to the pluralism of sustainable development as such. While terms like skills and knowledge dominates school curriculum, the idea of learning in kindergarten is concentrated towards competences and development in the broad sense. The approach is remarkably consistent with the core idea of ESD: "For the individual, sustainable development is the capacity of lifelong learning and development, which is based on a person’s all-round harmonious development” (Ibid, p. 13).

In fact, the term ESD might not even be sufficient to understand the whole picture; we should perhaps aim for educating for a sustainable citizenship as such, related to the choices of everyday life and sustainability as concrete, lived experience (Gadotti 2008). This is however in no way discipline-specific and should not be confined to natural sciences alone. As Otto and Wohlpark (2009) writes, the humanities are especially well disposed to effect values and beliefs and thus effect change in cultural and cognitive systems. After all, the technological and economic solutions proposed will have to be undertaken and interacted with by living human-beings. What is more, in the European strategy for ESD developed by The United Nations Commission for Europe (UNECE), it is made clear that both formal and informal learning contexts are fundamental (2003). Thus there is no factual opposition between a highly social-pedagogical kindergarten ideal and integration of ESD in plans, ideas and practices of learning for the youngest children; rather the opposite. Educating for a more sustainable future is at the core not solely about meeting and mitigating “challenges”, but more deeply interconnected with the quality of life by emphasizing problem solving, critical thinking skills and “democratic means of promoting values” (Huckle 1999, p. 38). The interconnectedness between life quality, education and developing self-identity is thus incorporated in the very term. This will in the forthcoming be illustrated by adding insights from deep ecology and place pedagogies to serve as proposed motivational structures.

Central Terms

Young Children – What are they?

In the context of the Norwegian kindergarten, the children discussed are at the ages 1-5 years old. After institutions for young children were organized by national law in 1975, the amount receiving such services has skyrocketed. Today, around 90 percent of children attend kindergarten, and many spend as much as 40 hours per weeks here. The new reality of everyday life for the youngest members of society has made media debates flourish and governmental attention within the field substantial. Contrary to what is described in Davis (2009) on the complexity and diversity of the ECE systems in many countries, the kindergarten sector in Norway is made quite uniform through substantial central governance. Its social-pedagogical tradition has always kept “care” at its centre, but is increasingly challenged by material realities of the institution as well as the much powerful political discourse of learning. Although the responsibility for providing children with joy, care and wellbeing is firmly asserted in the national laws for kindergarten, the visions of objective rationality is lurking in the background. Already in 1996 the project Making Lifelong Learning a Reality for All was launched by OECD, and education in a life-span perspective became part of public debate in Europe (Juell 2010, p. 69). With the reports Starting Strong (OECD 2001, 2006) the kindergarten sector in Norway as truly integrated in the educational sector through the concept of lifelong learning. This is however a concept of learning strongly grounded in the neoliberal discourse, which comes with economic connotations, making the learning process figure in a logic of a transaction where the pupil receives “goods” (Biesta 2009).

Quality is hence commonly understood as quantifiable results and the achievement of standardized goals. Among the highly debated issues of kindergartens is the increase in pressure to apply mapping tools and formal testing of children’s basic skills in language and mathematics (Østrem 2009).

So what is then “education” and “learning” when it comes to the youngest children?

In this context, there is a need to distinguish between different ideological views of what children fundamentally are in social terms. Seeing children and childhood as historically flexible and thus socially constructed is by no means controversial thoughts, and Aries (1973) argued that the idea of childhood as such is a modern invention. The ideas of children in modern sociology can be roughly divided into to ideological categories. One perspective regards children as becomings who are naturally set to develop gradually into adult human beings and hence should be considered “unfinished”. The other strand understands children as beings in themselves and thus as competent citizens (James et al. 1998). The roots of modern pedagogy and educational thinking has been cut out by the former, cultivating our positivistic need to control, form and standardize to make order(Steinsholt and Øksnes 2003). In this view we “produce”
grown ups through education that are cut out to fit the modern society that actually brings about our current environmental troubles.

**Learning and Cultural Formation**

Current research traditions are more commonly based on social constructionist views where children are understood as social actors with agency, quite different from older universalistic traditions such as development psychology and functionalistic sociology (Lyså 2012, p.56). Children are seen as competent individuals forming their own lives and identities. Here the Norwegian concept of *danning* can be key to developing a more adequate theoretical platform for implementing ESD as education for the environment. The term can be traced back to the ancient Greek *paideia*, with the Socratic dialogue, critical thinking and active learning as core. It was later revived but the bourgeois enlightenment as *bildung*, bringing with it connotation problems, appearing highly normative and associated with class-specific ideals of the bourgeois enlightenment (Ariansen 2011). However, by applying the term *cultural formation* as an alternative understanding, the processual aspects as well as participation are emphasized (Ødegaard and Krüger 2012, p. 23). In the Norwegian context, cultural formation has been defined as a lifelong process of versatile self-development (White paper 41 (2008–2009)). Applying this concept thus frees us from the passive picture of the child as mere receiver, and opens for an integration of sustainability as a tool for better life quality and self-development. Moreover, it allows for seeing ESD as something that both can and must be approached already with the youngest children, as cultural formation is a process that principally can be understood to start already at birth and in principle never ends (Ødegaard and Krüger 2012). Furthermore, as Samuelsson argues, foundations for knowledge construction as well as attitudes and values are formed in the early years (Samuelsson 2011, p. 115). She illustrates this by referring to a set of interviews undertaken with pre-school children in Australia, demonstrating that their thinking of the state of the world actually connects with the holist concept of sustainable development. They see links between waste, the wellbeing of the earth and quality of life for human beings. Moreover, this must be seen in relation to their own interests, understandings and cultural contexts. Children’s participation will of course always entail recognition of their individual points of view.

**The Child as Citizen**

Within the discourse on the competent child, the development of children’s formal rights is a central pillar. This is strongly related to the UN CRC and most notably in terms of §12 on children’s right to participation. Although the convention has been ratified by all UN nations except the US and Somalia, §12 is highly controversial, and many countries have used their right to modification on this (Smith 2008). Formal rights are not the same as factual rights, and precisely how this principle is to be translated into practical terms is vague and thus heavily debated. Although the pedagogical and social imperatives might be clear, ESD still seems difficult to prioritize in curriculum and strategy plans. However, arguments for the importance of ESD for young children can also be made in ethical and juridical terms. One aspect of this is the inherent ethical implications in the definition of sustainability as such. Sustainable development was initially defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987). Thus it makes strong implications on the responsibility of current generations towards the future. Philosophers have commonly coined the moral responsibility in terms of an imperative resting on western countries towards the poorer parts of the world, arguing that we have a negative moral duty to not make matters worse for the people that are and in the future will be negatively affected by climate change (Pogge 2002). This logic bears hold also for children, not only as representatives for "future generations" of this intergenerational justice, but also in terms of the fundamental principles in UN CRC. These include not only their right to participation but not least the principles of prioritizing the best interests of the child (§ 3) and the right to life and development (§ 6). There is thus a legal imperative towards facilitating a sound use of natural resources for new generations, something which fits straight into the fashionable discussions on children’s participation in ECE institutions as well as the case of ESD in ECE.

**Discussion**

**Developing Identity and Learning for Sustainability**

Young children do hereunder not merely represent a target-group among others, but even more so important resources in reaching the goal of integrating a holistic cultural understanding of sustainable development. Simultaneously, ESD approaches and ways of thinking also have potentially important
contributions for children’s cultural formation and quality of life in itself. The currently flashing warning lights of increasing weight- and physical health problems among western children as well as psychological and cognitive disorders, has by Louv (2005) been related to the disconnection of children from their natural environment as a kind of “nature-deficit-disorder”. A similar idea is also the basis for the synopsis of the documentary Play Again (Schei 2010). Psychiatrists have pointed to a possible connection between children’s detachment from nature and overprotection, with mental health challenges such as depression and anxiety (Frank 2012). Such alarming developments are contextualized within core aspects of modern culture. Regardless of the potential relations here, possible gains of interacting with nature are well documented. Furthermore the thesis that aspects of modern culture and societal structures have problematic impacts on identity formation has been coined in many ways, joint by the notion that it makes for insecure children with its high demands of reflexivity (Hoëm 1978; Ziehe 1989; Glaser 2011).

The need for experiencing correspondence between felt expectations and actual experiences is what Giddens described as ontological security (1991), denoting a kind of stable mental state and self-identity. Meaning is hence found in experiencing positive emotions, and by avoiding chaos and anxiety. This is reliant on the individual’s ability to give meaning to her life, which is fundamental for self-confidence and well being. Children create meaning and understand their surroundings through processes of autopoiesis (Luhmann 1995: 34), in dialectic interplay with their surroundings. This process is especially closely connected to the body, as one think and experience through and with the body. Yet for children this pre-reflexive epistemology is completely dominating their experiences (Merleau-Ponty 1984). Furthermore, in contrast with adults, young children have a generally gestalt-orientated epistemological sense that is lost somewhere along their socialization process toned towards the specialization of modern society (Jakobsen 2005, p. 42-45). Seeing nature and culture as detached spheres are hereunder stages in an "unnatural" process of learning to see oneself as external to nature. Empirical studies support this notion that understanding inherent connections in nature is an ability that is developed at an early age (Phenice and Griffio 2003). This is integrated with children’s moral self development. Children show concern for their natural surroundings already before they experience acknowledgement of their self-identity, and the experience of acting morally is part of creating an understanding of oneself as a moral agent with capabilities. Numerous studies implicates that a positive environmental ethical attitude is deeply interconnected with early play in and interplay with nature (Chawla 1988). Hence, internalizing sustainability as intrinsic part of moral agency is something that should, and perhaps also must, start during the years of kindergarten and preschool.

Feeling at Peace in a Protected Place

The fractured and unstable characteristics of modern identity formation have led to acknowledgement of our disembeddedness from place (Giddens 1991) as a representative for ontological security. The externalist ideas of knowledge and nature have not least been severely challenged by the physical realities of the environment literally “moving closer”:

In fact modern man for a long time believed that science and technology had freed him from a direct dependence on places. This belief has proved an illusion; pollution and environmental chaos have suddenly appeared as a frightening nemesis, and as a result the problem of place has regained its true importance (Schulz 1984, p. 19).

This is related to the cognitive challenge of grasping the realities of environmental issues in their essentially global character, and its associated problems of placing cause and effects on a comprehensible scale. Reality is that for most people it is far to Greenland and a long time until 2050. Place-oriented pedagogies are thus needed so that the education of citizens might have some direct bearing on the wellbeing of the social and ecological places people actually inhabit (Gruenewald 2003). Place is, in the phenomenological sense, understood as particular lived place-worlds of human-beings (Birkeland 2011). It involves both the subjective and objective forms of the world around the individual human being, and in relation to children’s development this is in phenomenological terms described as the lifeworld. Place thus becomes a qualitative, total phenomenon that cannot be reduced to its individual, material pieces. It can be described as dwelling, or "being at peace in a protected place" (Schulz 1984, p. 22). In this view, place is related to modern identity formation, stimulating ontological security. Local surroundings and places can become links between children’s harmonious cultural formation and sustainable development. The importance of taking the local as point of departure in strategies for sustainable development is embedded in the concept from its first official documents and definitions. Ideas of local action and global impacts are bearing principles in the UN global action plan Agenda 21 (UNCED 1992). The local place, or the bioregion, can stimulate attention and identification with the web of life at all levels (O’Sullivan 1999, p. 202-203). Samuelsson (2011, p. 106) makes clear how the understandings children have of sustainability at a young
age are interconnected with their immediate contexts. The children interviewed about the state of the world in Australia, thus related it to bush fires and koala bears.

The importance of place in the existential way is where fundamental insights can be added from deep ecology. The ontological theory of Arne Naess and the basis for deep ecology is based on the holist idea that “everything is connected to everything” (Naess 1999, p. 15), in opposition to the atomistic picture permeating the modern mechanistic world view. The insight that human beings cannot separate their selves from the greater whole of the world is not to be understood as neither relative nor subjective, but rather as a way of theorizing the intrinsic relationality of all things (Diehm 2006). One could here object that deep ecology is explicitly non-anthropocentric, and thus seemingly not compatible with pedagogy, which unalterably has human beings as end. This is also at the root of the barriers for obtaining the goals that sustainable development promise, all the while anthropocentrism is interwoven with the very term. As McShane (2007, p. 170) writes, anthropocentrism is the view that the nonhuman world has value only because, and insofar as, it serves human interests. Although it may well appear that deep ecology “wipes away” the self and dismisses it as relations, Naess is on the contrary well sensitive to the cultural and biological distinctiveness of human beings in more than anything our ability of self-consciousness. This also gives us a special responsibility towards other living beings that lack this capacity (Naess 1999, p. 327ff). Moreover, self-realization is constantly the ultimate goal for Naess, not as maximization of one’s narrowly construed interests or with “colossal ego-trips” (Ibid), but in the deep recognition of the true depth of the connection with nature (Diehm 2006).

The core of deep ecology is not a dogmatic program, but a committed attitude (Naess, 1999). A motivational structure in this sense seems logically imperative. Educational practice must dare to acknowledge its moral aspects, the inherent value rationality where certain modes of action are assigned inherent value.

Towards a Concept of Ecological Habitus

If stopping at individual identity formation, there is little room for the talk of social change which ESD brings with it. This is also true when considering the link between individual development and societal aspects inherent in cultural formation. How may then the ontological insights gained from the gestalt thinking of deep ecology be integrated with a theory of practical action that also can bear meaning for pedagogies? Although vastly criticized and accused for being a sort of theoretical “deus ex machina” (Lizardo 2003, p. 6), Pierre Bourdieu’s concept of habitus have a lot to offer in this regard. The notion of autopoiesis makes it logically impossible to form children in instrumental ways; because we cannot predict the outcome of the self-creating processes of each individual. The modern mechanistic paradigm is here not just “untrue” in the Naessian logic, it has also been argued to alienate and estrange human beings from their true nature. The instrumental and individualist logic eradicates authenticity, and pulls human beings away from their true selves. This can thus be seen in connection with children’s possible inharmonious self-development (Nyeng 2000).

Bourdieu illustrates the social aspects of relationality. With him, the body is situated in social fields, and individual acts of perception (noesis) are made against a background of existing categories of thought (noemata) incorporated in the body. The body is in the world but, importantly, the social world is also in the body (Bourdieu 1984). Habitus is commonly misunderstood to represent an objective, reductionist element, leading Bourdieu into the trap of structuralism and determinism that he so explicitly sought to avoid. However, this is to disregard the way the concept allows for going beyond a phenomenological focus of the lived experience of the social world, and point to the correspondence between objective and internalized structures (Bourdieu 1990, p. 25). One might actually describe this approach as a “cognitive sociology” (Lizardo 2003), as there is an association between social structures and mental structures. Such a cognitive sociology hence pays attention to the historical development of schemata of perception (Ibid, p. 5). Here children’s individual development and the movement of society at large towards sustainable development can meet. Cognitive and social structural developments are dialectic and continuously ongoing processes, where the objective social structures are translated through individual processes of self-development. The basic idea is that when sustainable development becomes integral in the cultural formation of children, it will eventually influence the structures of our society through their choices of better practices, and the structures will again foster sustainable practices, and so forth. It will eventually become a “good circle”.

Habitus is made up by capital, and Bourdieu emphasizes how capital is related to the potential in having a lasting network and relations marked by mutual recognition (1986, p. 248). This can be related to human interaction with nature, which seems to be morally guided by exactly a sense of reciprocity and duration (Chawla 1988). By suggesting the idea of ecological habitus and ecological capital, we allow for theorizing
this further. Capital is internalized in the semi-reflexive habitus as generative structure or dispositions for practical action (Bourdieu 1990, p. 54). Understood this way, habitus comprise both restrictions to and ability for practical agency. This sheds light to the idea that children who interact with nature from an early age, are more prone to develop positive environmental attitudes as adults (Broch 2004). The dispositions of habitus are persistent, but not absolute, and the main formative period is early childhood. Moreover, they are bodily embedded. This is why it is fundamental to integrate sustainable development into children’s development of ecological habitus already in the earliest years. Moreover, the concept transcends a focus on accumulation of abstract knowledge, as it emphasizes practical action and competencies, and possibilities for action. Hence there is a focus on mastery and the possibilities which include social relations as well as the physical environment. An appropriate allegory here is the common idea in social anthropology of coping and the human bricoleur, who lives in accord with and simultaneously manages to advantage from her environment (Croll and Parkin 1992). This is an argument for making the complex issues of sustainable development core in ECE, to foster the creativity and interest of young children and stimulate their cultural formation. As some may argue that we make children scared or feel guilty about the ecological crisis and global injustice, the exact opposite is actually done when they are given the understanding and experience that they can influence and think about new ways themselves (Samuelsson 2011, p. 112).

Although at some points operating in different scientific realms, both Bourdieu and Naess can be seen to have in common an opposition to views that distinguish between reality as experienced and reality independent of our existence. This might be the most important theoretical premise and insight for obtaining pedagogies adequate for implementing ESD in ECE. The modern mechanistic paradigm is based on the Galilean divide between the primary and secondary qualities of things and nature, where nature is allowed to be firstly something in itself and apart from us, and secondly something human beings experience as subjects towards objects (Diehm 2006). Here lies much of the root of the logic which invariably lets us see the value of nature as instrumental and thus can leave ESD with the mere “protection of nature” logic. Outdoor kindergartens can serve as examples on how good efforts are stuck in a romantic view of nature as something out there, wild nature as a radically different context from the ordinary everyday life. The idea is that being outside is “good for children”. This is an example of environmental education as education in the environment, again leaving out education for. This notion of nature as “the thing in itself” is in both the Naessian and the Bourdieuan logic an abstraction. While deep ecology serves important ontological premises for ESD, establishing the idea of ecological habitus can serve as a move towards more practical, pedagogic tools. It constitutes the difference between education aiming at behavior modification and education aiming at action competence, and in the societal sense a shift of focus from human beings as consumers of goods and information to active and capable citizens. The ideology of making resource use serve the quality of life rather than the economic standard of living as generally promoted by consumerism has its clear parallel in the case of children; we must make pedagogy serve the quality of life of children and not only be steered by market mechanisms of the modern, economist logic.

**Closing Reflections**

Through this article, a legitimatizing basis for why ESD should not overlook ECE has been outlined in the context of Norway. It has become clear that there are moral imperatives for including the youngest children in the work towards sustainable development, and pedagogical implications for how the process of cultural learning can gain from this have been pointed out. A social learning perspective is suggested integrated through applying the concept of ecological habitus. However, the theoretical construction must be further investigated with insights also from empirical enquiry.

Further responses to the challenges of implementing ESD into ECE should include research capacity building, in order to improve capacity on the subject, create international networks and stimulate and initiate further initiatives and funding (See also Davies 2009). Moreover, a particularly important aspect is to take research into professional learning and hence look further into the conditions of ESD in teacher education related to ECE. This is quite interesting in the context of Norway, as a new framework plan for kindergarten teacher education is currently being implemented. The major novelty of the plan is a reorganization of traditional scientific disciplines into practically oriented, interdisciplinary fields of knowledge. This corresponds well with core ideas of ESD, at least theoretically, and might represent a fruitful context for developing better understandings of ESD in ECE.

Nevertheless, there seems to be a common ground fusing the emerging new understanding of children as citizens and agents, and the urgent need for taking sustainable development into practice. The challenge is to gain recognition for ECE as an imperative starting point.
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