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## *Editorial*

This issue of the JTEFS consists of seven papers that deal with issues ranging from attitudes and values of pre-service and in-service teachers that promote sustainable lifestyles to closely interrelated themes of inclusion and exclusion. I would like to thank all the members of the Editorial board for their hard work, reviewing and commenting on the articles submitted to this issue of the JTEFS. My thanks are also due to contributors for their stamina in the process of preparing articles for publication.

The first paper in this issue by Pace highlights the findings of an action research project aimed at exploring the impact of transformative pedagogies on pre-service teachers following the environmental education programme that was specifically designed to target the development of pro-environmental values by actively involving students in their learning and providing opportunities for reflection and self-evaluation. The paper provides qualitative research data obtained from evaluation questionnaires about every study unit in the programme, reflective questionnaires drawing upon the students' reflective journals, a focus group interview and one-to-one interviews with individual students. The findings of this purely qualitative research reveal that experiencing methodologies, which acknowledged different learning needs and provided opportunities for active engagement in learning, enabled the students to develop skills, attitudes and values necessary for the promotion of sustainable development principles.

The paper by Manolas and Tampakis elaborates on the views of teachers of elementary and secondary schools in Greece with regard to who bears the responsibility for the state of the environment, as well as who should bear the cost of its protection. The results of this research project show that incentives designed to increase the adoption of environmentally responsible behaviours and strategies for implementing effective environmental policies are indeed needed. The development of such incentives and strategies is a very complex issue, which requires further studies.

The paper by Pipere and her colleagues dwells upon the case of inspiring teachers for energy education implemented within the COMENIUS project *Inspire School Education by Non-formal Learning*. The data were collected by survey, focus group and questionnaire to obtain the teachers' feedback on the training course, its materials and to receive teachers' self-evaluation on the implementation of lesson units at their schools. The described case study could serve as an example for those who would be interested in the design and implementation of similar courses in other contexts and circumstances in relation to education for sustainable development.

The paper by Iliko and her colleagues focuses on the in-service teachers' points of view regarding their role as researchers and distinguishes a key term – *teachers' voice*, which is defined as an expression of teachers' frames of reference. As outlined by the authors of the paper, action research initiated by teachers provides a framework for strengthening teachers' voice.

The paper by Bento and Ribeiro focuses on the characteristics of sustainable leadership of students at secondary schools in Madeira Island in order to determine whether the type of school or gender of the students affect such domains as self management, interpersonal relations, problem solving and decision making, cognitive critical development and analysis, organization and planning, self-confidence, diversity awareness and technology.

The last two papers in this issue relate to closely interrelated themes: inclusion and exclusion. The paper by Bērziņa reflects on the findings of a study that was designed and conducted to investigate different perceptions of pre-school and primary school teachers on preconditions for the inclusive education. The paper by Gedžūne and Gedžūne elaborates on the pre-service teachers' views on the features and causes of social exclusion in the context of educational unsustainability. The findings indicate that social exclusion in education is rooted in pupils' personal characteristics, school climate, parental influence and various social factors. Not surprisingly, the research participants distinguish the teacher's role in reducing pupils' social exclusion by adhering to values, such as fairness, equality, empathy, cooperation and respect.

Finally, it is necessary to accentuate that an international journal such as the JTEFS cannot publish every article that it receives for consideration. In this context, it is very important that potential contributors are fully aware of the criteria employed by the Editorial board in assessing articles. These criteria are available on the back cover of every issue of the JTEFS and also at: <http://versita.com/science/education/jtes/>.

**Astrida Skrinda**

## SELF-EVALUATION AS A TOOL IN DEVELOPING ENVIRONMENTAL RESPONSIBILITY

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### Abstract

*The purpose of the paper is to share the findings of an action research project aimed at exploring the impact of transformative pedagogies on pre-service teachers following an environmental education programme (EEP), offered by the University of Malta. Assessment and evaluation practices of environmental education (EE) and education for sustainable education (ESD) programmes tend to cater just for knowledge content and skills, usually failing to target the development of attitudes and values that promote sustainable lifestyles. The EEP was specifically designed to target the development of pro-environmental values by actively involving students in their learning mainly and providing opportunities for reflection and self-evaluation. The paper analyses qualitative research data obtained from evaluation questionnaires about every study unit in the programme; reflective questionnaires drawing upon the students' reflective journals; a focus group interview and in depth one-to-one interviews with individual students. The paper provides students' evaluations about the course design and effectiveness that should provide insights for course developers and evaluators seeking to develop EE/ESD programmes that address individual needs through learner centred pedagogies.*

**Key words:** *education for sustainable development, environmental education, transformative pedagogies, self-evaluation, journal keeping, reflective writing*

### Introduction

Half-way into the UN Decade of Education for Sustainable Development educational institutions need to reflect on the mistakes and achievements of the past in order to avoid falling in the same pitfalls and ensure progress. For example, literature abounds with arguments justifying the shift towards education for sustainable development because environmental education failed to deliver what it promised. Rather than engaging in endless semantic issues about the meaning of the terms, what needs to be asked is why the implementation of environmental education failed (Leal Filho & Pace, 2006).

The important role that teacher education and universities have in preparing a cohort of individuals that have an environmental ethic, which is at the basis of a sustainable lifestyle, has been a recurrent theme in all major events related to environmental education (UNESCO, 1980; UNESCO–UNEP, 1988; Scoullos, 1998; Centre for Environment Education, 2007). The development of this ethic is dependent on trans-disciplinarity, wide conceptualisations and a pedagogy that is primarily learner centred. Universities tend to be exactly the opposite: being more concerned with narrow mono-disciplinary structures that promote the transmission of subject content. The development of an environmental ethic depends on whether “... knowledge is interrelated to personal behaviour and social values, and if the learner experiences ethical demands in decision making” (Schleicher, 1996, p. 32). The implication is that effective environmental education at universities is dependent on a change in praxis; and a change is not always a welcomed alternative.

This appraisal of universities in relation to their commitment towards sustainable development is further elaborated by Moore (2005a) who identifies the following four barriers that university based environmental education programmes face:

- Monodisciplinary organisational structures that determine funding, result in territorial conflicts and limit student mobility from one area to another.
- Competition between and within students, faculties, departments and universities.
- Misdirected criteria for evaluating staff and student abilities and achievements.
- Too many priorities, unclear decision-making and hierarchical power structures.

Moore (2005a) also proposes corresponding pathways to change: for example, research and teaching that is transdisciplinary; collaborative and transformative learning; participatory evaluation; a vision of sustainability that is owned by all the administrative strata of university.

Whether we refer to it as environmental education or education for sustainable development, its objectives (UNESCO, 1980; UNESCO, 2005) are multifaceted and complex. Achieving them necessitates the employment of diverse and integrated subject matter, diverse learning settings and a varied pedagogy that promotes participatory learning and higher-order thinking skills (Tal, 2005). Educational institutions, particularly higher education institutions, need to create, what Moore (2005b) calls *space for pedagogical transformation* that supports transformative and transdisciplinary learning. She goes on to highlight that this is not just physical space, but also time for learners to engage in reflection, dialogue and action. As opposed to *banking* pedagogies that view learners as passive *depositories* (Freire, 1970), these transformative pedagogies transform learners (and therefore classes and learning communities) into inquisitive, reflective, experienced and critical thinking individuals – the basic unit of a sustainable society.

Transformative pedagogies require an assessment programme that goes beyond traditional formats and addresses the various educational needs of the learner at the cognitive, psychomotor and affective levels (Tal, 2005). These assessment techniques (such as self-assessment, peer assessment, portfolios, reflective journals) support and promote learning and are gradually making their appearance in higher education courses. These new models of assessment focus on *assessment for learning* where the focus and

first priority is to promote students' learning (Black, Harrison, Marshall, & Wiliam, 2003). Assessment for learning, however, involves the learning of new skills and roles by both lecturers and students in order to develop what Buhagiar (2007) calls *communities of shared practice*. Rather than nurturing pecking order of the traditional classroom setting, these collaborative communities are dependent on the structures that promote dialogue in which teachers and students feel free and safe to share and critique each others' thinking.

As stated by Black et al. (2003), "an assessment activity can only help learning if it provides information to be used as feedback by teachers and by their students in assessing themselves and each other to modify the teaching and learning activities in which they are engaged" (p. 2). In practice at the tertiary level this relationship between learning and assessment is "not adequately translated into working guidelines" (Tal, 2005, p. 595). The absorption of such assessments within courses at higher education is still very slow mainly because such assessment practices are still looked upon as being a waste of *precious* time.

This paper documents, primarily from the learners' perspective, the educational outcomes of environmental education programme (EEP) at the University of Malta. In its design, care was taken to relate assessment procedures with the learning experiences to create a symbiotic association between them in which one supports the other. Although a mix of traditional assessment methods and innovative ones was used throughout the programme, this paper specifically focuses on the course evaluation from the pre-service teachers' viewpoint and their self-evaluation. Moreover, it also proposes the lessons learned from this experience that might provide important insights for the educators who wish to embark on a similar programme.

## **The programme**

Set up in 1978, the Faculty of Education (University of Malta) is the only teacher education institution in the country. Although it has taken on a variety of roles linked to a wider conception of education and training, its main focus remains pre-service teacher education. Indeed, the largest proportion of students follow either the B.Ed.(Hons.) programme (a four-year undergraduate course preparing pre-service teachers either for primary education or for secondary education) or the Post Graduate Certificate of Education (PGCE) (a one-year course in secondary education for graduate students).

The EEP was designed by a team of three environmental educators from the Centre for Environmental Education & Research (CEER) of which the author was a member. The aim was to provide prospective primary school teachers with the opportunity to specialise in environmental education as a part of their initial teacher education programme. Enrollment in the EEP was on a voluntary basis following an informative meeting for all 1<sup>st</sup> year primary track students about the available specialisation areas that they could opt for in the subsequent years. The PowerPoint presentation used for the meeting presented the EEP as a personal journey and, after highlighting the cross-curricular nature of environmental education, it outlined the content of the study units. A total of 22 pre-service teachers (31%) – 21 females and 1 male – registered for the course from a total of 72 students following the primary education track.

The EEP was always presented as a learner's "*personal journey of awareness, understanding, concern and commitment to action*" and conscious efforts were made to present the course content as an integrated whole rather than a set of standalone units. Spread over three years, the programme was structured as shown in Table 1. As it becomes evident from the objectives of the course (Box 1), the main concern of the course developers was developing the learners' (the pre-service teachers) competencies needed to become independent environmental educators. The course contained study units that fitted within the education *about/through/for* the environment paradigm. Besides providing the necessary content knowledge, the programme design ensured the provision of firsthand experiences and opportunities for reflection on personal environmental attitudes and values. In this way, a balance between these three components was maintained, rather than falling into the trap of placing a heavier emphasis on the *about* component as is the praxis in traditional courses (Pace, 1997a).

Consequently, the course co-ordinator (and author) issued guidelines for lecturers involved in the programme asking them to adopt participative methodologies ensuring that the students were actively involved in their learning. During face-to-face meetings with the lecturers, the course co-ordinator discussed the possible assessment procedures to be adopted to ensure the monitoring and evaluation of the students' development of their cognitive, psychomotor and affective abilities through a variety of tasks that had different attainment foci (Table 1).

Box 1. The EEP course objectives

**By the end of the programme, students should ...**

- understand the concept of the environment and the principle of sustainability
- explore the role of humans in the environment
- become familiar with the main environmental issues of the Maltese islands
- become familiar with the global environment / development issues
- use the principles of sustainability to critically analyse their lifestyle
- examine and clarify their attitudes and values regarding environmental issues
- become aware of the impact of environmental education on the educational system
- develop skills in the organisation of environmental education initiatives
- critically analyse environmental education programmes and initiatives
- develop action-oriented skills required to promote a sustainable society

Table 1. Summary of the EEP course structure

Year	Title of study unit	Value	Brief description	Assessment programme (I=Individual work, P=Pair work, G=Group work)
2	Education <i>about</i> the environment I	4 ECTS*	The initial part of this study unit helps students identify the main trends and challenges that environmental education poses on educational systems and what curricular structures are needed to effectively integrate environmental education principles in the formal education sector.  The rest of the unit starts to familiarise students with the main local environmental issues framed within a global perspective. During the initial year, students will focus on issues related to water.	<ul style="list-style-type: none"> <li>• Audit of primary curriculum to identify opportunities for environmental education (P)</li> <li>• Dossier compilation about a specific environmental issue related to water (P)</li> </ul>
3	Education <i>about</i> the environment II	4 ECTS	This study unit is a continuation of the previous one and explores issues related to land and air.	<ul style="list-style-type: none"> <li>• Dossier compilation about a specific environmental issue related to land or air (P)</li> </ul>
	Education <i>through</i> the environment	4 ECTS	The study unit starts off with a firsthand practice-based look at whole school approaches to environmental education. The study unit then extends the students' focus onto the surrounding community. Students carry out an environmental education audit of a particular community.	<ul style="list-style-type: none"> <li>• Report based on interviews with pupils and teachers about their experiences of EkoSkola (I)</li> <li>• Design and production of teaching resources for environmental education walk in a locality (G)</li> </ul>
4	Education <i>for</i> the environment	4 ECTS	During this study unit students engage in deep value clarification exercises that help them identify their own environmental values and equip them with the skills needed to initiate similar processes in class.	<ul style="list-style-type: none"> <li>• Review of a music video/news item identifying underlying values (I)</li> <li>• Reflective questionnaire and self-evaluation (I)</li> </ul>

Keeping of journal for personal reflections about the experiences of the programme (I)

\* ECTS – European Credit Transfer and Accumulation System

## The research methodology

In certain educational courses, learners are presented with facts to be memorized and their success is judged by how many of these facts they manage to reproduce in examinations and tests. EEP's aim to develop independent critical learners did not fit with this genre of courses. EEP needed a structure that would provide learners with the time to assimilate what was presented: time to explore and analyse information from different perspectives; relate knowledge to personal and past experience; value its relevance and internalize it.

Reflective writing is one of the tools that help individuals go through this effective learning process preparing them for reflective practice (Pollard, 2005). Teachers' knowledge emerges from experience and practice, *personal practical knowledge* (Connelly & Clandinin, 1988). Teachers' reflective writings are identified as an essential component of this knowledge and journals are one of the tools that can be used by teachers to understand and communicate what they know in a variety of ways (Cole & Knowles, 2000). The students of the EEP were asked to keep a reflective journal throughout the programme in which they could both evaluate the individual study units and reflect on the impact the course was having on their personal development.

Nevertheless, reflective writing does not come naturally and students need help to understand the purpose of the process, as well as how to go about it (Moon, 2004). For this reason, a session was dedicated, at the very start of the programme, to prepare students for reflective writing. During this session, students were introduced to the aims of the reflective journal and how it fits with the general objectives of the programme. Students were also shown examples of *typical* journal entries and helped to discern the difference between descriptive and reflective writing. Although free writing, as opposed to presenting specific topics for reflection, was adopted, some sample questions and suggestions for reflection were provided to assist in the initial phases. It was made very clear that these were given as guidelines and that students were free to adopt any questions/topic they wanted. Due to their personal nature, the journals were never collected; however, students could discuss their entries, as well as clear out difficulties about keeping the journal with the course co-ordinator throughout the course during tutorial sessions.

In this research, the author wanted to explore and give voice to the pre-service teachers' beliefs and points of view about their practice. Qualitative research data consisting mainly of the personal, and hence very subjective, reflections of students provided in these journals was used. However, to respect the confidentiality of the journal entries, the author made use of data gathered from the following multiple sources:

1. Four evaluation questionnaires were given after every study unit in the programme asking students to comment on the quality, presentation techniques, follow-up and the theory/practice balance of the sessions. An average of 9 students submitted each of these questionnaires.
2. A reflective questionnaire whose open-ended questions asked students to make use of their journal entries to comment on their experiences before and during the course, their plans for the future and a self-evaluation of their performance was distributed. The questionnaire was given a week before the half-day seminar organised as the concluding activity of the EEP. All 22 students filled in this questionnaire.

3. An audio recording of a focus group interview (with 7 students) during the EEP concluding seminar that explored various aspects of the reflective questionnaire in detail was made.
4. Audio recordings of one-to-one interviews were made towards the end of the final academic year with 5 individual students, who, besides following the course, decided to do their dissertation project on environmental education.

Since the data emerged from the pre-service teachers' personal knowledge, the information required was obtained from questionnaires and different forms of interviews so as to validate the data and ensure that it was trustworthy. This triangulation (Hammersley & Atkinson, 1990) of data ensured a more holistic, more entwined and more interrelated representation of the data.

The questionnaires provided a general overview of the pre-service teachers' writings and the interviews provided a more in depth view of the pre-service teachers' experiences and "the meaning they made of that experience" (Seidman, 1991, p. 3). Both focus group interviews and one-to-one interviews were used to ensure that a discussion was raised among the participants and, at the same time, get a more in depth view of individual student's thinking and feelings. The relationship developed between the students and the author was one of trust and students felt free to say anything they liked. The students were informed about the study being conducted and assured that all data would be confidential and would not be used to expose or harm them (Fontana & Frey, 1994).

One of the major difficulties with reflective journal writing is deciding whether writing is reflective or not. As this was not important for the main aims of the study, even writing by pre-service teachers, which was purely descriptive and contained no critical analysis, was considered important and included in the analysis. The data was analysed by a reading and re-reading of the reflective journals of the students during which the author searched for patterns and connections and developed categories and themes (Seidman, 1991). These categories and themes were used to build the conceptual scheme of this paper.

## The results

### *(a) Before the programme<sup>1</sup>*

Before commencing the programme, the vast majority of the students (20 out of 21) perceived environmental education as another subject primarily concerned with teaching about environmental facts.

*... my idea was that environmental education was similar to environmental studies but I didn't realise there was an important difference in the course name which I did not give too much attention to when I heard about it for the first time. (Josette)*

There were some (3) who even thought that the faculty was preparing them for a new subject that would be introduced in the primary school curriculum.

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<sup>1</sup> Unless otherwise stated all student quotes are taken from responses to the Reflective Questionnaire. This choice was made because all students responded to this questionnaire. To maintain anonymity, all names are fictitious.

*Since the primary sector is the only sector that does not have a subject specifically dedicated to the environment, I thought that the Education Division had plans to introduce it and that it had asked the Faculty of Education to start preparing teachers for it. (Lillian)*

As it was offered by the Faculty of Education, students expected that the environmental knowledge provided by the EEP would not just provide facts, but also possible actions that could be taken to address the issues studied. Consequently, they thought that throughout the course they would be provided with skills and resources that they could use in their teaching and (in one case) to influence the whole school.

*I thought that it is very similar to Environmental Science, but that it would include skills and handouts that I could use in my teaching practice ... and eventually in class. (Tony)*

*I expected that we would be given something like we had at post secondary level ... but we would be trained to move towards making schools environmentally friendly. (Rose)*

Only one student introduced the personal dimension in her perception of environmental education.

*I thought that environmental education, apart from giving you more knowledge about important aspects of life as a human, also makes you more responsible. (Kylie)*

Keeping in mind the students' perception about environmental education, not surprisingly many of them (14 students) cited their previous experiences of *similar subjects* as the main reason for choosing this specialisation. They said that these subjects (Biology, Geography and Environmental Studies at secondary level and Biology, Environmental Science and Systems of Knowledge at post-secondary level) provided them with the required background they could build on.

*Having come from a background of sciences in the ordinary level, I further pursued this by opting for Environmental Science at intermediate level. Studying this subject was something which I really enjoyed. Thus, when environmental education was proposed as an area of specialisation, I was thrilled and immediately sought out to further explore it. (Jane)*

From the responses given by this cohort of 14 students, it is evident that while 9 students perceived their educational background as an opportunity to do better academically, the other 5 interpreted this *advantage* as an adequate foundation to learn more about environmental issues and hence be in a better position to teach children about them.

*... because amongst the options we were given, it was the one which I had some background about and knew I could do better. (Joanne)*

*I wanted to learn more about the subject in order to be able to teach it. (Greta)*

Three other students attributed their personal interest in environmental issues as the main reason for them to choose the specialisation.

*Being environmentally friendly has always been a priority in my life's agenda. I thought that choosing EE as my area of specialisation will help me grow in this aspect and give me an opportunity to pass it over to my students. (Lillian)*

Good marketing strategies tend to give good results. The same seems to have occurred with the EEP. Seven students attributed the reason for their selection to the way the course was presented during the information meeting about the available specialisation options. The course came across as something interesting, well-planned and challenging.

*The programme's overview struck me with its differentiated content. Unlike the other options presented, it sounded different and interesting. (Sarah)*

*I chose EE during the initial meeting where we were given a brief description on what each specialisation consisted of. I was immediately interested. This is due to the fact that it was presented as a forward looking programme, as an area where much more can be done and we can help make a difference. (Debbie)*

When asked about what they expected to achieve through the EEP, all of the students (22) made it quite clear that they expected the course to prove useful for their future career as teachers. In other words, their main expectation was that going through the course would make them better teachers at dealing with environmental issues. The majority (16 students) felt that something needed to be done to ensure that environmental education given in schools is based on professional decisions rather than sporadic initiatives that fail to develop environmental responsibility in students. The students expected the EEP to provide them with this professional preparation.

*Unfortunately, so much talk is done but action does not always follow so quickly. I think that that was something I was looking forward to learn: to be able to do something with the children, to help them understand the need to take care of their environment and try to help them become more caring about their environment. (Marilyn)*

Others (5 students) expected the EEP to consolidate and build upon their personal environmental ethic. They felt that without a personal disposition towards environmental education a teacher cannot be effective in class and help children become environmentally responsible.

*I expect ... to learn how to achieve a more sustainable way of living and thus to reflect upon my own behaviour vis-à-vis the environment ... to change my own actions and reflect on sustainable practices in the course of preparing to teach children. (Maria)*

Rebecca extended this concept further and expected the EEP to be instrumental in making her a resource person in environmental education for the school she will be teaching in.

*The ability to be able to organise environmental education activities for the whole school, once I'm assigned to one. (Rebecca)*

This section of the reflective questionnaire clearly showed that these students, although having notions of environmental education that might conflict with the models described

in the literature, have aspirations and expectations that are in line with the general targets of environmental education (UNESCO, 1980) and education for sustainable development (UNESCO, 2005).

*(b) During the programme*

One of the questions of the Reflective Questionnaire asked students to judge how much they learned from the EEP. They were asked to score their level of learning on a 6-point Likert scale ranging from Learned a Lot (6) to Learned Nothing (1) and to provide a reason for their choice. The scores obtained were mainly distributed around scores 6 and 5 (6 and 12 respectively), showing that the majority of the students felt that they had learned from the programme. Several reasons were given to substantiate this claim, but the most common response (17 out of 22) was that through the EEP's content/practice mix, they learned a lot about local environmental issues and the situation of environmental education in Malta.

*I learned about different subjects, such as the earth and different effects that are caused by humans. Then the theory learnt was put into practice by on-site visits and the EkoSkola visits. (Rose)*

Other students (9) remarked that they developed a holistic view of the environment and consequently of environmental education that widened their perspectives on a conceptual level:

*I learnt that the environment is a system of interrelationships. Just as we individuals need each other to live ... our environment operates in the same way in a system of interrelated parts that work together. (Rebecca)*

*I think that one of the most important things that I learnt was to open up my mind to new ideas and points of view. Before the course, my view of the environment was still a bit restricted. ... these study units have developed my way of thinking and made me more active and practical. While before I used to look around and see nothing worthwhile, now I am able to see endless opportunities for learning and things I can use to educate the children. ... Something else which I feel that I have learnt during the course was to look at issues from different points of view – social, political and economic – and to try to analyse all the information and data available to form my opinions. (Marilyn)*

Others commented that this widened view helped them conceive environmental education as a cross-curricular theme and influenced their professional practice.

*I have learnt how I can integrate environmental education through all the main topics in the syllabus. In fact, I came to realise that environmental education can be a great help to children in order to understand some concepts. I also got to know how environmental education can make teaching so practical. (Emily)*

The issue of innovating classroom practice through environmental education was specifically highlighted by other students (6) who felt that what they learned had empowered them and will in turn empower their students.

*I learned to cut down on classroom preaching and move on to actively involving my students ... environmental efforts will only succeed if environmental education is targeted at the community's grassroots level, from primary school onwards. ... They can learn strategies to extend their personal appreciation to a responsibility at work and in the political spectrum. (Maria)*

A major contributing factor that seems to have left a marked impression on the pre-service teachers was the infusion of environmental education principles in the way the EEP lectures were taught.

*I can honestly say that (unlike other study units) throughout the EEP, lecturers practiced what they preached. ... They not only TOLD us how to do it ... (but) they showed us how by the way they taught and related with us. (Lillian)*

On the other hand, two students scored 3 on the 6-point Likert scale showing that they did not see themselves as having learned much from the EEP. They cite two major reasons for their assessment: (1) the theory/practice balance of the EEP was not kept, and (2) practical activities in schools showed the implementation problems environmental education faces in certain schools.

*... lectures were given at two extremes: either too theoretical or with no basic theories at all. I did not comprehend everything on the theoretical aspect since the terms used were too difficult. I did not find the part which was non-theoretical useful as it was completely unstructured. (Joanne)*

*The visit to the EkoSkola school involved a lot of work that proved futile. This shows the difficulty of schools to include environmental education. (Rita)*

Considering the students' evident preoccupation with experiencing the firsthand environmental education implementation in schools, when asked which sections of the EEP they found most relevant to their professional and personal needs, not surprisingly the majority of students (16) opted for the sections having a strong practical dimension: (1) the EkoSkola programme experience: providing students with an example of a whole school approach to environmental education and (2) the evaluation of environmental education potential of community resources.

*These sections were most relevant to my professional needs because they had us indulge in activities and assignments which were concrete and which we could make good use of with the children in class. Personally I enjoy practical activities because I can see what we talked about coming to life, and when one sees it happen right in front of his eyes, one tends to believe more in the power of change and starts believing that there is a good possibility of materialising what we talked about. (Josette)*

Some students (7) said that it was not easy to comment on the sections separately and remarked positively on the complementary nature of the sections.

*I feel that the four sections cannot be reflected upon independently. Each had some kind of impact on me to some extent. ... They built on one another*

*and each contributed in its own way to extending my awareness of environmental education. (Connie)*

Although in some way or another almost all students commented on the impact the EEP had on their value framework, five students explicitly identified the section dedicated to the analysis of personal attitudes and values as being the most relevant.

*This was the most relevant section because EE has to do with changing your lifestyle and with being a model for students and others. (Denise)*

*In a way all sections were relevant, but the section about values was very useful as it helped me relate environmental issues with me and my choices. I think that all people should be exposed to a similar study unit. (Claire)*

The students were also asked to judge how much the EEP helped them change their perception of environmental education. They were asked to score their response on a 6-point Likert scale ranging from Changed a Lot (6) to Changed Nothing (1) and to provide a reason for their choice. The scores obtained were mainly distributed around scores 6, 5 and 4 (5, 9 and 6 respectively), showing that the majority of the students felt that the EEP changed – to some degree – their perception of environmental education. In the reasons given for this choice there is a marked departure from the group's initial *definition* of environmental education (related to content knowledge about environmental topics).

The two most common reasons cited were: (1) the widening of their perception of the environment and consequently of environmental education (11 students) and (2) the consciousness of their impact on and role in the environment (6 students).

*I have come to view environmental education as a much larger discipline than I had first envisioned; one which encircles not just natural aspects but also social, economic, cultural and political aspects. So to tackle it in an effective way it should not be tackled as a standalone subject, but incorporated in the everyday life of the school, as well as the classroom. (Maria)*

*I am much more aware of how my actions, no matter how small, can have an impact on the environment. This has made me think about my responsibility to do something tangible with my lifestyle ... although it is rather difficult. (Greta)*

Other students (3) commented that although they had been convinced of the importance of environmental education before starting this programme, the EEP intensified this notion.

*...made me more aware about the need for EE in classrooms. Children are not being given enough of it and therefore are being deprived from important aspects of their life. (Kylie)*

Students were also asked to identify deficiencies in the learning programme of the EEP – what they needed to and/or expected to learn that was not addressed in the programme. Three students clearly pointed out that their expectations were fully met by the EEP.

*What one learns is never enough, however, I can confidently say that I learned more than I expected to learn at the beginning of the EEP. In fact, I am very grateful to have chosen EE as my area of specialisation. (Lillian)*

The most common response (14 students) was focused on the need for the EEP to give more emphasis on specific ideas for lesson plans and the provision of resources that they could use directly in class. The students felt that at times they needed more guidance on how to apply what they were learning to the level of the children they would be teaching.

*The programme could do with more direct references to the classroom context, referring to the way we should deliver the content in terms of practical activities which are suitable for primary school children. I would like to have enough simple information about environmental issues that could be presented to children. I don't think I am able to simplify the material that we were given. (Angela)*

The majority of these comments referred particularly to the content oriented study units. Although for some students (4) the material covered during these units was a repetition of their post-secondary level Environmental Science lessons, the rest found these units difficult to understand. As evidenced in the responses given in the study units evaluation questionnaires, these units were good for personal knowledge, but left the students bewildered as to what was relevant to schoolchildren. Moreover, it appears that too much information was presented at one go and there were times when the information imparted was too technical. Students commented that the redeeming factor was that these units were coupled with fieldwork sessions that managed to relate theoretical knowledge to reality. On the other hand, a small group of students (3) felt that, in their journey to become independent learners, there comes a time when they will be expected to take the helm and make their own choices about subject matter and pedagogical options. They felt that the EEP made them realise this commitment.

*At first, I thought that I needed some guidelines and objectives along which I could organise lesson plans for the class when I'm a teacher myself. I would have appreciated more tips on how to use the information and adapt it for the children, but now I realise that it can be done by me. (Josette)*

The other responses did not specifically mention any particular ingredient that was absent from the course. Their comments were mostly directed towards the emphasis made on certain aspects of the programme. Four students preferred more exposure to firsthand experiences in the field reiterating what the students had remarked in the study units evaluation questionnaires.

*What I strongly suggest is improving the on-site visits – like visiting a valley to see the human impact on the environment. Going to different and opposing sites to give concrete examples how humans have improved or marred the environment. (Connie)*

*I feel that although we had quite a number of lectures and hands-on activities with children, I still feel that this was not enough. I thought that we were going to have a longer period on-task training since the (EkoSkola) programme in schools is ongoing. Once I got the grip of the procedures of EkoSkola, it was time to continue with our usual lectures. (Martha)*

One student referred to the methodology adopted by the lecturers and suggested:

*Something I wish could have been done during the course was to have more group work and discussions. I do realise that there were occasions when we were asked to contribute our opinions about certain topics and subjects, but I think that it is not something that we were used to doing at university. Maybe, by organising workshops and more group work sessions, we would have been able to discuss issues together as a whole group. I think that this would have been beneficial in itself since it would have allowed us to share our ideas and opinions with each other, thus allowing us to learn from our own course mates. (Marilyn)*

This issue had surfaced in the study units evaluation questionnaires and was followed up in the focus group interview. Several EEP lecturers reported that their continuous prompting of students to participate in discussions and to voice opinions was met by a general apprehension. Attempts to start a class discussion usually ended up in a ‘private’ conversation between the lecturer and a handful of ‘bolder’ students, with the rest of the class being passive bystanders. The students confirmed that this attitude was due to them “*feeling too self-conscious and afraid to make mistakes ... all the more reason why lecturers should avoid relenting from adopting this methodology*” (Amy – focus group interview).

### *(c) Following the programme*

Students were also asked to judge the extent to which the EEP influenced their teaching on a 6-point Likert scale ranging from Influenced a Lot (6) to Not Influenced at all (1) and to provide a reason for their choice. The scores obtained were mainly distributed around scores 6 and 5 (7 and 12 respectively), showing that the majority of the students felt that the EEP influenced their teaching.

The vast majority of the students (18) reported that since they had started the EEP they started planning their lessons differently by looking for opportunities of infusing environmental education within the curriculum and/or in the interactive methodology adopted in class. The EEP helped them in building up their confidence and they now feel capable of engaging students in environmental issues.

*Although I have always been environmentally concerned in my teaching, the EEP led me to plan lessons and practice values promoted by EE, such as leaving the room for children to share the decision-making process with the teacher and amongst others. (Lillian)*

*The EEP has influenced a lot my approach to teaching because it made me realise that basically ‘good environmental education is ultimately a good education’. The EEP made me further aware that education does not simply involve teaching children to read and write. ... I should strive to stimulate and develop the pupils’ problem solving skills and provide them with what they need to be able to make responsible choices for a more sustainable life. (Debbie)*

While all the other students seemed to be very positive and motivated about the influence the EEP had on their teaching, Rita was still overwhelmed by the implementation problems that environmental education has to face. Scoring 3 on the 6-point Likert scale, she commented:

*I would have ticked 6, but due to syllabus restraints I cannot say that I would manage to include environmental education as much as I desire. (Rita)*

When asked whether they intend to pursue environmental education in their teaching career, all the students said that they would. Six students commented that they will do this by putting into practice what was learned in the EEP and hence improve their teaching.

*I plan to draw up a set of cross-curricular lesson plans for my students based on the ideas and themes I learnt from the EEP. (Rose)*

The plans of another eight students went beyond the classroom. They are planning to become resource persons in their school for environmental education. Some even wished to become peripatetic teachers whose task would be that of infusing environmental education in schools.

*I intend to take the initiative in the school I am assigned in, to organise activities and discussions about environmental issues. I will try to encourage other teachers to join in and enter our school in the EkoSkola project. I believe that I can be useful in helping the school adopt a whole school approach. (Rebecca)*

*I would like to be a peripatetic teacher to be able to promote environmental education in our primary schools. In the future, I also dream of co-ordinating some kind of programme for students and teachers. (Connie)*

Three other students wish to go beyond schooling and see environmental education as an instrument of change in the community.

*I want to play a part in causing environmental awareness and moving tomorrow's adults towards more sustainable living practices. I hope to do this through education, activist work, lobbying and other ways in order to make a constructive change. (Maria)*

Almost half of the group (10) clearly highlighted their intention of furthering their specialisation by reading for a master's degree in environmental education, particularly after settling in their teaching.

*I wish to pursue EE further, but I am still not aware of the opportunities that exist in this area. I would love to carry out a masters in the subject, but first I prefer to get some classroom experience. (Sarah)*

#### *(d) Self-evaluation*

This section of the Reflective Questionnaire was aimed to help students to self-evaluate and consequently grade their efforts in the EEP. The purpose of using self-assessment with the pre-service teachers was to enhance their learning and enable them to make value judgements about their own learning. Self-assessment was seen as a tool allowing students to become more responsible and more involved in their own learning (Weeden, Winter, & Broadfoot, 2002).

However, students find it very difficult to assess themselves, especially if they do not have a clear picture of the targets their learning is meant to achieve and hence need more guidance to go about it (Black & Wiliam, 1998).

While claiming that students are capable of self-assessment, Weeden et al. (2002) stress that they need to be familiar with the assessment criteria prior to the assessment and the learning objectives. They would also require examples of good practice and an opportunity to discuss their work. Consequently, EEP students were provided with (1) the Course Objectives and a 10-point Likert scale on which they could mark the degree to which they had achieved each objective, (2) the Grade Descriptors, (3) space to jot down the mark/grade that they feel they deserved and (4) space to provide evidence to substantiate their choice. The students could later discuss/defend their mark/grade choice during a small group (7) discussion chaired by a course tutor. (The group chaired by the author was the group participating in the focus group interview).

Table 2 and Figure 1 show the distribution of the grades before and after the focus group interview. Quite understandably there was some degree of inflated grades proposed by the students. The agreed grades were the result of negotiations between students and lecturers and between students themselves during the focus group interviews.

Table 2. Distribution of grade/mark

Number of students	Grade/Mark										
	A+/95	A/94	A/90	A/89	A/85	A/83	B+/79	B+/76	B+/75	B/74	B/70
Before focus group interview	4	1	9	1	1	1	2	1	0	1	1
After focus group interview	0	1	10	1	3	1	2	1	1	1	1

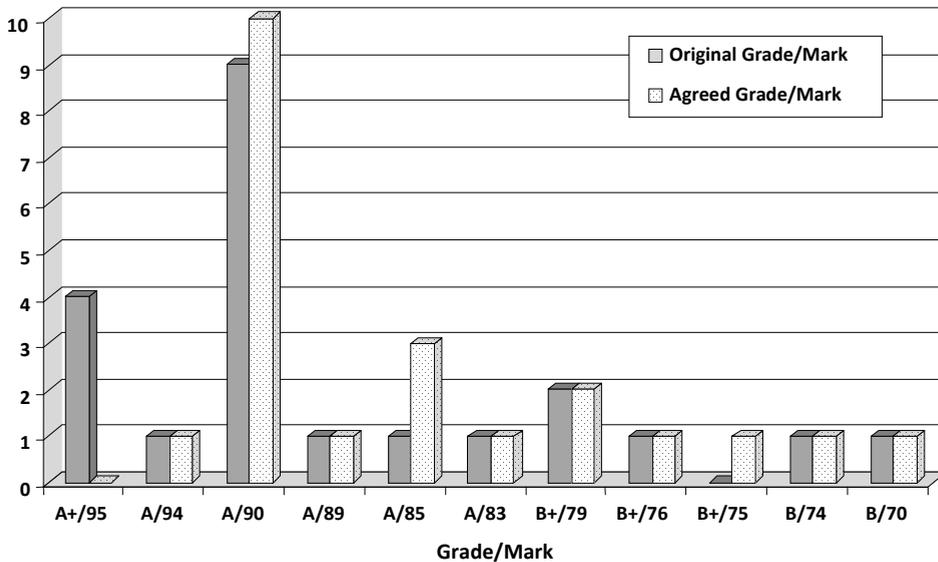


Figure 1. Distribution of grades/marks

This process resulted in the alteration of six grades, all of which were scaled down. The comments from the students whose grade was reduced included:

*I was sure that the grade would be reduced ... but I did not want to reduce it myself and lose the chance of getting a better grade because of my low expectations. (Amy – one-to-one interview)*

*I really enjoyed myself during this programme, and I also felt that I learned a lot as a teacher and an individual. My grade was based on these feelings. But when I heard what the other students were saying, that is, the mark that they had suggested, I decided to lower it and bring it more in line with those of the rest. It's only fair! (Angela – one-to-one interview)*

Although students' participation in the process was satisfactory, some had second thoughts about this new form of evaluation and assessment as shown by this extract from the focus group interview:

Tania: *I prefer the traditional way of assessment. Finding a suitable grade proved to be a hard task.*

Amy: *I agree with you, I found this method really stressful.*

Researcher: *In what way?*

Amy: *I felt awkward ... we are more accustomed to undervalue our work rather than to praise it.*

Researcher: *But don't you think that this method is fairer?*

Sarah: *Personally I saw it as a challenge. I was given the opportunity to evaluate my efforts. (Addressing her mates) Have you forgotten how frustrated we get when, after spending days working on an assignment, the lecturer assigns a mark that is not a just one?*

Researcher: *After all, isn't this what you'll be doing when you correct students' scripts?*

Tania: *But when it's YOUR work it's different.*

Researcher: *How?*

Tania: *Because of what [Amy] said ... it feels funny and odd to say I deserve an A or an A+ ... because of what others might say or think about your pretensions.*

Various students mentioned a combination of reasons to justify their mark/grade, but the awkward feeling was clearly reflected in the justifications given by the students. The majority of the students (14) tried to adopt an 'objective' approach by calculating the average mark/grade from the results of earlier assignments.

*Having been asked to substantiate the grade and mark I chose, I was very apt in doing so, as I found all the grades being awarded throughout this journey and drew up an average to safeguard my decision. (Jane)*

This particular student also supplemented her argument by reproducing feedback remarks that course tutors had written on her assignment. Other 'objective' criteria used focused on their commitment towards the course requirements (10 students) and the degree of achievement of the course objectives (6 students).

*I have regularly attended lectures, participated in discussions and showed enthusiasm for the subject. I have obtained good grades in all assignments*

*given. This reflects an understanding of the issues involved, reasonable reading and research in the subject and good team work whenever it was a group assignment. I took further interest in the subject and made additional research by opting to do my thesis in environmental education. (Denise)*

*Looking back to where I have started this journey, I feel I have achieved or nearly achieved most of the objectives. I know that there is still a lot to be achieved, but, so far, I feel quite satisfied with my achievements. (Connie)*

Having established these ‘objective’ and hence ‘undeniable’ reasons for their proposed grade/mark, students felt safer to focus their attention on other ‘non-measurable’ criteria, such as (1) commitment towards integrating environmental education in their teaching, (2) having a personal interest in environmental education and (3) having changed as a person.

*The most important thing, in my opinion, is that I don’t intend to stop here but I’m looking forward to having a class of my own so I can try to include environmental education and also educational outings. (Amy)*

*I willingly chose to study this subject, and I had more motivation to learn a subject in which I was particularly interested. (Rita)*

*Throughout the EEP I worked upon myself, as well as upon my own values and attitudes. ... I believe that this programme was really beneficial for me because ... it helped me go through a personal growth. (Debbie)*

## Discussion

The research results showed that the vast majority of the students enrolling for the EEP had no clear idea of what environmental education (or education for sustainable development for that matter) meant. Nevertheless, as the EEP progressed, their reflections evidence a gradual unfolding and development of attitudes and values that are in line with the declared objectives of both environmental education and education for sustainable development. Their common denominator was a genuine interest in environmental issues (most commonly the natural environment) and a wish to safeguard it. Throughout the programme, the students developed this very basic notion to a much wider conceptualisation aligned with sustainable development principles.

This further stresses the futility of the anxieties some writers seem to have about the importance of finding the right term for the process. It is very evident that these semantic concerns do not feature high in the list of priorities of people working directly in the field. For example, Karameris, Ragkou and Papanikolaou (2006) found that for teachers these subtle differences do not seem to be an issue since they use them interchangeably. What is important is that, whatever it is called, its principles are those identified over the years by conferences, which turn to education to re-establish sustainable modes of life. These protracted academic debates tend to generate confusion in people who are not directly involved in research and could prove problematic and exclusive (Leal Filho & Pace, 2006). In countries where environmental education is still struggling to get recognition, because governments have other seemingly more urgent socio-economic priorities, changing goal posts by introducing new terms might throw years of negotiation and hard-won success down the drain (Leal Filho, 1996; Smyth, 2002). In fact, even a

cursory analysis shows that sustainable development has only been given lip service and a general lack of political will has been identified as the principal cause for its slow implementation (United Nations, 2002).

A lack of political support may result in a patchwork approach to environmental education implementation that does not adequately cater for the needs of citizens. A well-planned strategy, on the other hand, targeting specific objectives and specific audiences ensures that sustainable development principles are integrated in the everyday experiences and concerns of citizens. In fact, the majority of EEP students attributed their choice to join the EEP to their previous encounter with environment related subjects and experiences.

Exposing students to participatory methodologies is not enough. The students' responses showed that there is an acclimatisation period during which students gradually adapt to this new style of learning that challenges the deeply rooted notion of student passivity that years of teacher-centred education engendered. Adapting from an educational process where students received everything they need for an education in which they are shown how to do it and then expected to do it takes time. Consequently, although this attitude changed as the programme progressed, it was still quite strong in some students – although some had finally realised the benefits of becoming autonomous learners.

Environmental education course designers are always faced with the dilemma about how much handholding is required. Since the students have different learning needs, some may need more help than others, and, therefore, in this case, *what's good for the goose is certainly not good for the gander*. To cater for the various learning needs, course tutors need to function on a more personal level. The use of peer tutoring and collaborative group work promotes increased interactions between the students themselves and with their tutors and could provide a solution. On the other hand, technological advances have also presented the possibility of developing Virtual Learning Environments that offer personalised support.

The students' responses also highlighted the importance they attribute to hands-on practical sessions and field experiences as part of their education. Once again, their responses indicate that these experiences still need to be supported to ensure that maximum benefit is obtained. The results showed that, for some, experiencing the harsh realities of schools was discouraging and demotivating. Supervised practical/on-site experiences coupled with follow-up reflection sessions in groups might provide the support required to help the students to function in the unsheltered environment of schools. Dealing with conflict within the safe environment of a student-group session could help the students build up the self-confidence required to help them face the pressures to accept the status quo that they will encounter when they are qualified teachers.

If certain clichés are true, then the saying that *values are caught not taught* was proved right by the students' responses. The students commented that the methodology used by the lecturers had a positive effect on their personal teaching styles. In fact, although student expectations initially revolved around their need to deepen their environmental knowledge, as the programme unravelled, their concern shifted towards discovering ways of improving their teaching and their teaching environment. If environmental education courses adopt the accepted principles of environmental education (or education for sustainable development) in their praxis, rather than just teach about them, school practice will eventually change for the better (Pace, 1997b).

Van Petegem, Blicke, Imbrecht and Van Hout (2005) point out that for any innovation to take root, teachers need opportunities during which they can familiarise

themselves with the proposed new teaching technologies; time to develop a personal (and peer) vision about the innovation and the possibility of airing their aspirations, needs, emotions and fears. This will progressively lead the whole educational institution to incorporate the innovation within its institutional ethos. For this to apply to environmental education, there needs to be an initial commitment towards its principles, otherwise concern about sustainable development will only be superficial.

Helping learners to develop attitudes and values that promote sustainable development is not just an issue of what content matter to include in a course. It is more related to a methodological choice – a choice that allows learners to examine whether espoused values (considered appropriate) tally with their actual values that determine their lifestyles and consequently their teaching style. The EEP aimed to achieve this by adopting a two-pronged strategy: promoting systematic reflection and self-assessment.

The students' comments showed that the EEP's provisions for systematic reflection paid off. These provisions, besides helping students to develop their practice, also helped them in their professional development. Moreover, their comments evidence the development of a readiness to challenge *conventional perspectives on teacher knowledge* (Cole & Knowles, 2000).

Adopting a sustainable lifestyle inherently implies making decisions based on specific criteria and objectives; and devising strategies to achieve them. Once again, student comments showed how the self assessment procedures adopted by EEP helped to empower students with their own assessment skills, allowing them to understand the learning objectives and leading them to success (Weeden et al., 2002).

## Conclusion

Putting the learner back at the centre of educational discourse might sound rhetorical, but the students' experiences reported in this study show that it's worth the trouble. There are, however, three major lessons to be learnt from this study:

- The true change factor that influenced student behaviour was the methodology adopted during the programme rather than what content matter was provided. Experiencing methodologies that acknowledged different learning needs and provided opportunities for active engagement in learning enabled students to develop skills, attitudes and values necessary for the promotion of sustainable development principles.
- Responding to the different learning needs of students was only possible through a novel way of designing, implementing and evaluating an educational programme. Educational institutions (particularly universities) need to adapt their administrative structures to promote and be more open to new and alternative approaches.
- The EEP experience evidences that change – both institutional and personal – occurs gradually and in small steps, provided an institution and an individual learner is given space to grow.

Achieving these targets is inversely proportional to our (both as educators and educational institutions) level of attachment to deeply set educational traditions. Until there is this paradigm shift in emphasis, the targets set for the UN Decade of Education for Sustainable Development will never be truly achieved.

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## ENVIRONMENTAL RESPONSIBILITY: TEACHERS' VIEWS

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### Abstract

*This research paper investigates the views of the teachers of elementary and secondary schools in Greece with regard to who bears the responsibility for the state of the environment, as well as who should bear the cost of its protection. The research was carried out at the Environmental Education Centre of Kissavos-Mavrovounio. The research subjects were 144 teachers undergoing training in environmental education. The teachers believe that today the quality of both the natural and the urban environments worsens with those most responsible, in order of importance, being the industrialists and businesses, public administration and control mechanisms, politicians and laws, the citizens as consumers, judges and the judicial system and the farmers as producers. According to the respondents, the parties less responsible are the journalists and the mass media, researchers and scientists and, finally, teachers and the educational system in general. With regard to who should bear the cost of environmental protection, the vast majority think that the government should be the one to pay. The ideas of indirect and direct taxation, the adoption of a lower standard of living are much less accepted.*

**Key words:** *environmental responsibility, natural environment, urban environment, environmental protection*

### Introduction

The world we live in is much busier and richer than in the past. Today, the capabilities people have for controlling their destiny and improving their life have reached levels older generations could not possibly imagine. However, in order to achieve this, humans have intervened in the natural environment at levels unprecedented in human history (Harper, 1996; Macionis, 1997; Coleman & Cresey, 1999).

In the last years it has become “common knowledge” among people that the quality of both the natural and the urban environments worsens continuously with consequences which cannot yet be calculated (Fitianos & Samara-Konstantinou, 2009). The individual as a user of ecosystems and as a consumer of products produced via various polluting activities certainly contributes to the current degradation of the environment. However, the role of the organized interests and the state with regard to the manner and the degree of environmental exploitation should not be ignored either (Kousis, 1998). Private

enterprises are one of the most powerful forces which shape the interaction between people and environment. However, private enterprise is not the only force which harms the environment – the same happens with state enterprises, too (Doyle & McEachern, 1998). The state of the environment is largely determined by the arbitrary actions of the market forces, much less so by programmed decision making (Jacobs, 1991). While industrialization means accelerated processing of the sources required by economies (McBurney, 1990), political parties decide their position on environmental matters on the basis of minimizing possible conflict with society (Dalton, 1994).

The quality of the environment is a commodity for the benefit of all. As a private commodity, its distribution should naturally favour those with the highest income while, as a public commodity, the state has the obligation to provide equal quantity and quality of this commodity to everybody without exception (Lekakis, 1998). Since environmental problems are the result of human choices and not of the independent operation of the environment, it is humans who should deal with the consequences of the forces which they themselves unleash. The achievement of sustainability requires actions which create long-term and effective solutions (Macionis, 1997).

Who should bear the cost of environmental protection? Should it be the government which is called upon to invest resources in order to deal with the issue or the citizens who are called to bear the cost of environmental protection through indirect or direct taxation or through acceptance of a lower standard of living? (Dunlap & Mertig, 1992; NORC, 1992)

At the European Union level, the authorities are positively predisposed towards the imposition of environmental taxes and charges (Gizari-Xanthopoulou, 2003). Taxation measures are useful in discouraging the undesirable use of products which harm the environment (Pearse, 1998). However, the taxes on pollution can be regarded as “unfair” because they allow pollution of the environment by those who can pay for it (Jacobs, 1991). Taxation measures are based on the principle that those who pollute must pay. Thus, taxation measures contribute to reducing pollution by increasing the cost of using the resource and income from the tax can be used to help improve the environment (Kula, 1994).

Efforts have been made in Greek primary and secondary schools in the last 20–25 years with regard to environmental education – mainly the infusion of environmental issues in various courses, the inclusion of specialized courses in the curricula and the implementation of 7–8 months environmental education programmes (projects). Nevertheless, there is room for improvement: the engagement of students with environmental education is largely voluntary and depends mainly on the enthusiasm and initiative of teachers; environmental education has to compete against more established and career oriented subjects and lacks adequate support from the appropriate authorities; there is a need for wider diffusion and more systematic evaluation of what is achieved; interested teachers need continuous and more rigorous training (Manolas, 2009).

The aim of this paper is to investigate the views of elementary and secondary school teachers with regard to how they evaluate the quality of the natural and urban environment, whom they regard as responsible for the state of the environment and who they think should bear the cost of environmental protection.

## Method of research

This research was carried out at the Environmental Education Centre of Kissavos-Mavrovounio through the use of self-management questionnaires. The questionnaire was completed by teachers of elementary and secondary schools attending two-day seminars in environmental education. The research was carried out during the period of December 2008 – December 2009. Research subjects were selected on the assumption that the teachers who participate in such activities are positively predisposed towards protecting the environment. In total, 144 teachers of various specializations completed the questionnaire. Of these teachers, 35.4% were serving in elementary education, and 64.6% – in secondary education; 38.9% were men, and 61.1% were women; 44% had completed 10 years of service, 28.3% – 11–20 years of service and 27.7% – 21–31 years of service.

In order to discover natural and useful groupings of data, the authors used cluster analysis, in particular, hierarchical clustering. Starting from each observation being by itself one cluster, in each step we associated the observations with the smallest distance so that the data of one cluster were included in the data of the hierarchically next cluster (Behrakis, 1999; Siardos, 1999; Philiass, Pappas, Antonopoulou, Zarnari, Magganara, Meimaris, Nikolakopoulos, Papachristou, Perantzaki, Sampson, & Psychogios, 2000; Karapistolis, 2001; Karlis, 2005). Cluster analysis or hierarchical grouping can function not only towards the direction of observation grouping, but also towards the direction of variable grouping (Siardos, 1999). When the unit of analysis is the variable, the measures of distance or similarity were calculated for all the pairs of variables. The Pearson correlation coefficient was used as the measure of distance, and, for combining observations in clusters, the method of the furthest neighbor was used. According to this method, the distance between two clusters is considered to be the one between their furthest points (Siardos, 1999).

Grouping is one of the most basic processes in social science research where theory is either absent or incomplete. The first step of the research is usually to discover some type of structure in the data (Bartholomew, Steele, Moustaki, & Galbraith, 2002). The description of grouping is accomplished through the dendrogram where nodes are used to symbolise subdivisions within the population and the level of each node shows the degree of similarity of the observations (Benzecri, Lebeau, & Jambu, 1979). If we are not interested in the total ranking of the observations, but only in a limited number of clusters, we only need to “cut” the dendrogram with a horizontal line so that the branches which remain satisfy the desirable number of clusters (Karapistolis, 2001). The analysis of the data was done through the statistical package SPSS.

## Results

An ecologically sustainable society should meet the needs of the present generation without threatening the environmental legacy for future generations. The most important pre-requisite for the protection of the environment should be that people are aware of the consequences of their actions on the natural and urban environments they live in.

Regarding the future of the natural environment, 64.6% of the teachers who completed the questionnaire believe that it is worsening rapidly, 22.2% – that it is worsening slowly and 8.3% – that it is improving slowly. 2.1% believe that the situation is remaining the same, while 2.8% did not answer the question.

The teachers hold similar views about the urban environment. 56.3% of them think that it worsens rapidly, 21.5% think that it worsens slowly, 10.4% think that it improves slowly and 1.4% that it improves rapidly. 5.6% believe that the situation remains the same, while 4.9% did not answer the question.

When asked who bears responsibility for the state of the environment, the teachers surveyed said that, in order of importance (on a scale from one to ten, with ten being the most responsible): industrialists and businesses (mean=8.09), public administration and control mechanisms (mean=7.80) and politicians and laws (mean=7.67). They also hold citizens responsible (mean=6.64%), because, as consumers of commodities, it is the citizens who create the demand for the production of commodities by the industry. Next come the judges and the judicial system (mean=6.30) who are expected to act in favour of the environment by imposing fines or penalties on those who pollute. Teachers hold farmers responsible due to their use of fertilizers and pesticides (mean=6.29). Next come the journalists and the mass media (mean=5.51) and researchers and scientists (mean=4.86) who are expected to guide the populace towards the direction of environmental protection. Teachers and the educational system in general are placed in the position of least responsibility (mean=4.56). This shows that the teachers believe that, through their work, they make a positive contribution to the protection of the environment.

Hierarchical clustering revealed three groups of variables. Table 1 indicates the linkage of variables and clusters, and the dendrogram of the variables is presented in Figure 1.

Table 1. Complete linkage of variables and clusters

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
	1	1		2	0	
2	1	7	0.534	1	0	5
3	8	9	0.509	0	0	7
4	5	6	0.413	0	0	6
5	1	3	0.373	2	0	7
6	4	5	0.358	0	4	8
7	1	8	-0.054	5	3	8
8	1	4	-0.289	7	6	0

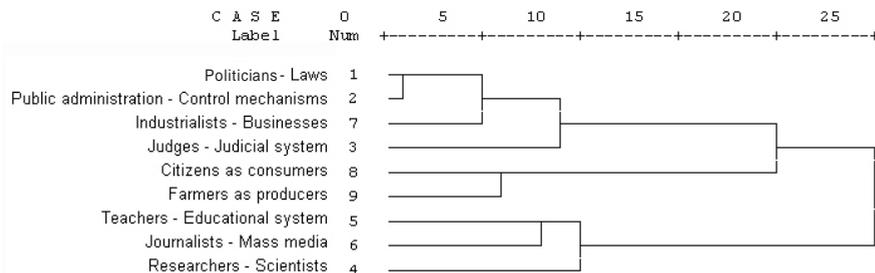


Figure 1. Dendrogram of variables regarding those responsible for the state of the environment

The first cluster, which we titled “political power,” includes politicians and laws related to public administration and control mechanisms, industrialists and businesses and, in a higher level, judges and the judicial system. With the exception of the judiciary, this cluster includes the variables regarded most responsible for the state of the environment. Thus, the respondents associate those holding the economic power with those holding the political power.

The second cluster was titled “general population”, and it includes citizens as consumers and farmers as producers. This cluster is related to the first cluster in a higher level. According to the teachers, this cluster comes second in importance with regard to those responsible for the state of the environment.

Teachers and the educational system in general are related to the journalists and the mass media and, in a higher level, to researchers and scientists. The above comprise the third cluster which we titled “groups influencing the decisions about the environment”. The teachers think that these parties are the least responsible for the state of the environment.

Combining the results, the teachers hold those in the first cluster the most responsible for the state of the environment, with the exception of judges and the judicial system. Next in assessment is the general population and, lastly, groups influencing the decisions about the environment. These are the groups that we expect to contribute to the creation of ecologically conscientious citizens, the provision of information on environmental problems and the development of technological solutions for combating environmental problems.

With regard to who should bear the cost of environmental protection, the vast majority of the teachers (72.2%) agree that the government should be the one who pays, while 22.2% do not agree and 5.6% did not answer the question. A small percentage of teachers (16%) agree with the idea of indirect taxation, for example, fuel taxes, while 72.2% do not agree and 11.8% did not answer. Similarly, 16% agree with direct taxation, while 72.9% do not agree and 11.1% did not answer. Finally, 15.3% agree with the idea of adopting a lower standard of living for the sake of the environment, while 75.7% do not agree and 9% did not answer.

## **Discussion and conclusions**

The teachers who participated in this research generally believe that the quality of the natural environment worsens either slowly or rapidly. The teachers also hold similar views about the urban environment with the difference that their view about the urban environment is a little more positive than it is about the natural environment. In another research paper asking the same questions, the students of the Department of Forestry and Management of the Environment and Natural Resources of the Democritus University of Thrace were found to have similar views. The only difference is that, according to the students, the urban environment worsens faster than the natural one. It is worth noting that the students who have one or two years left until they complete their studies had a more positive view about the natural environment than their younger counterparts. This belief may be due to the knowledge they have accumulated over the years as students in the department.

According to the teachers, those most responsible for the current state of the environment are, in order of importance, the following: industrialists and businesses,

public administration and control mechanisms and politicians and laws, the citizens as consumers of commodities, the judges and the judicial system and the farmers as producers, researchers and scientists and, finally the teachers and the educational system in general. These findings are to a great extent consistent with the results of a similar study conducted earlier among the students of the Department of Forestry and Management of the Environment and Natural Resources of the Democritus University of Thrace (Tampakis, Karanikola, Manolas, Nikou, Xanthopoulos, & Karastamatis, 2008). By applying the technique of grouping in clusters, we found that the variables are related in such a way as to form the same three clusters as for teachers.

Despite the fact that teachers are not held responsible for the current state of the environment, they do recognize a role for themselves in contributing to the formation of environmentally responsible students and future citizens. Ideas about how they might do this include: dealing with the problem of environmental education being largely voluntary in character depending mainly on the enthusiasm and initiatives of the teachers, reducing competition of the subject against more established and career oriented subjects, providing support from the appropriate authorities, promoting wider diffusion and more systematic evaluation of what is achieved and adopting continuous and more rigorous training for interested teachers.

Finally, on the question of who should bear responsibility for protecting the environment, we can say that the behavior of the teachers is politically immature since the vast majority of them think that the government should bear the cost of environmental protection while they also reject the options of indirect and direct taxation or the acceptance of a lower standard of living. This view is consistent with that reported in earlier research (Manolas, Koutroumanidis, & Tampakis, 2004; Tampakis et al., 2008). An important difference among the present study and the earlier research efforts is the fact that teachers and students are equally negative regarding indirect and direct taxation (Tampakis et al., 2008) in contrast to the citizens of Orestiada who were more positive towards indirect taxation as a means for saving up resources which could be used for the protection of the environment (Manolas et al., 2004). It seems that most respondents understand that protecting the environment costs money and that this should be paid, just not by them. This view reveals a contradiction since government funds are collected through direct and indirect taxation. Thus, when we say that costs should be borne not by us but by the government, we are simply seeking to transfer the burden to someone else. In reality, however, we transfer this cost to ourselves.

The results of the questionnaire generally reveal an opposition to the changes required for moving towards sustainability. There may be many reasons for such opposition: inertia based on habit – doing things just as in the past; selfishness – wanting the most, the best and the greatest comfort or convenience for oneself; being averse to sacrifice; seizing short-term personal gains and ignoring long-term negative consequences (especially when the long-term consequences cannot be easily seen); helplessness – feeling ignorant about what to do or unable to do anything that will help to improve the situation; fatalism – feeling it is too late to do anything; fear – feeling fearful in facing such problems; believing that other things are more important – attention to more immediate priorities, for example, family, finances; belief in the power of technology – hoping that technological improvements will be developed to save the environment (Oskamp, 2000; Oskamp, 2002; Lorenzoni, Nicholson-Cole, & Whitmarsh, 2007).

The results of this research project show that incentives designed to increase the adoption of environmentally responsible behaviors and strategies for implementing effective environmental policies are indeed needed. This need is further strengthened by the findings of another research referred to in this paper regarding forestry students and the citizens of the town of Orestiada. Whether these incentives and strategies will be educational or economic ones, something else or, indeed, a combination of all of these, is beyond the scope of this paper. The development of such incentives and strategies is a very complex issue which requires further studies which take into account a multiplicity of factors, such as the relative importance of various barriers to environmentally responsible behaviors, whether these barriers occur in sequence, what type of sequence, whether there is any variation for different population segments, whether the barriers are cumulative or whether they interact and what the most effective approaches for overcoming each for each particular segment of the population are (Swim, Clayton, Doherty, Gifford, Howard, Reser, Stern, & Weber, 2009).

In general, teachers need to understand that they should live in a more ecocentric manner that makes environmental consequences central to their actions. This is the path to a culture that is sustainable and does not increase the environmental deficit. The needs of the present generation must be met in such a way that future generations will not be deprived of the possibility to live in a better environment.

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## Appendix

### QUESTIONNAIRE

- 1) Sex:                      Male         Female
- 2) Specialization:        .....
- 3) Years of service:     .....
- 4) Level of school:    Primary     Secondary
- 5) The quality of the natural environment today:
 

Improves rapidly <input type="checkbox"/>	Improves slowly <input type="checkbox"/>	Remains the same <input type="checkbox"/>
Worsens rapidly <input type="checkbox"/>	Worsens slowly <input type="checkbox"/>	I do not know <input type="checkbox"/>
- 6) The quality of the urban environment today:
 

Improves rapidly <input type="checkbox"/>	Improves slowly <input type="checkbox"/>	Remains the same <input type="checkbox"/>
Worsens rapidly <input type="checkbox"/>	Worsens slowly <input type="checkbox"/>	I do not know <input type="checkbox"/>
- 7) Who is responsible for the state of the environment? Please assess grading from 1 to 10 (1 means least responsible while 10 most responsible). You may, if you wish, give the same grade to more than one issue.
 

☒ .....	Politicians – Laws
☒ .....	Public administration – Control mechanisms
☒ .....	Judges – Judicial system
☒ .....	Researchers – Scientists
☒ .....	Teachers – Educational system
☒ .....	Journalists – Mass media

- ✂ ..... Industrialists – Businesses  
 ✂ ..... Citizens as consumers  
 ✂ ..... Farmers as producers

8) In order to protect the environment:

The government should spend more money.

Yes  No  I do not know – I do not answer

We should pay higher prices for products, e.g. fuel (indirect taxation).

Yes  No  I do not know – I do not answer

We should pay higher taxes (direct taxation).

Yes  No  I do not know – I do not answer

We should accept a lower standard of living.

Yes  No  I do not know – I do not answer

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## INSPIRING TEACHERS FOR ENERGY EDUCATION: AN ILLUSTRATIVE CASE STUDY IN THE LATVIAN CONTEXT

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### Abstract

*Energy education has become a priority in light of the aims and tasks of the second half of UNESCO Decade of Education for Sustainable Development. This paper focuses on the case of inspiring teachers for energy education in the Latvian context, implemented within the COMENIUS project Inspire School Education by Non-formal Learning. The structure and content aspects of the in-service teacher training course are provided after the introduction to the theme. The methodological approach used in this study is integration of illustrative case study with the elements of programme implementation and programme effects case study. The data were collected by survey, focus group and questionnaire to obtain the teachers' feedback on the training course, its materials and to receive the teachers' self-evaluation on the implementation of the lesson units at their schools. It was concluded that the course had been very successful both from the point of view of the teachers and the course leaders. The described case study could serve as an example for those who would be interested in the design and implementation of similar courses in other contexts and circumstances.*

**Key words:** teachers, energy education, training course, lesson unit, case study, sustainable development

### Inspiring teachers for energy education: An illustrative case study in the Latvian context

At the onset of the first half of the Decade of Education for Sustainable Development 2005–2014 (DESD), teacher education institutions were transforming their strategy, study programmes and curricula towards sustainability (UNESCO, 2005, 2007, 2009a). In teacher education, sustainable development (SD) is a crosscutting theme with relevance to all disciplines and sectors enabling the learners to bridge the gap between the theory and practice. Teacher education institutions have a particular role in the global education community and the potential to bring change in educational systems (Richardson, 2001) and in shaping the capacity of future generations.

Lately, energy education has appeared among the priorities in sustainability-oriented teacher education. Energy is the central issue to SD and poverty reduction efforts. It affects all aspects of development – social, economic and environmental – including

livelihoods, access to water, agricultural productivity, health and population levels (United Nations, 1992). In response to global issues, attention has been given to energy education on different levels. Energy education refers to the studies that promote an energy conscious and educated society by the mastering of energy efficiency and renewable energy topics, and these studies integrate economic, environmental, political, social and cultural aspects of human development.

Among others, science subjects and science teachers should raise the comprehension in school students of all ages about energy production, transformation and usage and the consequences of these processes are a primary concern. Energy education is one of the possibilities for developing a student's scientific literacy. Science teachers are critically important in informing and facilitating trans-disciplinary understandings, values, commitment and practice of different learning activities. Besides, especially non-formal energy education has a great potential for career guidance towards the university studies in engineering and technology.

In the context of SD, energy education should provide a balance between theory and practical aspects. Understanding the capabilities, costs and impacts of the wide variety of energy sources (renewable and non-renewable) that are or will be available and the consequences of choosing between them can develop valuable life skills for school children. According to European Communities (2006), energy education should also reflect local availability of and requirements for energy, together with local climatic and cultural characteristics. However, the educational content and learning activities for energy education should remain consistent with national and international priorities, reflecting the values of "thinking globally, acting locally" (ibid.). These educational trends require educators' comprehension of these education goals and professional competence to implement them. So, energy education should aim for the development of sustainability-oriented habits of energy usage, the mastering of scientific literacy and the evoking of interest to study engineering and technology.

To implement sustainability, numerous regional ESD networks, projects and programmes have been launched (UNESCO, 2009b). Different resources have been developed at international, regional and national levels, including tools for setting up projects and lesson plans at school and outside the classroom that could be adapted to different contexts and disseminated through educational networks and platforms. However, there is a visible need to enhance the scope of themes and availability of innovative practical materials for teachers especially in relation to such an urgent topic as energy education. In Latvia, the energy topic is included in educational guidelines side by side with other important topics connected with environmental education and education for sustainable development. However, in Latvia only a few out-of-school educational places could be mentioned that carry out educational functions regarding energy. These places mostly do not yet have elaborated teaching units about energy. The educational activities on energy are not on a regular basis and, as the research shows, this topic is not among the most popular ones for teachers (INSPIRE, 2008). Therefore, the project INSPIRE was a very timely and relevant contribution in the development of energy education, especially in Latvia.

The project *Inspire School Education by Non-formal Learning* (INSPIRE, 2008, 2009) has been conceived on the basis of the perceived need to foster non-formal learning on renewable energy and climate change. The project envisages multilevel and cross-relational interactions between the educational system experience in different countries,

between researchers, teacher trainers, teachers and students, between the teachers of different subjects, class teachers and the staff of out-of-school places and also between the idea of SD and the possibilities of its realization in relation to renewable energy and climate changes. The approach of energy and climate issues covers both social and scientific competences and – regarding the threat of climate change – also outlines some of the European problems to be solved. The main results of the project – the lesson units for schools and out-of-school places and the teacher training courses – are based on the analysis of the existing situation that covers the main components, priorities and ongoing initiatives globally and in the project countries (Germany, Poland, Latvia), the differences in conceptual approaches to the topic, best practice examples and the major challenges and needs of schools and out-of-school places in relation to the project theme (Pipere, Jonāne, Salītis, Kokina, Grabovska, Kravale-Pauliņa, 2009; Jonāne & Salītis, 2009; Kravale-Pauliņa & Kokina, 2010).

Each partner country created five innovative lesson units on climate change, renewable energies and efficient energy use for out-of-school places that could be integrated into the curricula of school education. Eight primary school and seven secondary school lesson units were developed for children from 5 to 18 years with different durations: from 2 hours to 1–2 weeks of project work in groups (INSPIRE, 2008).

The in-service training courses introduce teachers to the innovative utilization of lesson units on renewable energy and efficient energy use for the benefit of learning at school. The courses also emphasize training on combining non-formal learning with curricula, considering the specific needs of teachers and curricular education, as well as the demand placed on future employees with key competences and the joy of lifelong learning.

This study aims to illuminate the features of in-service teacher training course implementation and course effects evaluation in the context of Latvia to provide detailed illustrations and examples for those who would be interested in the design and implementation of similar courses in other contexts.

### **In-service teacher training course: Structure and content aspects**

Lately, the debates on the main components of teacher education programmes with regard to the reorientation of teacher education to address sustainability have been promoted at national and international levels (UNESCO, 2005), including the evaluation and reorientation of the main topics, content/meta-content and objectives and goals of educational programmes. The content of the teacher education curriculum is conditioned by the development of knowledge and skills defined in the teacher professional standards and associated with attributes of study courses and teaching speciality, while the meta-content contains the attitudes, values and way of thinking that is an important component of the content for sustainability.

The in-service teacher training course that is presented in this article comprised nine subsequent stages interwoven with critical reflection, feedback and assessment by all parties involved:

- 1) design of the course;
- 2) selection and motivation of the course participants;
- 3) pilot of the course with the teachers' feedback;
- 4) improvement of the structure and content of the course;
- 5) teacher training course (Day 1);

- 6) implementation of the lesson units by the course participants at their schools;
- 7) completion of the questionnaire after the implementation of the lesson units;
- 8) teacher training course (Day 2);
- 9) data processing, analysis and interpretation.

Stages 1, 2, 4 and 9 were conducted solely by the project team/teacher trainers, Stages 6 and 7 were entrusted to teachers, while Stages 3, 5 and 8 were implemented in collaboration between the teacher trainers and the teachers. We will start with the description of the content aspects of training, and then we will turn to the feedback and assessment of the entire the course.

### *Teacher training*

The teacher training was conducted during the Stages 3, 5 and 8. It included one pilot course (Stage 3) and main in-service teacher training course for three different groups of teachers starting from February to July 2009 (Stages 5 and 8). The length of the pilot course was 3.5 hours, while the main training courses were organized as two-day sessions (3.5–4 hours per day) with about a month in between the sessions. After each training session, feedback was obtained and analysed and the next training was improved according to the feedback from the teachers and the analysis performed by the course leaders. Each participant received the package of the course materials and the materials on teaching sustainability.

Day 1 of the course (Stage 5) started with the introduction to the course, information on and distribution of the course materials and a short insight in the project INSPIRE. Afterwards, several themes were presented in an interactive manner using discussions, games and demonstrations regarding: the difference between the formal and non-formal education, resources and the quality of life, climate change and energy in the school of the 21st century, pedagogical diversity in primary and secondary school and the importance of educational environment. The themes were selected so as to cover the main innovative aspects of the project INSPIRE. After the break, the lesson units were introduced to the teachers. They were motivated to implement the units in their classes and to complete a questionnaire on the implementation of the units. At the closure, the teachers were invited to discuss the relevant issues, ask questions and plan for the future work.

After a month or two, Day 2 of the training course started with introduction, followed by the oral reports and a focus group discussion of the teachers on the implementation of the lesson units in their classes. The teachers submitted the completed questionnaires and then filled out a new survey on the quality of the teacher training course and the materials. The course was closed with the teachers' questions, wishes for all participants and course leaders and the plans for follow-up of the course. The full description and the materials of the teacher training course in English and Latvian are available on the INSPIRE website (INSPIRE, 2008).

### *Lesson units*

Innovative lesson units, created in the framework of this project, support scientific education, as well as environmental knowledge, social competences and the awareness

of social responsibility. Although each unit has its own features in relation to the subject knowledge, all units envisage the mastering of knowledge by playing games, obtaining practical experience, participating in discussions. With regard to social competences, all units ensure the acquisition of collaboration, presentation and evaluation skills. All of them, in one way or another, offer the possibility of personal involvement in practical out-of-school/school activities with the following evaluation of the obtained results.

The units aim to inspire teachers to use the methods typical for out-of-school educational places as to achieve better learning results in school lessons. Therefore, the units were created as an invitation to borrow the elements of the student-centred teaching/learning approach and the environment traditional for non-formal education and to accommodate them in formal settings. The methods used in the lesson units were: mind maps, brainstorming, cooperative learning, demonstrations, discovery learning, hands-on-learning, discussions, learning communities, project-based learning, use of multimedia, simulations, games, etc.

The description of each unit (INSPIRE, 2008) consists of the main part (relation to curriculum, theoretical background, educational objectives, learning ambiance, materials, plan of the unit and review of the unit) and several appendices with auxiliary materials.

The teachers were asked to focus mainly on the lesson units created by the Latvian team considering the local context and the features of teacher work. Here is the list of Latvian lesson units, their grade level and general content:

- 1) **Eco-house project** (grades 9–12): Understanding of environmentally friendly housing and the current perspectives of the construction of such houses;
- 2) **From seed to energy** (grades 7–9): Cultivated plants, renewable energy resources, regional economic development;
- 3) **Principles of electric energy production** (grades 7–9): Renewable and non-renewable energy resources, electric energy production, saving electric energy;
- 4) **Be economical – save the penguin** (grades 6–9): Saving energy in the household and its influence on climate preservation;
- 5) **Alternatives for obtaining thermal energy** (grades 9–12): Understanding of resources and environmentally friendly heat supply.

## Methodology

The methodological approach used in this study is an integration of illustrative case study with some elements of programme implementation and programme effects case studies.

Case study methods involve an in-depth, longitudinal examination of a single instance or event. It is a systematic way of looking at what is happening, collecting data, analysing information and reporting the results. The product is a sharpened understanding of why the instance happened as it did and what might be important to look at more extensively in future research. Thus, case studies are especially well suited towards generating, rather than testing, hypotheses (Davey, 1991). In other words, a case study is a method for learning about a complex instance, based on a comprehensive understanding of that instance obtained by extensive description and analysis of that instance taken as a whole and in its context (GAO, 1990). Case studies are always subjective and non-generalizable.

Illustrative case studies primarily describe what is happening and why, in one or two instances, to show what a situation is like (GAO, 1990). As in the given case, it makes the unfamiliar familiar, avoids over-simplification of reality and gives the reader

a common language about the topic. Following the idea of Programme Implementation case studies, this study helps to discern whether the implementation of the course was in compliance with its intent, while the similarity with Programme Effects case studies can be found in determination of the course impact and providing inference about the reasons for success within the description of this study.

### *Data collection methods and procedure*

The current study envisaged data collection during all stages of the course. The main data collection tools conceived both in qualitative and quantitative methodology were 1) survey to obtain the teachers' feedback on the training course and its materials (Stage 3 and 8); 2) questionnaire "Implementation of lesson units: Evaluation by teachers" (see *Appendix*) (Stage 7); 3) focus groups of teachers on the implementation of lesson units (Stage 8).

The survey to obtain feedback on the training course and its materials was administered to teachers at the end of the pilot course and Day 2 of the main training course. The teachers were asked to provide answers to these questions: 1) *What information did you find particularly helpful for planning your teaching?* 2) *What other information do you need to teach the topics of climate change and conscious dealing with energy in the classroom?* 3) *What information was needless?* 4) *What did you particularly like at the training?* 5) *What could hamper the implementation of the learning units?* 6) *What could foster the implementation of the learning units?*

The questionnaire was completed by the teachers after they had implemented the lesson units with their students at school. The questionnaire consisted of an introductory part collecting the general information about the teacher, the title of the delivered lesson unit and 13 questions allowing both quantitative and qualitative answers on 1) evaluation of the effectiveness of the opening situation/introduction, methods and appendices to reach the aim of the lesson unit; 2) impact of the lesson unit on the students' interest, attitudes/values; 3) evaluation of the teachers' time and school resources necessary for this lesson unit; 4) suggestions for improvement of the given lesson unit.

In total, three focus groups were organized – one for each main teacher training course. Since Day 2 of the training was designed to create a space for extensive evaluation, reflection and critical feedback on the training course, its materials and implementation of the lesson units, the method of the focus group allowed the teachers to share their views and comments inferred from participation in the training, work with students, practical usage of the course materials, communication with colleagues during the courses, etc. The utterances of the focus group participants were fixed in a written form by the leaders of the course so as to allow for the subsequent analysis.

The data analysis was based on the principles of quantitative and qualitative methodology. Quantitative data from the questionnaire were processed counting the answers and calculating their percentage. An inductive thematic content analysis was used in the interpretation of the qualitative data from surveys, questionnaires and focus group discussions. Appropriate textual units (single words, phrases, sentences, paragraphs, the entire text of a written answer) conveying a theme or idea were identified for coding. Similar cases were clustered in groups, and appropriate language was chosen to describe them as emergent categories.

### *Participants of the course*

While 51 teachers from the Latgale region of Latvia participated in the training courses, the questionnaires “Implementation of lesson units: Evaluation by teachers” were received from 44 teachers. The average age of the 11 men (from 24 to 55 years of age) was 47.6 years. The average age of the 33 women (from 24 to 75 years of age) was 45.8 years. The average length of experience in the teaching profession was 23.5 years.

The children in Latvia start their schooling at the age of 7. The school education consists of basic education (primary and lower secondary education, grades 1 – 9) and secondary education (grades 10–12). The majority of our sample was basic school teachers (n=24), while 17 teachers work both in basic and secondary school. Only 3 teachers work only in secondary school. Twenty-seven teach Physics or Mathematics and 15 teach Biology, Chemistry or other subjects. Two teachers did not mention the subject they teach.

### **Did the course work? Feedback and assessment by the teachers**

This section discusses the results obtained from the teachers through the survey (n=41), the questionnaire (n=44) and the focus groups (n=49), therefore providing their feedback and assessment on the different aspects of the course. The following data were obtained from the surveys and the focus groups during the pilot course and Day 2 of the teacher training course on three occasions.

### *Positive aspects of teacher training*

First of all, the teachers recognized that they had already thought of some issues included in the lesson units, but the course gave them real encouragement for practical application. Eleven teachers (26.8%) answered that the most effective aspect of the training was the course materials as they are “ready-made” and do not ask for lengthy preparation. Seven teachers (17.1%) from 41 were especially fond of the responsive team delivering the course and the exciting atmosphere during the course. Several teachers (14.6%) noted the interactive work and games during the course that provided a break from theoretical presentations. Five teachers (12.2%) each mentioned the diversity of teaching methods and the possibility to share the experience and express their own views, while four teachers (9.76%) recalled the reactions of the students during the implementation of the lesson units, student motivation and enjoyment.

### *Relevance of course materials*

The teachers indicated that particularly helpful for planning their teaching was the following:

- The general quality of the course materials (included teaching methods, etc.) is very high.
- The information on energy is new, comprehensive and diverse.
- The materials are coordinated with the curricula of the respective subjects, they are topical, student-centred, more interesting and easier to memorise than dry theory; and theoretical knowledge is brought closer to real-life situations.

- The lesson units can be used from pre-school to secondary school during typical lesson or project weeks, in any subject both at school and its surroundings, allowing them to choose new activities every time.
- The materials contain explanations of new terms and notions.

Though several teachers expressed their need for some other materials on the topic (for instance, hand-outs, visual materials) and 12 teachers suggested the amount of information was sufficient, none of the teachers said the course included needless information.

### *Implementation of the lesson units: Impact factors*

After the analysis of textual units from the surveys and focus groups, the following categories were obtained with regard to the practical performance of the units (Table 1). To ensure the succinctness of presentation, the factors are described generalizing from the expressions of the teachers.

Table 1. Teachers' view on the implementation of the lesson units: Impact factors

Impeding factors	Fostering factors
<b>Lack of time:</b> 1) to acquire all the compulsory materials according to the curriculum besides the lesson units, 2) to prepare for the lesson unit until the activity becomes a habit.	<b>High interest and motivation for active participation</b> at the pre-school/primary school age can benefit the implementation of the lesson units.
<b>Large amount of extra work for teachers:</b> studying the unit, preparing the materials, etc.	<b>High quality of the lesson units:</b> elaborated in great detail, include necessary materials, allotted time and activities.
<b>Lack of material resources at school:</b> 1) to deliver the lesson unit (demonstration materials, etc.); 2) to travel to the out-of-school place.	<b>Previous experience of many teachers</b> who already have conducted different research activities in Science lessons.
<b>Extensive knowledge on science and IT:</b> not all teachers have a proper training in the latest advances in Science and IT.	<b>Rural schools can provide a diversity of learning ambiances:</b> the units can be conducted at school, in the forest, near a river, in the schoolyard, library.
<b>Necessity to know the students' prior experience</b> before the implementation of lesson units and then allowing time for "filling the gaps".	<b>Wide applicability of the lesson units:</b> they can be used in any school subject or at any lesson.

The next data were collected via questionnaire completed after the implementation of the lesson units and the percentage of answers was used to quantitatively analyse these data from the teachers.

### *Evaluation of teachers' time and school resources for the implementation of the lesson units*

The range of time that the teachers suggested for the preparation of lesson units was from 20 minutes to four weeks, but on average they could use about 2–3 hours. This testifies that the goals were achieved for low effort lesson units.

Contrary to their expectations, the teachers (n=44) were quite positive regarding the availability of the resources necessary for the implementation of the lesson units at their school: 40% of the teachers admitted that such resources are fully available, 37.8% recognized that the resources are nearly fully available, and only 22.2% of the teachers observed that they are only partly available.

According to the teachers, on average about 80.2% of the content of the lesson units can be implemented in school (ranging from 70.5% to 90%). This number shows the successful performance of the main task of the course – the integration of teaching methods from non-formal education into the school environment.

### *Effectiveness of the introduction, methods and appendices of the lesson units to reach the aim set*

In general, 84.4% of the teachers recognized the relevance of the lesson units for the indicated grade level, and only 15.6% suggested that the units are only partly suited for the respective grade level.

Although about a third of the sample (26.7%) noticed that the introduction or the opening situation of the unit was *very effective* to motivate students for deeper inquiry of the theme, 73.3% of the teachers selected the answer *rather effective for motivation*, therefore challenging the unit designers to improve the motivational elements in the introduction of the units.

As to the suitability of the methods and the appendices of the lesson units to reach the aim set, the answers of the teachers were rather similar. The majority of the teachers agreed that these elements are fully appropriate (55.5% and 57.8%), smaller numbers of the teachers (35.6% and 28.9%) admitted that they are nearly fully appropriate and only 8.89% and 13.3% of the teachers evaluated them as partly suitable for the aim set.

### *Impact of the lesson units on pupils' interest and attitudes/values*

The activities reported by the teachers as the most interesting for their students were different from the typical activities of formal learning: games on energy and its usage, experiments and hands-on activities, excursions to power stations and other out-of-school places, presentations and DVDs on energy related topics and mind maps and puzzles. These activities slightly differ from the activities recognized by the teachers as the most effective means for the development of students' knowledge, skills and attitudes, such as presentations given by students, games, group discussions, research work, projects, mathematical tasks, puzzles, mind maps and brainstorming.

The great capacity of the lesson units to foster the students' attitude development/value awareness was recognized by 76.7% of the teachers. Another 14% of them evaluated this capacity to be high, and only 9.3% of the teachers noticed this capacity to a certain degree.

The majority of the teachers (77.8%) admitted that the evaluation of learning achievements at the end of the unit allows students to grasp the meaning of the mastered knowledge in the context of the rational usage of energy resources to a great extent. A much smaller proportion of the teachers indicated either a high degree (11.1%) or a certain degree (11.1%).

### **Summary, conclusions and future directions**

The course described in this article was implemented during a very hard time for the educational system and teachers of Latvia, with schools closing, unemployment, serious wage cuts and expectations for worsening of the situation. The social prestige of the teaching profession was and still is low. The salary levels were relatively low (EURO-GUIDANCE, 2007) already before the economic crisis and the teachers themselves reported the feelings of devaluation of their work (ESF, 2007). During the course large efforts were put to develop and maintain the motivation of teachers for innovations and extra work due to the need of lesson unit implementation. At the same time, their engagement and readiness to experiment with the new approaches and materials seemed to be surprisingly high.

The feedback of the teachers on the course materials and the entire training process, as well as their assessment of the lesson units show that the teachers evaluate them very positively and see real benefits from the implementation of the course. It should be stressed that the quality of the teaching materials plays a pivotal role in the overall success of a course, especially if it helps the teachers reduce the time necessary for the preparation for lessons. Interestingly, the teachers were much more pessimistic regarding the availability of the resources for the implementation of the lesson units at their schools before the implementation of the lesson units. After working with students they recognized that the situation is better than expected. In general, the teachers highly evaluated the effectiveness of the introduction, methods, appendices and the evaluation of the learning achievements of the lesson units, as well as their capacity to foster the development of students' attitude and meaningful knowledge in the context of the rational usage of energy resources.

The observation that the teachers were more focused on the quality and topicality of the course materials, while the student-centred orientation of the lesson units was emphasized less often, might be attributed to the current situation of Latvia's teachers having taken courses on student-centred methods more than a decade ago. It seems that they do not perceive these methods as something entirely new. As the interactive games with the teachers during the training course revealed, the teachers are well aware of the diversity of teaching methods and the need for student-centred approaches in their teaching.

To make conclusions for this illustrative case, the reflections of the course designers and implementers on the process and the results would be of certain value. So, while performing the activities of the course, the designers and implementers learned some important lessons on project team work – the benefits of cross-faculty expertise, mentoring and mature interpersonal relationships, the necessity for sophisticated motivational strategies and matching the competence of the team member with the work to be done. Also, the lesson on the creative activities and the approbation of their results was significant as the team members recognized that not all creative innovations,

although designed acknowledging the real situation in the educational system, are easily applicable in class.

Summarizing all that is mentioned above, the main results of the course implementation are:

- 1) proved effectiveness of multidisciplinary and cross-faculty project team composition and the applied strategies of creative work;
- 2) practically approbated teacher training materials and teacher training course that is the first course with such content and structure in Latvia;
- 3) innovative lesson units designed drawing on the current situation in the educational system and embedded in the Latvian context;
- 4) orientation of Latvian teachers and students to the topic of energy;
- 5) increase of Latvian teachers' susceptibility towards the cooperation with out-of-school places and the usage of non-formal learning methods;
- 6) implementation of lesson units on energy education with 669 pupils in the Latgale region of Latvia.

As the feedback from the teachers shows, this course has endowed them with inspiration for their future work and innovations in energy education. At the same time, the inspiration has also been transferred to the entire school environment, students and, possibly, their parents. The materials of training and the lesson units are available in an electronic form for every school and teacher training institution in Latvia, but the web-materials in English – for the entire world. As the reports from different institutions, organization leaders and feedback on the disseminated material show, these materials are very timely and necessary for teachers since the managers of the educational system and educational policy makers currently start to recognize the need to integrate energy education both in formal and non-formal education.

The reasons for the success of this course are manifold; the most important are numerous:

- 1) From the beginning to its end, it was strongly embedded in the local context.
- 2) The designers of the materials and the course leaders had an appropriate and rich experience, good skills and relevant knowledge developed during their work as teacher trainers, authors of teaching materials and textbooks, international and national project leaders and participants.
- 3) All the materials were designed using the team approach, piloting and continuous improvement strategy.
- 4) The entire course was based on well-considered motivational and self-esteem building strategies.
- 5) In spite of economic hardships, the teachers really enjoyed the materials and activities and showed a high level of involvement.

The important aspects to look at more extensively in future research are the process and the results of the implementation of similar courses in other countries and the causes for teachers' active or passive involvement in innovative processes. Also, the links between the urgency of the topic and the motivation of the teachers to integrate this topic in their teaching and differences between the science teachers and teachers of other disciplines regarding their readiness to integrate energy in their teaching could become the issues worthwhile to deal with.

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## Appendix

### QUESTIONNAIRE

#### *Implementation of the lesson units: Evaluation by teachers*

Title of the lesson unit:

When was it delivered? \_\_\_\_\_ (date)

Grade level \_\_\_\_\_

Number of students \_\_\_\_\_

School subject/event \_\_\_\_\_

*Please, mark the most appropriate answer for each question with X and add your comments.*

1. Do you think that the content of the lesson unit is suitable for the indicated grade level?  
Yes  Partly  No
2. How much time is needed for the teacher to prepare for the delivery of this lesson unit?
3. Assess the availability of the resources necessary for the implementation of the lesson unit at your school:  
 Fully available  
 Nearly fully available  
 Partly available  
 Hardly available  
 Unavailable
4. Was the getting to know of the life situation/theme in the beginning of the lesson unit effective enough in order to motivate students for a deeper inquiry into this theme?  
 Very effective for motivation  
 Rather effective for motivation  
 Not particularly effective for motivation  
 Ineffective for motivation
5. Assess the suitability of the selected teaching methods for reaching the aim of the lesson unit:  
 Fully appropriate  
 Nearly fully appropriate  
 Partly appropriate  
 Hardly appropriate  
 Inappropriate
6. Assess the suitability of the appendices for reaching the aim of the lesson unit:  
 Fully appropriate  
 Nearly fully appropriate  
 Partly appropriate  
 Hardly appropriate  
 Inappropriate

7. Assess how much from the content of this lesson unit (in %) it is possible to implement in the school environment.
8. Which activities in this lesson unit seemed to be the most interesting for the students?
9. Assess the capacity of this lesson unit to foster the students' attitude development/value awareness:
  - To a highest degree
  - To a great extent
  - Somewhat
  - Very little
  - Not at all
10. Which activities of the students were the most effective for the development of their knowledge, skills and attitudes?
11. To what extent the evaluation of the learning achievements at the end of the unit allows for the students' grasping the meaning of the mastered knowledge in the context of the rational usage of energy resources?
  - To a highest degree
  - To a great extent
  - Somewhat
  - Very little
  - Not at all
12. To what extent did you have a chance to implement this lesson unit?
  - Fully (including visit to an out-of-school place)
  - Partly (including visit to an out-of-school place)
  - Partly (using all elements of the unit in school lessons)
  - Partly (using several elements of the unit in school lessons)
  - Partly (using the elements of the unit in class hour)
13. What would you suggest in order to improve the lesson unit?

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## TEACHERS AS RESEARCHERS: BRINGING TEACHERS' VOICE TO THE EDUCATIONAL LANDSCAPE

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### Abstract

*There are a number of studies addressing the possible benefits of teachers being engaged in research, but there is little research that explores what teachers themselves think about their role as researchers and how they evaluate themselves as researchers. The aim of this study is to present a small scale investigation into teachers' self-perception of doing research in mainstream schools. By doing research, teachers express their voice; teachers' voice is an expression of their frames of reference. This is also a way of making their perspective public. In Latvia, teachers do not have an active voice in the educational theory and research. This research indicates that research initiated by teachers provides a framework for strengthening teachers' voice. The research data present an analysis of teachers' self-evaluation of their research competency, ability to organize their own research activity and that of their children. The study highlights the factors that determine teachers' willingness to engage in doing research, as well as their expertise to organize and motivate children's research. The data from group interviews and questionnaires show a genuine degree of agreement on a number of main issues, such as teachers' motivation in doing research, their expertise to motivate children in doing their research, as well as teachers' openness to creative and imaginative insights brought about by the primary school children in their research projects. This study highlights several significant correlations between teachers' ability to carry out their own research and their ability to engage children in a meaningful research.*

*Key words:* research skills, creativity, teachers' voice, research environment

### Introduction

Schools more often play a role of bureaucratic institutions, thus weakening the voice of teachers and making them perform the role of technicians who merely follow the state mandatory standards. Iliško & Kravale (2007) wrote that "the most common features of education are: high stress among teachers, return to a didactic teaching, a decline in teacher-led innovations and teachers' unwillingness to make a difference" (p. 260). The majority of teachers is trained in an authoritarian tradition and expects the teaching to be constant and predictable. In order to respond to the diverse needs of their children

and to address current educational challenges, teachers need to make use of their most powerful ways of knowing – their subjectivities and intuitions and to validate such insights in children's research. Teachers must be able to understand the unique and particular aspects of their practice and their classrooms in order to make a difference in the lives of their children and their particular experience.

The key issue is teachers' voice. Teacher's voice is viewed as a teacher's ability to define their educational philosophy, as well as to act accordingly towards implementing sustainable changes in the educational realm (Kincheloe, 2003). One of the ways of initiating educational changes in the school environment is through doing action research. Teacher initiated research is one of the possibilities that offers a way beyond alienation. Teachers' participation in educational realm implies a possibility for teachers' voice to be heard. According to Dewey (1916), teachers need to have a voice in the formulation of educational policy.

Most teachers believe that teaching and research are two different spheres of work. Research is about formulating deep questions, examining phenomena and interpreting understandings, while teaching is about teaching others. The boundaries between these fields begin to blur for some teachers and in some school settings. Still, the distinction between these two fields of work is a part of reality for most teachers. Hargreaves (1995) argues that there is a huge gap between researchers and practitioners. Researchers determine the agenda for educational research, but teachers assure that research has little relevance to classroom practice. This separation between teaching and researching is based on a view that both spheres of work have different aims. Research is supposed to produce new knowledge in most cases, while teachers are viewed merely as a tool to implement it. In Latvia, researchers usually work in one setting while teachers work in another setting. However, many researchers have suggested that teachers can act as true professionals only when they make active attempts to link and apply educational theory to their practice.

Literature has produced important insights on teacher's engagement with the research and the relations between teaching and researching. Several studies indicate: 1) teaching and researching are the same thing; 2) teachers have to support their own teaching by doing research in order to support learning of their students; 3) teaching and researching has many benefits, though this work is very hard (Brookfield, 1995; Schon, 1983; Cochran-Smith & Lytle, 1993; Lytle & Cochran-Smith, 1992; McFearland & Stansell, 1993; Etherington, 2006; Kincheloe, 2003). Some teachers successfully combine both activities, particularly those who hold a master's degree or actively participate in various international projects.

### **Research as a tool to address education for sustainable development**

Education for sustainable development is an approach to education that is oriented towards helping teachers' to arrive at a better understanding of actions and how those actions can play a role in addressing the problems that future brings about. Education for sustainable development requires the reorientation of educational policy, curriculum and practices inherent to sustainability. Rethinking and revisioning education includes focusing on the development of teachers' knowledge, skills and perspectives related to sustainability. This implies a revision of the traditional approaches to teaching. These include skills for innovative and critical thinking, cooperation skills, decision-making, problem-solving and other important skills that can be well developed by encouraging teachers to engage in action research.

## Why doing teacher-initiated research?

The term *teacher-researcher* characterizes a professional who is reflective and motivated to identify and address problems in his/her praxis. The concept of teacher as researcher has been of interest to various scholars (Cochran-Smith & Lytle, 1993; McFearland & Stansell, 1993; Etherington, 2006; Kincheloe, 2003). Teachers as researchers demonstrate high professionalism as 'reflective practitioners' (Brookfield, 1995; Schon, 1983; Stenhouse, 1981). Kincheloe (2003) describes teachers as "self-directed agents, sophisticated thinkers in a never-static, ambiguous context" (p. 40) who engage in "a meta-dialogue and constant conversation with one's self" (p. 69).

Cochran-Smith & Lytle (1993) define teachers' research as systematic inquiry carried out by teachers. This understanding is consistent with Goswami & Stillman's (1987) idea that every lesson should be an inquiry for a teacher. Research requires teachers to engage in the process of questioning, planning, acting, observing, reflecting, pre-planning. It puts the teacher at the centre of knowledge production in the professional context of the classroom. Teacher initiated research can be defined as intentional and systematic inquiry. Teacher initiated research is perceived as reflexive, ethical and practical inquiry (Stringer, 1999).

Teacher initiated research is a process of systematical, critical and reflective evaluation of educational practice and action towards adjusting the practice to maximize effectiveness (Sagor, 2000). It encourages teachers to try out new ideas, methods and materials, and to make decisions about curriculum development. Teacher initiated research is critical and reflective. Reflectivity in doing research means attentiveness to one's biases, predispositions and preferences (Schwandt, 2001).

There are several reasons why teachers engage in carrying out the research: to improve their teaching, to arrive at a better understanding of their actions and teaching, as well as to regain their voice and to make a difference. One of the reasons why teachers engage in doing research is to improve the practice by arriving at a better understanding of their practice. This leads teachers to work towards a sustainable change in the context in which the practice occurs (Stringer, 1999). The other reason why teachers are doing research is to enrich their understanding of what is going on in the classroom. The positive effects of conducting research in the classroom are tremendous: teachers build their own theory of teaching; they act as curriculum designers and make informed decisions in their classrooms. Teacher initiated research can be seen as a tool in developing teachers' capacity for making autonomous and professional judgments and decisions about their classroom practice. Teachers gain more confidence to improve teaching. Teachers act as curriculum designers and adjust their practice based on their conclusions derived from the study. Research helps teachers to make informed decisions about their classroom practice.

## The power of teacher's voice: Constructivist vision

Several studies suggest (Kincheloe, 2003; Apple, 1999; Chattin-McNichols & Loeffler, 1989) that the teachers who operate at a constructivist level are more tolerant towards the original questions posed by children. Constructivism underlines the assumption that knowledge is not transmitted from one person to another, but is constructed. Thus, teachers become more flexible and employ a wider repertoire of teaching models. While

operating at this level, teachers are able to see the discrepancies between the surface approaches and the deeper reality. Such a position allows teachers to carry out research as a tool in overcoming bureaucratic definitions of their role. This empowers teachers to construct new ways of thinking about teaching and teacher education. After involving themselves in conducting research with the purpose of improving their educational practice, teachers gain new and better ways of seeing their classroom practice and transcend the empty rhetoric of educational talk. As numerous constructivists (Linn, 1987; Harris & Graham, 1994) believe, teachers who take initiative in doing action research become active decision makers about what concerns their work and see new perspectives in the context in which they operate. They believe that teaching can be structured in a personal and meaningful way that must be constantly developed. Such a view allows teachers to re-conceptualize their understanding of teaching, as well as their role. Teachers' autonomy begins with the construction of a system of meaning. Here feminist theory, liberation theology, Deweyan educational theory serve as a starting point for teachers' ongoing construction and reconstruction of meaning. Freire (1972) believes that both teachers and students need to be actively involved in educational process as decision makers.

Constructivist learning is inspired by theories of learning that underline that learning is an active process where learners and teachers are actively constructing mental models and theories of the world around them. Constructivism is based on epistemological assumptions that knowledge is constructed by a knower who actively interprets experience, that is, makes sense of it in terms of what the learner already knows. Therefore, as Koutselini (2008) argues, instead of laying the main emphasis in teacher training courses on developing teachers' skills and competencies where teaching is viewed as a set of measurable skills and routine techniques, teachers should be encouraged to accept the role of a critical and reflective researcher who experiences teaching as praxis, "a unique experience that is influenced by teachers' reflective judgments, moral assumptions and justifications" (p. 35), where teachers have their own voice and where they construct their meaning. By regaining their voice, teachers can become open to innovative aspects in children's inquiries.

Primary school children live in a constant state of curiosity. For them inquiry comes from what is interesting in the world. Therefore, children pose deep and meaningful questions. Children's individual structures of meaning allow alternative perspectives to the world to be expressed that provide alternative ways of meaning creation about the world. It is a matter of teacher's professionalism to bring multiple knowledge systems to a topic, by offering a space for different questions to be raised about the topic from the perspectives that each system offers. Such a learning environment allows learners to explore and create new ideas and to shape what they are learning as they examine the topic through their own personal experiences and different knowledge systems. In the primary school setting, inquiry is not only dry, analytical process for doing research. Instead, it should be seen as a deeply passionate, mysterious, exciting and creative process. Inquiry should bring a sense of wonder about the surrounding environment and nature, since inquiry is "a way of travelling along the web of connections, to explore the myriad relationship that connect us to the world and ultimately make up who we are" (Montuori, 2008, p. 18). Such an understanding allows teachers to tolerate ambiguity in children's questions and inquiries. This also brings teachers closer to their authentic selves and the expression of voice that brings along "powerful and life-affirming feeling" (Montuori, 2008, p. 21).

## Research methodology

The current study reflects the analysis of data gained both by qualitative and quantitative research methods. This research objective is not merely to validate the statistical relationships of variables, but to understand and to preserve the cohesiveness of the phenomena studied. Attention was paid to both portraying patterns and discovering the causes that prevent teachers from being active builders of their everyday reality in the classroom setting and how their agency influences children's agency to undertake research.

Group interviews with teachers allowed us to gain deeper insights of the teachers' understanding of their role as researchers, as well as to discover the obstacles that hinder them from becoming critical and reflective researchers. While conducting group interviews in four regions of Latvia in groups of 15 to 25 teachers (N=84), particular attention was paid to the social, political and ideological contexts in which teachers work, since these contexts influence their perception of themselves as researchers. Group interviews allowed working collaboratively with research participants and presenting a value of narrative knowledge, as well as sharing 'the lived experiences' of teachers that inform the research and disclose conceptual themes and depth of teachers' interpretations.

Teachers' narratives portray how they experience their position as researchers. Embedded in teacher stories are teachers' feelings, thoughts and attitudes that helped the authors to better understand how teachers make sense of what they are doing. As several authors suggest, narrative analysis treat stories as "actually constituting the reality of the narrator" (Bruner, 1992; Ochberg, 1994). While analysing the teachers' stories, the authors paid particular attention to the way the teachers frame issues – to patterns, themes, dilemmas, key phrases that seemed to hold multiple meanings. As Husserl (1970) suggests, participatory epistemology focuses on subjective and active engagement with the world and phenomena, and the only way of knowing things is through our *subjective* knowing. All teachers who participated in group interviews were full time teachers.

All teachers (N=123) who participated in this study were also asked to fill in a questionnaire on a voluntarily basis; all teachers were given a clear instruction on how to complete the survey. All data of this survey was collected by the authors. Items on the demographic indicators summarized information about the teachers' age, gender and experience in doing research (writing a scientific report, a bachelor's or master's thesis). Teachers needed to indicate if they had any previous experience in presenting their research data within the school community, at the local conferences or even international reunions. The aim of the questionnaire was intended to discover the main reasons why teachers are doing research (professional growth, pursuing one's career or as a job requirement). The teachers involved in this study are mainly kindergarten and primary school teachers. The other part of the questionnaire was designed to identify the teacher's self-evaluation of their competency to organize research work for children, their creativity in organizing and doing research, as well as their skills in organizing research. The authors aimed at determining significant correlations among these factors.

For the statistical analysis of data, the authors chose SPSS program (Statistical Package for the Social Sciences). Reliability measures were used to explore the existence of underlying factors representing the various concepts under study, namely, teachers' engagement with the research, their ability to organize their research and the research of the children, ability to work with creative and imaginative insights brought in by the children. Triangulation procedures and discourse analysis during the meetings revealed teachers' beliefs and preconceptions of the role of the teacher–researcher. The insider status of the authors

of this research helped them to clarify the understanding of personalities, interactions and responses of teachers during the group interviews. The employed method might have obscured the authors' understandings. On the one hand, the authors' insider position was a benefit, because the authors were aware of the struggles the teachers were talking about, but, on the other hand, the authors could have assumed things about the teachers. The authors made every effort to structure the study so that it ensured stronger validity.

### *Research participants*

The research participants were primary school and kindergarten teachers who are undergoing in-service teacher training in different in-service programmes (N=123). Out of all respondents, 23% claimed to have no research experience, 55% had an experience of writing a research paper (Mean=3.60), 11% of teachers are holding a bachelor's degree and 9% are graduates of master's degree programmes. 54% of all participants admitted that they had no experience in presenting their research findings at the level of conferences, while 46% had had an experience in presenting their research findings at local and regional scale conferences.

### **Research findings**

One of the aims of the questionnaire was to discover the motivation behind the teachers' participation in educational research. One may find different motivation among teachers for doing research. They were provided with several options to select from and were asked to formulate their own reasons for doing research. Among the reasons suggested was promotion, professional growth, administrative requirement and a passion to make a difference in their classroom setting. The questionnaire helped to find out the motivation of research participants to undertake research.

The highest motivation for doing one's own educational research was among the older teachers (56 years of age and older), the lowest motivation of doing research was among younger teachers (25 years) (Mean=4.15). They consider themselves confident and equipped with the latest knowledge after graduating from higher educational establishments. The main motivation why they engage in an educational research is pressure from the administration (Mean=2.50). Their personal motivation for doing educational research is quite low (Mean=3.78). The main motivation for the older teachers is their personal growth. The kindergarten teachers' motivation for doing educational research is mainly determined by administrative requirements, while primary school teachers have demonstrated professional and personal motivation.

Self-evaluation of the teachers' skills to organize research environment for primary school children indicates that the highest indicator is among the younger teachers, who have just graduated (Mean=3.5), as well as among the most experienced teachers (56 years and older) (Mean=3.5), while the lowest indicator was in the age group from 26–35. These teachers feel quite confident with the routine and their preferred style of teaching and do not intend to change much. There is a correlation between the teachers' educational level and their skills to engage children in doing research. The teachers who are holders of a master's degree evaluated their skills higher in organizing a research environment for children than the teachers who only studied in the bachelor's degree programmes or who are the graduates of these programmes.

With the purpose of measuring the teachers' competence of organizing children's research work, the authors have identified twenty four indicators. Principal Component Analysis (PCA) with varimax rotation of questionnaire data helped the authors to identify three major factors of teacher's skills to engage children in doing research:

- teachers' skills to manage their own inquiry (F1).
- ability to work with gifted children or children who pursue innovative and creative ideas for their research (F2).
- ability to organize children's research activity (F3).

Items, their loadings and appropriate reliability coefficients (Alpha) are shown in Table 1.

Table 1. Means, standard deviations, reliabilities and principal component analysis results of the teachers' skills to engage the children in doing research

Items	M	SD	F1	F2	F3
1	2	3	4	5	6
Children's ability to see the beautiful in the surrounding	3.96	0.71	0.77		
Sensitivity towards the fantasy world of the children	3.87	0.79	0.76		
Openness to innovative ideas of the children	3.60	0.79	0.74		
Openness to innovative ideas of the children about the surrounding world	3.70	0.79	0.73		
Openness to diverse and innovative ideas to the offered problems	3.74	0.76	0.73		
Tolerance towards the sense of humour of the children	4.01	0.71	0.73		
Tolerance towards the independent ideas of the children	3.84	0.74	0.73		
Tolerating the creative chaos of the children	3.59	0.72	0.62		
Tolerating the critique from the children	3.78	0.72	0.50		
Helping the children with structuring the information and planning their research	3.29	0.73		0.79	
Suggesting the children interesting themes for research	3.14	0.73		0.74	
Suggesting the topics of research by fostering intersubjective integration	3.13	0.82		0.74	
Mentoring the children in conducting their research	3.59	0.78		0.65	
Evaluating the inquiry projects done by the children	3.13	0.89		0.65	
Evaluating the children's need for information about the issue of the study	3.46	0.70		0.60	
Mentoring the children in the process of gathering information	3.60	0.67		0.56	
Evaluating the ideas and results of the young scientists	3.20	0.89		0.46	
Teaching the children about the ethical aspects of conducting research	3.59	0.76			0.41
Encouraging the young scientists to participate in presenting their research	3.41	0.73			0.78

Sequel to Table 1 see on p. 58.

*Sequel to Table 1.*

	1	2	3	4	5	6
Organizing team work while conducting research		3.62	0.77			0.72
Organizing a presentation of the research work		3.66	0.81			0.71
Organizing a discussion about the research issue		3.17	0.66			0.63
Motivating the children to carry out their research		3.82	0.74			0.60
Advertising the research work of the children to the colleagues		3.66	0.66			0.45
		<i>% of Variance</i>		24.7	18	15.21
		<i>Alpha</i>		0.91	0.9	0.87

To measure the teachers' IT competence, the authors have identified twenty three indicators that allowed the authors to evaluate the teachers' IT competence in a five point scale in doing diverse measurement activities in processing the data both with the use of technologies and with paper and pencil. As a result of the use of Principal Component Analysis (PCA), the authors have identified three factors that were classified in the following way:

- teachers' competency to use IT for the purpose to search, to process, to analyse and to present the information (IK1);
- teachers' competency to process information using paper and pencil (IK2);
- teachers' skills of communication with colleagues in virtual environment (IK3).

Items and their loadings with appropriate reliability coefficients (Alpha) can be seen in Table 2.

Table 2. Means, standard deviations, reliabilities and principal component analysis results of primary school teachers' IT competence.

Items	M	SD	IK1	IK2	IK3
1	2	3	4	5	6
Preparing materials for the educational process by using a computer	3.46	1.31	0.84		
The use of information technologies for data processing	3.27	1.29	0.82		
Preparation and documentation in electronic format	3.67	1.29	0.81		
Presenting charts and diagrams using a computer	3.12	1.30	0.79		
Searching information on the Internet	3.88	1.08	0.77		
Preparing a presentation about the issue of the study	3.08	1.36	0.76		
Preparing and presentating the issue	3.30	1.16	0.74		
Searching information in electronic catalogues and other sources	3.24	1.19	0.71		
Processing quantitative data with the help of SPSS, Excel	2.89	1.28	0.70		
Exchanging information with the colleagues by using e-mails	2.77	1.40	0.56		
Processing quantitative data by using paper and pencil	4.24	0.80		0.82	

*Sequel to Table 2 see on p. 59.*

Sequel to Table 2.

	1	2	3	4	5	6
Processing information by using analytic data processing methods		4.09	0.84		0.78	
Designing methodical documentation by using paper and pencil		4.21	0.82		0.78	
Searching information in catalogues, dictionaries and print		4.20	0.80		0.75	
Searching necessary sources of information about the issue of the study		4.20	0.82		0.69	
Preparing necessary aids in the educational process		4.33	0.87		0.68	
Preparing and presenting research findings without the use of computer		3.83	0.94		0.68	
Presenting findings in charts and diagrams		3.85	1.06		0.66	
Using print sources for the purpose of the research in one's subject area		4.01	0.98		0.57	
Participation in discussions with colleagues		3.67	1.03			0.52
Participation in internet professional networks		1.36	0.84			0.73
Participation in internet conferences, forums		1.44	0.86			0.67
Participation in professional unions		2.76	1.70			0.62
		<i>% of Variance</i>		27.5	23	10.88
		<i>Alpha</i>		0.94	0.9	0.68

There are several significant correlations that can be identified in the study: the correlation between the teachers' creativity and their skills to organize their own research ( $r=0.620$ ); the correlation between the teachers' skills to use IT and their ability to organize their research ( $r=0.489$ ). The age is also an essential factor for the teachers' ability to work with gifted children ( $r=0.215$ ). The teachers' ability to do their own research influences their ability and skills to organize children's research activity ( $r=0.206$ ). This allows the authors to conclude that such factors as teachers' experience in conducting their own research, their experience of work at school (age), as well as the competency of using the IT technologies in doing research are significant factors in teachers' expertise organizing children's research activities. There is a clear tendency that indicates that the teachers who have a capacity, ability and skills to do their own educational research as a rule have an experience in writing a research paper (Mean=3.15), bachelor's (Mean=3.20) or master's thesis (Mean=3.14). They also have higher personal motivation in doing research (Mean=3.52).

Cluster analysis helped the authors to identify three groups of teachers: 1) teachers who can do their educational research have creativity and good skills in organizing research environment for children (66%); 2) teachers who have low motivation and skills to carry out their own research, do not show creativity towards their work and have low skills to use IT (15%); 3) the group of teachers who have skills of work with gifted children, but have low motivation and skills to do their own research (19%). The questionnaire designed for this study also aimed to learn about the teacher's ability to encourage and to be open to diverse forms of creativity in primary school children's

inquiry, as well as to use imagination, creativity and openness to diverse perspectives in their own inquiries. The study indicates that the teachers are quite open to original ideas proposed by the children. Though, the majority of the teachers give preference to pursue children's research questions that have a clear answer. There is a correlation between the teachers' ability in doing their own educational research and their openness to creative impulses in children research, and originality of their ideas ( $r=0.232$ ).

Inquiry allows assessing the teachers' openness to creative insights brought about by children. Through creating new ideas, teachers also strengthen their voice. This creative attitude leads teachers to create their own meaning. This passion and openness to diverse possibilities and options in teacher research brings teachers to the understanding that they can make a difference, and that this difference will make a difference (Freire, 1972). Some teachers reported their readiness to support children's explorations of individual topics in projects where children choose to investigate the issue of personal interest. This requires teachers' educational imagination for looking at themselves from a different perspective, being aware of the multiple ways of how they can interpret their lives. Educational imagination is also about not accepting the things as they are, but about experimenting and exploring possibilities, reinventing the self and the world. This is teacher's ability to try out something different and be open to new perspectives and experiences. There is a strong correlation between the teachers' creativity in pursuing their own inquiry, their ability to allow different perspectives to emerge and openness to originality in children's research ( $r=0.186$ ). Those teachers dare to allow children to explore deeper questions, such as *What makes Peter a good friend?* or *Does God exist?*

### Pros and cons of doing research: Teachers' reports

The group interviews with teachers allowed identifying several obstacles that prevent the teachers from doing research: a lack of sufficient time for the research, rigid state requirements preventing the teachers from practicing creativity, overloaded schedule and a disbelief in their power to make a difference. The context of top-down, unquestionable standards and anti-intellectual culture of schools are preventing the teachers from becoming active researchers and pursuing research with their children.

The analysis of qualitative data points to clear signs of the teachers' alienation from the current educational system. In the group interviews, the teachers pointed out that few in schools respect them; few value their voices and their knowledge. Schools are becoming venues of ideological indoctrination while reducing the teachers to deliverers of homogenized information, thus, leaving the economic, social and psychological well-being of children a minor issue. Operating in such an environment, the teachers often find themselves discouraged, unable to find meaningful answers to essential questions concerning teaching. This forces the teachers to direct their attention to isolated skills and to render the entire process inauthentic, inert and reductionist.

The research data indicate that critical teachers understand the centrality of power in their lives, knowledge production, curriculum development and teaching. These teachers raise questions of larger purpose in relation to their everyday practice. These teachers consider themselves as researchers who critically reflect on their professional needs and current understandings. These teachers pursue existential questions with their children, such as *Why are people cruel?* *What happens with the soul of the frog when it dies?*, *What is happiness?*

One of the teachers commented, “*There are no right questions and there are no right answers to those questions.*” This teacher believes that children can become authorities for themselves when they construct their knowledge about their own questions. Teachers help to redirect children in their quest from what others might see as *right* to a search what is right for them. Unfortunately, these are few cases mentioned that can be so liberating for children’s inquiries. In the majority of cases mentioned, the questions that dominate the classrooms in primary schools in Latvia emphasise *yes* and *no* responses. These are mainly questions related to nature and social sciences that have a clear answer and that can be answered in a positivist research tradition.

The research findings prompted by Pipere (2007) and Grišane (2007) support the evidence gained in this study. One of the main external factors that keep teachers away from engaging in educational research is time. As the teachers admitted themselves, it is quite difficult to find enough time to carry out research, to collect data and to find time to reflect and analyse data. The comment expressed by one of the participants of the study well illustrates the situation.

*Teachers are so overwhelmed with the paper work that there is hardly any time left for doing research. Teachers should be free from everyday problems, so that these problems do not overshadow the aim of being a researcher.*

The other significant factor that prevents teachers from engaging in professional inquiry is workload. Teachers’ professional schedules are quite overloaded and do not allow teachers to experience the same autonomy as researchers. As teachers commented, these are government and school authorities who set the curriculum, select materials, decide how the job has to be done and evaluate it. Besides, teachers’ work includes a wider range of responsibilities than merely conducting classes. High work demands and reality of full time teaching affect teachers’ decision not to do research. On the other hand, high demands put on teachers require them to engage in doing research to some degree to remain knowledgeable. One of the teachers commented:

*Research is a part of our everyday routine. Now we are dealing with children who are different from those we have taught several years ago. We need new approaches to deal with them; therefore this makes me constantly search an answer in the internet or in the sources in psychology. My work is an ongoing learning experience and a research of some kind.*

The teachers are forced to attend courses on a regular basis and do some scientific reading related to the field of their professional work. To meet high professional standards in teaching also means knowing the latest research in the discipline to address new undefined phenomena and contexts. Teachers often have to act on the unknown in terms of what they know. One of the obstacles mentioned by the teachers is a lack of cooperation with parents. The teachers reported that in most cases parents are very supportive, but sometimes they undervalue the ability of primary school children to work autonomously on their research projects. Instead, the parents choose to complete a research project for their children by leaving no chance for the children to engage in a meaningful research activity. The other obstacle that prevents teachers’ engagement with research is their previous schooling experience (belief in authoritarian power and abstract knowledge). In teacher training seminars the teachers often express their willingness to hear ready made recipes offered by the scholars rather than design their own methodologies or

adjust the existing ones in a creative way. This is another obstacle that prevents teachers from doing research. Group interviews with teachers highlighted some reasons why the teachers prefer readymade knowledge: a lack of information in a field of their work, a school environment that does not support teachers' research activities, parental control over curriculum and content delivery, lack of self-confidence regarding the efficiency of their initiatives.

A considerable amount of literature (Eisner, 1994; Elliott, 1993; Freire, 1972) supports these reasons as low teachers' involvement in changing educational praxis. One such obstacle is the long tradition of authoritarian teaching in which evaluation is based mainly on testing and pre-packaged curricular materials, which impedes creativity, teachers' autonomy and self-confidence. Teachers' fears are grounded in the traditional academic model of teaching in which the primary role of the teacher was to teach and for the students to learn. Several studies have demonstrated a number of benefits of teachers' research: improvement of learners' performance, more possibilities for a dialogue about their learning, innovative instructional approaches to a more objective analysis of results (Langerstock, 2000; Welch & Chisholm, 1994).

The benefits of teachers' engagement in research are evident: both students and teachers feel a greater sense of self-worth and self-confidence. Those few teachers who regain their voice are active interpreters and negotiators involved in an existing process of cultural construction and educational reconceptualization. Such teachers become agents of change not only in their own classrooms, but also reshape their schools in democratic ways. As several authors (Etherington, 2006; Kagan, 1992) suggest, teachers' engagement in doing research creates authentic and context-bound knowledge and promotes the generation of new knowledge. The research data indicate an evident correlation between the teachers' ability to organize research activity and the teachers' ability to motivate pupils' research in a more effective way. The study underlines a significant correlation between the teachers' research competency and openness to imagination and creative insights brought by children.

## **Conclusions**

Inquiry is an integrated approach to teaching and learning, resulting in exploring issues in depth, raising questions for investigation and taking action for a sustainable future. Inquiry allows teachers to participate more actively in decision-making process and, consequently, to regain their voice. Teacher's voice is a crucial aspect of teacher initiated research and should lead towards improving educational praxis. This allows teachers to tie their classroom activities to profound pedagogical, social and philosophical purposes. Teachers identify the inadequacies of their conceptual frames of reference and become critical thinkers, which enables them to change their educational practice.

Teachers' engagement in research challenges the undemocratic, scientific and rational act of teaching. By becoming critical researchers, teachers begin to construct their professional lives by asking meaningful questions. In order to reevaluate their practice, teachers seek guidance from their frames of reference, as well from their authority (Schon, 1987; Kincheloe, 2003). Thus, teachers become active interpreters and negotiators of their experience involved in the educational reconceptualization.

The issue of teachers becoming researchers centres around the issue of motivation – both initial motivation to get involved in research and also ongoing motivation throughout

the whole research process; support both professional and personal, as well as expertise, time and opportunities for professional growth. As soon as teachers begin to incorporate elements of research in their work, they arrive at a better understanding of what is happening in the classroom. As the study suggests, if teachers hold power to reconstruct their own practice, then they are capable of reinterpreting the situation towards a more sustainable future.

The highest motivation for doing one's own educational research was among older teachers, while the lowest motivation was among younger teachers. The younger teachers consider themselves confident and equipped with the latest knowledge after graduating from higher education establishments. The main motivation why they engage in educational research is pressure from the administration. Their personal motivation for doing educational research is quite low). On the contrary, the main motivation for the older teachers is their personal growth.

The main obstacles that prevent a teacher from doing research and encouraging children in doing research are the following: a lack of sufficient time for the research, rigid state requirements preventing teachers from practicing creativity, overloaded schedule and a disbelief in their power to make a difference. Among the other factors mentioned by the teachers are high labour demands, reality of full time teaching, teachers' previous schooling experience and a belief in authoritarian power. Despite a number of obstacles, the teachers also see the benefits of doing research themselves and together with children. The benefits are numerous: a greater sense of self-worth and self-confidence, belief in one's power to make changes. This increases the teachers' motivation to carry out research and their capability of motivating pupils' research in a more effective way.

The research data indicates that the teacher-researcher issue refers to issues of teachers' empowerment. Therefore, in teacher training programmes more attention should be paid to factors that stimulate teachers to work with their feeling and thoughts, by encouraging them to believe in their authority and to act upon their decisions. Teachers should be empowered to reflect not only on their actions, but also on thoughts, feelings and ideas. Schools need to offer the culture of the research and to support teachers' initiative to make changes in their classrooms.

Teacher-initiated research may not offer solutions to teachers' problems, but it can provoke more in-depth about educational problems. Greater familiarity with the process of research in teacher training programmes is likely to promote greater comfort with research in general, particularly if teachers are encouraged to explore their own interests throughout their careers.

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## SUSTAINABLE LEADERSHIP OF SENIOR STUDENTS: THE CASE STUDY OF MADEIRA

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### **Abstract**

*Secondary education plays a key role in developing sustainable leadership skills in students. This research analyses the characteristics of sustainable leadership of students at 2 secondary schools in Madeira Island (Portugal) in order to determine whether the type of school or gender of the students affect eight distinct domains: 1) self management; 2) interpersonal relations; 3) problem solving/decision making; 4) cognitive critical development/analysis; 5) organization and planning; 6) self-confidence; 7) diversity awareness; 8) technology. The Student Leadership Outcomes Inventory (SLOI) (Vann, 2000) was used to measure the leadership experiences of 158 senior students in these eight areas. Participants revealed moderate levels of sustainable leadership in the eight sub-scales. The findings show that students of Madeira Island who finish secondary education possess several well-developed sustainable leadership skills.*

*Key words: sustainable leadership, sustainable leadership skills, sustainable leadership abilities, competencies*

### **Introduction**

Students of secondary education have an opportunity to develop diverse sustainable leadership abilities during their schooling. Poom-Valickis and Elvisto (2009) state that “education is an essential tool for achieving sustainability” (p. 4). The concept of sustainability is related to the development and preservation of what it is important as well as individuals’ ability to create positive connections among people. According to Hargreaves and Fink (2007), “the sustainable leadership focuses on three important questions: it preserves, protects and promotes a deep and large learning of all, based in relations of care with each other” (p. 39). The literature on the sustainable leadership abilities of students has largely focused on higher education because of the belief that developing these competencies is the responsibility of this level of education. However, one set of

studies has focused on the capacities of secondary education students. This literature is clear about the importance of acquiring sustainable capacities at this educational level. As a result, there is a need to study in more depth the sustainable leadership capacities with which students arrive at the university and/or the labour market.

Employers report that they look for candidates who possess transversal abilities in several disciplines such as reading, writing, creative thought, personal organization, easy integration in working groups, organizational efficiency and leadership capacities (Kerka, 1990; Attinasi, 1992; Grogger & Eide, 1994; Aksoy & Mittelhauser, 1998).

Employers also look for candidates who possess well-developed capacities of sustainable leadership (Linden & Fertman, 1998; Gale, 2002; Santosus, 2003). Sustainable abilities developed in secondary education can be categorized as follows: a) technical competencies that reflect the specialized knowledge, tools and techniques that leaders possess and use (Stronge, 1998); b) conceptual competencies that are constituted by intelligence, decision making, capacity to see the whole and capacity to foresee change (Stronge, 1998) and c) human capacities which encompass the capacity to work with and for others (Stronge, 1998). Alternately, according to Kouzes and Posner (1995, 2009), the four main characteristics looked for by the employers are: 1) honesty to measure one's behaviour by high standards and to demonstrate the behaviour that one expects of others; 2) the capacity to inspire others to have a dream, a vision and a capacity of inspiring a joint vision; 3) the capacity to inspire others to act and participate in joint work as a true team; 4) the capacity to encourage the will, to awaken and maintain the will to achieve the delineated objectives (Kouzes & Posner, 1995, 2009).

There is little congruence in the literature regarding the relationship between sustainable leadership capacities and gender. Some studies reveal little relationship between gender and sustainable leadership (Powell, 1989; Bass, 1991; Komives, 1991; Posner & Brodsky, 1994). Others, however, conclude that leadership abilities are more developed in women, in particular the ability to inspire others to act was identified as very well developed in women, even those with little leadership experience (Komives, 1994). According to Romano (1996), women value interpersonal relationships more than men, learn more by trial and error and by observation and have more practice in acquiring leadership abilities, conflict resolution and problem solving.

## Methodology

The objective of this research study was to analyse the sustainable characteristics and competencies of leadership of senior students in two schools of the Autonomous Region of Madeira (Portugal). A 60-item questionnaire developed by Vann (2000) classifies sustainable leadership capacities according to eight domains (see Table 1). Each item employs a 4 point *Likert* scale (1 – Completely disagree; 2 – Disagree; 3 – Agree; 4 – Completely agree) asking subjects to indicate their level of agreement with a statement.

The first sub-scale consists of nine items and evaluates the abilities of self management, asks the subject which abilities they acquired in diverse areas of self-organization. Interpersonal abilities are the target of the second sub-scale which consists of 13 items; this set of questions asks the subjects to indicate the extent to which their experiences of sustainable leadership (in the secondary school) are affected by diverse abilities. The third sub-scale, called problem solving/decision making, includes four items. This section

elicits information about problem resolution and decision making in secondary school. The fourth subscale examines the abilities of cognitive development and critical analysis. Seven items of this section centre on how the experiences of leadership affected cognitive development and critical analysis. The fifth sub-scale examines organization and planning and consists of 16 items. The sixth sub-scale deals with self-confidence. Five items examine self-confidence in social abilities and the ability to be assertive. Other items in this section examine the degree to which leadership experiences in the secondary education have helped clarify values and establish a personal code of ethics. Sensitivity for diversity is the focus of the seventh sub-scale. Four items ask participants about their sensitivity, respect and appreciation of others. The eighth sub-scale inquires about knowledge of technology. The two items of this section focus on the capacity to use software programs and search for diverse resources using the Internet.

Table 1. Domains of the abilities of leadership defined by Vann (2000)

Dimensions	Description	Items of the Inventory	Number of items
Factor 1	Self-management	1–9	9
Factor 2	Interpersonal relations	10–22	13
Factor 3	Problem solving/decision making	23–26	4
Factor 4	Cognitive development/critical analysis	27–33	7
Factor 5	Organization and planning	34–49	16
Factor 6	Self-confidence	50–54	5
Factor 7	Diversity	55–58	4
Factor 8	Technology	59–60	2

Three hypotheses were formulated for this study.

1. There are no significant differences in the sustainable abilities of leadership due to the gender of the participants.
2. There are no significant differences in the sustainable leadership abilities due to the age of the participants.
3. There are no significant differences in the sustainable abilities of leadership of the subjects due to the type of school attended (urban or rural).

The study participants included the senior students of two schools, one located in the urban area on the southern part of the island and the other in the rural area on the northern part of the island. These schools were chosen because of the contrasting areas where the schools area located. All senior students of the two schools during the academic year of 2008/2009 participated in this study. The school located in the rural area of the island was public, while the other, located in the urban area, was private. The questionnaires were applied within the classroom in June, 2009. SPSS (*Statistical Package for the Social Sciences*) version 16.0 was used to store and transform the data. Descriptive statistics were used to characterize the sample, analyse the trustworthiness of the questionnaire and apply the test *t-Student* to compare average scores between groups. The significance level of 95% was used to reject the null hypotheses.

## Results

158 students participated in this study: 46% (72) were male and 54% (85) female. 71% (113) attended the private, urban school located in the capital of the island, a city of about one hundred and forty thousand people. The remaining subjects, 29% (45) attended the public school located in the rural, northern part of the island, a county with about eight thousand people (Table 2). The students ranged between 17 and 26 years of age. Both the mean and the median average age were of 18.

Table 2. Variables of the sample

Variable	Group	Sample (N=158)	
		N	%
Sex	1: Masculine	72	45.6
	2: Feminine	85	53.8
	NR	1	0.6
Age group	1: 17–18 years	121	76.6
	2: ≥19 years	35	22.2
	NR	2	1.2
Type of school	1: Private	113	71.5
	2: Public	45	28.5

In the 60 item questionnaire measuring sustainable leadership abilities, the answers varied between 1 (I completely disagree) and 4 (I completely agree), with lower scores indicating a lower level of leadership abilities. As depicted in Table 3, the levels of ability of the students are, by decreasing order of priority: 3.36 for the domain of technology, 3.27 for self-confidence, 3.18 for cognitive development, 3.16 for problem solving/decision making, 3.15 for self management, 3.14 for organization and planning, 3.13 for interpersonal relations and, 3.12 for cognitive development /critical analysis.

The internal consistency of factors is defined as the ratio of the variability in answers to questions measuring the same domain. That is, the answers differ not because the *Inventory* is confused but because the subjects have diverse opinions (Pestana & Gageiro, 2005). Using the *Alpha Cronbach ratio* (\*), the internal consistency of the eight domains of leadership ability was 0.809, varying between 0.63 and 0.87. The leadership abilities “Diversity” and “Problem solving/decisionmaking” have weak internal consistency, all the others have an internal consistency above .7 which are rated reasonable, good, very good (Table 3).

Testing the hypothesis  $H_{01}$ , the test *t Student* reveal no statistically significant difference between the genders (Table 4) and, therefore, the average for the 8 sustainable abilities of leadership are equal for both genders.

Testing the null hypotheses  $H_{02}$  and  $H_{03}$ , we cannot reject these hypotheses (*p-value* > 5%) and, therefore, we conclude that sustainable leadership abilities are independent of the age (Table 5) and the type of school (urban or rural) that the students attend (Table 6).

Table 3. Measures of central tendency and dispersion for the domains of the leadership abilities

Abilities of leadership	N	M	SD	Priority	Me	Alpha-Cronbach (*)
1. Self-management	149	3.15	0.34	5	3.31	0.7 <sup>2</sup>
2. Interpersonal relations	146	3.13	0.37	8	3.08	0.8 <sup>3</sup>
3. Problem solving/decision making	155	3.16	0.45	4	3.25	0.6 <sup>1</sup>
4. Cognitive development/ Critical analysis	152	3.18	0.35	3	3.14	0.7 <sup>2</sup>
5. Organization and planning	147	3.12	0.38	7	3	0.9 <sup>4</sup>
6. Self-confidence	154	3.14	0.43	6	3	0.8 <sup>3</sup>
7. Diversity	155	3.27	0.41	2	3.25	0.6 <sup>1</sup>
8. Technology	156	3.36	0.61	1	3.5	0.7 <sup>2</sup>
TOTAL	158	–	–	–	–	0.809 <sup>3</sup>

(\*) Legend: <sup>1</sup>Weak internal consistency;  
<sup>2</sup>Reasonable internal consistency;  
<sup>3</sup>Good internal consistency;  
<sup>4</sup>Very good internal consistency

Table 4. Results of the test *t-Student* for comparison of gender regarding leadership abilities

Abilities of leadership	Sex	N	Average	SD	<i>p-value</i>
1. Self management	1: Masculine	66	3.16	0.37	0.797
	2: Feminine	83	3.15	0.33	
2. Interpersonal relations	1: Masculine	68	3.12	0.42	0.652
	2: Feminine	78	3.15	0.33	
3. Problem solving/decision making	1: Masculine	70	3.16	0.51	0.951
	2: Feminine	85	3.16	0.40	
4. Cognitive development/ Critical analysis	1: Masculine	68	3.17	0.38	0.703
	2: Feminine	84	3.19	0.33	
5. Organization and planning	1: Masculine	65	3.11	0.43	0.785
	2: Feminine	82	3.13	0.35	
6. Self-confidence	1: Masculine	69	3.20	0.41	0.119
	2: Feminine	85	3.10	0.45	
7. Diversity	1: Masculine	70	3.25	0.44	0.595
	2: Feminine	85	3.29	0.38	
8. Technology	1: Masculine	71	3.40	0.64	0.398
	2: Feminine	85	3.32	0.60	

Table 5. Results of the test *t-Student* for comparison of the age groups regarding leadership abilities

Abilities of leadership	Age groups	N	Average	SD	<i>p-value</i>
1. Self-management	1: 17–18 years	119	3.13	0.33	0.334
	2: ≥19 years	30	3.21	0.41	
2. Interpersonal relations	1: 17–18 years	115	3.14	0.36	0.892
	2: ≥19 years	30	3.13	0.42	
3. Problem solving/decision making	1: 17–18 years	119	3.17	0.43	0.837
	2: ≥19 years	35	3.16	0.45	
4. Cognitive development/critical analysis	1: 17–18 years	117	3.18	0.35	0.644
	2: ≥19 years	34	3.21	0.35	
5. Organization and planning	1: 17–18 years	115	3.11	0.80	0.231
	2: ≥19 years	31	3.20	0.36	
6. Self-confidence	1: 17–18 years	120	3.11	0.43	0.197
	2: ≥19 years	33	3.24	0.46	
7. Diversity	1: 17–18 years	120	3.26	0.40	0.300
	2: ≥19 years	34	3.34	0.43	
8. Technology	1: 17–18 years	120	3.34	0.61	0.710
	2: ≥19 years	35	3.39	0.63	

Table 6. Results of the test *t-Student* for comparison of the type school relating to the leadership abilities

Abilities of leadership	Type school	N	Average	DP	<i>p-value</i>
1. Self-management	1: Private	107	3.17	0.36	0.310
	2: Public	43	3.11	0.29	
2. Interpersonal relations	1: Private	106	3.14	0.37	0.698
	2: Public	41	3.11	0.37	
3. Problem solving/decision making	1: Private	111	3.18	0.47	0.372
	2: Public	44	3.11	0.40	
4. Cognitive development/critical analysis	1: Private	110	3.18	0.37	0.979
	2: Public	43	3.18	0.31	
5. Organization and planning	1: Private	103	3.13	0.39	0.695
	2: Public	44	3.11	0.36	
6. Self-confidence	1: Private	111	3.13	0.45	0.646
	2: Public	44	3.16	0.39	
7. Diversity	1: Private	112	3.30	0.42	0.236
	2: Public	44	3.21	0.39	
8. Technology	1: Private	113	3.36	0.65	0.823
	2: Public	44	3.34	0.50	

## Discussion and conclusions

The present study results from a research inquiry carried out in two secondary schools of Madeira Island: one private, located in the main urban area (southern part of the island); another public, located in the rural area (northern part of the island). The main goal of this study was to analyse the sustainable abilities of leadership of secondary education students and determine whether any differences existed related to gender, age, or location of school. Eight distinct domains were used to measure the sustainable leadership abilities: 1) self management; 2) interpersonal relations; 3) problem solving/decision making; 4) cognitive development/critical analysis; 5) organization and planning; 6) self-confidence; 7) sensitivity for the diversity; 8) technology.

The ability domain that registered the highest average was “technology” (3.36). The ability least developed was “organization and planning” (3.12). However, about 5.2% of the subjects reported a low level of ability in this domain, with 92.9% registering levels that varied between moderate and high levels. 1.9% did not answer the items that constituted this domain.

Women presented higher levels of ability than men in the following domains: “interpersonal relations” ( $F=3.15$  and  $M=3.12$ ), “cognitive development/critical analysis” ( $F=3.19$  and  $M=3.17$ ), “organization and planning” ( $F=3.13$  and  $M=3.11$ ) and “diversity” ( $F=3.29$  and  $M=3.25$ ), although these differences are not statistically significant in any domain. This study concluded that the sustainable leadership abilities of students are equal for both genders. These results are similar to those obtained by other authors (Bass, 1991; Posner & Brodsky, 1994), though they contradict some studies which concluded that there is a difference between women and men on the “technologies” domain (Litchman, 1998; Bauer, 2000; Sax, Astin, Lindholm, Korn, Saenz, & Mahoney, 2003; Foley, 2005a and 2005b; Al-Omari, Tineh, & Khasawneh, 2008). On the other hand, several authors stress that men have more opportunities for becoming leaders while others suggest that sustainable leadership is a characteristic normally associated with males (Foley, 2005).

Taking the age into account, the students above 19 years of age reported higher levels of sustainable leadership in the following domains: “self management” (3.21 against 3.11), “cognitive development/decision making” (3.21 against 3.18), “organization and planning” (3.20 against 3.11), “self-confidence” (3.24 against 3.11), “diversity” (3.34 against 3.26) and “technology” (3.39 against 3.34). Again, however, none of these differences are statistically significant. Given that Kouzes and Posner (1995, 2009) suggest that leadership results from a set of observed practices which can be learned and improved, it is possible that, with age and experience, one might acquire higher levels of ability in these domains.

Finally, students who attend the urban school located in the capital of the island reported higher levels of competency in the following domains: “self-management” (3.17 against 3.11), “interpersonal relations” (3.14 against 3.11), “problem solving/decision making” (3.18 against 3.11), “organization and planning” (3.13 against 3.11), “diversity” (3.30 against 3.21) and “technology”. Despite these results, differences were not significant and identical results have been found by Foley (2005).

The results of this research affirm that both male and female students finish their secondary education studies with well developed and sustainable capabilities of leadership. In addition, the students attending the school in the rural area of Madeira

Island acquire the same degree of leadership abilities as students in the urban area. This fact can indicate a successful result for the intervention programmes the local government has been conducting for the last twelve years, in particular the *all day school* programme in primary education (1st cycle) which was initiated in the rural areas. This hypothesis will be analysed in future research studies.

The authors recommend that similar studies be conducted in other countries at the secondary level in order to evaluate the capacity of secondary schools in developing students' sustainable abilities of leadership necessary to prepare them for studies on the tertiary level or to enter the highly competitive job market.

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## TEACHERS' PERCEPTIONS ON WHAT INCLUSION NEEDS

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### Abstract

*A decade has passed since the equal right of all children to quality education regardless of their mental or physical abilities was declared by the Education Law (Izglītības likums, 1998). During that interlude, the Latvian educational system went through a period of tremendous change from total segregation of children with special needs in special schools to so-called “correction” classes in general schools, then to the special classes in general schools and finally to inclusion of special needs children in regular classrooms. Thus, the idea of inclusive education has been developed and implemented in various forms, which causes people to have a different understanding of what inclusive education means and impedes children with special needs from learning together with their peers in general classrooms. This article reflects on the findings of a qualitative study that was designed and conducted to investigate different perceptions of pre-school and primary school teachers on the preconditions for inclusive education.*

**Key words:** *inclusion of children with special needs, inclusive school, inclusive school culture*

### Introduction

The most significant international document on the rights of the people with special needs, the Salamanka Statement, argues that general schools with inclusive orientation are “...the most effective means of combating discriminatory attitudes, building an inclusive society and achieving education for all” (United Nations Educational, Scientific and Cultural Organization (UNESCO, 1994, p. 9). The unique nature of inclusive education, which is growing in importance from year to year, is that more and more countries mandate its incorporation into the general school practice. In 1998 Latvia passed the Education Law (Izglītības likums, 1998) which requires that disabled children be educated with their peers in regular classrooms. The issue of the rights and the ways to implement the inclusive education approach has been discussed at various conferences and meetings and has been the subject of research. Many plans have been worked out but still need to be implemented in everyday practice at the school and classroom levels. Unfortunately, very few Latvian researchers have worked in the field of inclusive education. Therefore, it is important to seek information based on international research.

### *What does international research tell about inclusive education?*

Research undertaken internationally over the past two decades has developed a clearer understanding of what inclusive schooling means and what factors enhance the effectiveness and sustainability of these schools. Numerous definitions are provided; however, one of these, which expresses the very essence of inclusive education, is stated by Mara Sapon-Shevin (UK), a professor of inclusive education:

*The vision of inclusion is that all children would be served in their neighbourhood schools in regular classrooms with children of their own age. The idea is that these schools would be restructured so that they are supportive, nurturing communities that really meet the needs of all the children within them: rich in resources and support for both students and teachers. (O'Neil, 1994, p. 7).*

Educational researchers have studied inclusive education through various perspectives: the systemic change (Ainscow & Haile-Giorgis, 1999), the forms of classroom practices and school organization (Ainscow, 1999) and teacher education (Ainscow, 1994; Carrington & Robinson, 2004; Frey & Fisher, 2004). Years of international research into inclusive education have led to the conclusion that school culture largely determines the inclusiveness or non-inclusiveness schools in a significant way. A large number of investigations focused on school culture as part of the organizational change process, which considers it as a necessary condition for sustainable change to progress (Deal, 1993; Deal & Peterson, 1994; Hargreaves, 1994; Harris, 2002; Hopkins, 2001; Sarason, 1996). Even more, Deal (1985) refers to organizational culture as “the epicentre of change” (p. 303). As Sarason (1996) states, school culture refers to the aspects of the school that are viewed by its personnel as ‘given’ or essential features, which they would defend against elimination or marked change. These beliefs are so much a part of a school setting that they are not given much thought and are difficult to express in words. They are simply “the way things are.” Perhaps, therefore, understanding and changing school culture is the most difficult aspect of systemic school change. An extensive body of research suggests three components that help explore and explain the school culture. These components are artefacts, beliefs and values and assumptions. Research on school culture indicates that the most essential categories that serve to describe organizational culture are values, beliefs, attitudes, ways of thinking, customs and rituals. Moreover, these categories are considered the main components of organisational culture (Schein, 1992; Senge, 1990). To summarise, international research suggests that school reform towards inclusive education demands more than inclusive education laws; it requires the rearranged environment of classrooms and school. It also calls for the reorientation of the whole school culture, especially for the change to be sustainable.

The author’s experience of working in different inclusive projects and meeting with teachers and educational administrators at different levels shows that the most often expressed assumptions about the obstacles to implementing inclusive education are the lack of political decisions and insufficient funding. Therefore, this study was commenced under two assumptions: 1) the national educational policy clearly directs school reform towards inclusive education; 2) despite two decades of discussions about inclusive education, the availability of international research literature and numerous innovative projects that put the idea of inclusive education into practice, the complaints

of teachers and administrators of not-inclusive schools remain essentially the same. These complaints are largely due to inadequate educational policy and insufficient financial resources. The aim of this study is to test these two assumptions.

## Methods

For the purpose of testing the initial assumptions, in this three years' study (2004–2006) the teachers' perceptions about the factors that influenced inclusion or non-inclusion of children with special needs in general schools or preschools were explored. The study involved collection and analysis of quantitative and qualitative data. Surveys and essays were used for data collection. For the purpose of validity, the method of randomly selected sample was used for the surveys. 303 in-service teachers and bachelor students of Daugavpils University were invited to respond to a survey: 49 teachers in the first year of the study in 2004; 123 teachers in the second year in 2005 and 124 in the third year of the study in 2006. The survey was not modified during the study in order to gather continuous data. It was structured in two parts. The first part of the survey consisted of questions aimed at collecting the background information about the participants of the study, such as *Do you work in an urban or rural school? Are you a pre-school or a primary class teacher? What instructional language do you have in your school – Latvian, Russian, other? Do you have children with special needs in your school/pre-school?* The options for answering the last question of this part of the survey were “yes”, “no”, “do not know”. Seven teachers' responses were discarded during the first screening since their answer to the last question of the first part of the survey was “do not know”. Thus, 296 surveys were analysed. The quantitative part of the survey indicates that all participants were early childhood teachers, both pre-school and primary teachers. In the first year of the study 30.6% were teachers from inclusive schools, in the second year – 64.2% and in the last year of the study – 56.5%. During the three years of the study, 72.3% of teachers represented inclusive schools, but 27.7% of participants were from schools, which did not have inclusive experiences. All respondents were female. Two largest cities and two regions of Latvia were represented: teachers from the capital city Riga and Daugavpils (68.3%), teachers from Riga region in the central part of the country and teachers from Latgale region in the Eastern part of the country (31.7%). Teachers from the cities mostly represented schools and pre-schools with Russian instructional language, whereas teachers from rural areas came mostly from schools and pre-schools with Latvian instructional language. It is also worth noting that economical situation in Riga and its region is better than in Latgale, which is the most deprived region of the country. Therefore, the schools' provision and maintenance might differ in the regions. Thus, the population of this study represents a broad spectrum of the schools and teachers of Latvia.

The second part of the survey included one open-ended question that was aimed to collect qualitative data on the teachers' perceptions about inclusive education, such as *What do you think, why your school has or has not accepted and implemented the inclusive education approach?* Teachers were not limited in terms of how detailed the answer may be. This strategy provided extensive qualitative data related to teachers' perceptions on the influential factors of inclusion.

The design of the essay was selected, proceeding from the need to examine deeper the perceptions that teachers hold regarding the features that underpin inclusive and

non-inclusive school practices. In 2006, the seven teachers who wrote essays “My Experience with Students with Disabilities” were part-time students of Daugavpils University, five of them worked in inclusive and two in non-inclusive schools. The teachers were instructed that, if they did not have such experience themselves, they could tell a story of their colleague or they might tell why they thought they had never had such students in their classrooms or schools.

Thus, the survey and the essays provided a rich qualitative material for further interpretation. Then, the challenge of the interpretation of qualitative data lied in grouping closely related characteristics into more general categories. Qualitative data analysis was partially based on the tactics suggested by Miles and Huberman (1994). For generating meaning from the collected data, in this study the following tactics were applied: clustering, counting and making comparisons. At the first stage of the qualitative data analysis, during the screening of the respondents’ answers to the last question of the survey and the essays, all wording used in the participants responses and related to inclusion was categorised into two primary clusters reflecting the perceptions of those teachers who had inclusive experience in their schools (Group A – 72.3% of survey participants) and those who had no such experience (Group B – 27.7% of survey participants). Then the extracts of teachers’ answers were counted in each primary cluster and grouped in six categories: state policy, tolerant society, school and classroom environment, staff relationships, professional characteristics of teachers and personal characteristics of teachers. For the final stage of analysis these six categories were grouped in three larger clusters: 1) external factors that influence inclusion; 2) internal factors at school and classroom level; 3) personal factors (Figure 1). The results of this stage are reflected in the next chapter of this article. The final chapter reports on the findings of the comparison between the results obtained by the qualitative data of this study and its initial assumptions.

## Results

The differences and similarities in the views of the two groups of teachers about why their school has or has not accepted and has or has not implemented the inclusive education approach are displayed in Figure 1 and described in this chapter.

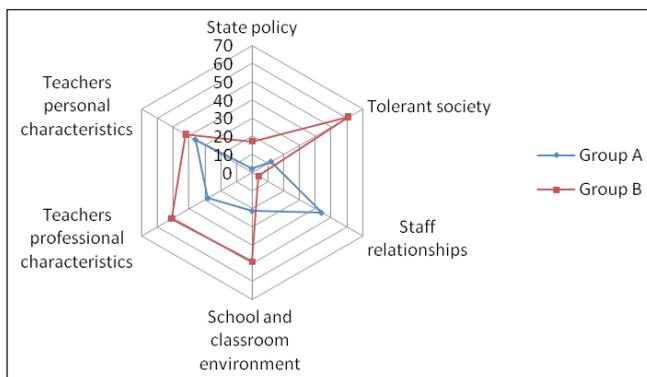


Figure 1. Number of responses on teachers’ views on the main factors influencing the implementation of inclusive education

### *External factors that influence inclusion*

**State policy.** Surprisingly little number of teachers of both groups, those who work in inclusive school (group A) and those who work in non-inclusive schools (group B), refer to the state educational policy: only 2% from group A and 17% from group B. To a certain extent, it could be explained by the fact that in the period of the study the Law of Education (1998) and a range of supporting documents were already in place. The tendency to stress the financial resourcefulness characterises group B:

*My proposal to our politicians is to increase salaries of those teachers who have disabled children in their classrooms. I consider that it would promote and fasten the inclusion process in Latvian pre-schools. My second proposal would be to finance all additional expenses from the state budget.*

Expectations regarding additional staff are expressed similarly by group A and group B teachers (48% and 49%). More significant differences are revealed in the expectations of the state curriculum for inclusive classrooms: 7% of group A and 23% of group B. It should be added that one of the most frequently mentioned reasons that group B teachers (72%) suggest to explain why there are no children with special needs in their school is the existence of a broad net of special schools and other institutions for disabled children in the neighbourhood:

*I work near A city in B civil parish. We do not have children with special needs in our school, and I think we will not have them because there are many special pre-schools, special schools and boarding schools and special children care centres in the city and in our region.*

**Tolerant society.** Tolerance towards inclusion in the society is considered by both groups, though the perspective on this factor differs. In most of their answers group B teachers (61%) point that "Latvian society is not yet ready to accept the disabled people as equals". A teacher tries to explain the reasons for this situation:

*To my mind, it is a very difficult and complicated process to change the old traditions. The old views from the soviet period still remain in the consciousness of most people – they pretend that we do not have such people at all."*

*"We do not have children with special needs in our school. Perhaps it is because their parents do not want it. We do not know whether we have such children in our town.*

There are less teachers of group A (12%) who mention intolerance of the society as one of the obstacles to inclusion. They try to notice the positive changes:

*There are few such people in our streets because they 'do not fit' in the society of those who are successful, healthy and handsome. But, little by little, we are forced to accept the reality – we do have such people and children in our society.*

Typically, the negative attitude towards inclusion from the side of the parents of normally developed children has been stressed by the teachers of group B (36%).

*We had (a child with special needs) last year. But other parents had a very negative attitude to him, because the child threatened the others. Speech therapist and director decided that parents need to be advised to take the child out. And the mother did.*

### *Internal factors at school and classroom level*

**School and classroom environment.** Adaptation of school and classroom environment to the specific needs of the disabled children is mentioned in a considerable number of responses. For many (49%) teachers of non-inclusive schools (group B) the problem is inappropriate classroom and school environment. They almost always include references to providing safe and specifically rearranged environment, which would encourage them to accept a disabled child in their classroom. One teacher argues:

*Not a single child with disabilities attends our pre-school. Though I am not sure that we do not have these children in our city. I just do not know anything about them. Our pre-schools and schools are simply not ready to accept these children, because all premises should be reconstructed and special equipment and special learning material should be provided.*

Another teacher states:

*A child in a wheelchair could not attend our pre-school, because we do not have a ramp. The older children's classrooms are on the second floor, but the toddlers' classrooms are on the first one. The canteen is in the other building. The child could not attend our school either, because they also have the same problems.*

**Staff relationships.** The attitudes and relationships between staff members are related to administrators, teachers and support personnel. Surprisingly high percentage of teachers of group B have emphasised the school directors' negative attitude towards inclusion – 35%.

*The director has the exclusive role to implement inclusive education. If she considers that it is good for the school, she will agree.*

Administrative support was often perceived as a preferential condition. Several teachers assume that once the administration has not “accepted” a disabled child in the school, “there is no way to further influence the administration’s decision”.

The importance of collegial relationships dominates in group A answers – 44%. A teacher recounts her experience:

*Of course we were shocked at the beginning (a child with Down syndrome was included). One teacher changed her work after half a year. She could not accept the child's oddity. But our assistant, very young, loved him. Soon the rest of us – teachers, director, kitchen workers and teachers of the next doors classroom – started to notice the love and the kindness of this child. He did not speak when he entered our pre-school, but in three months he started to speak. Everybody was happy when we noticed how much better he spoke – us, adults, and the children, too.*

*To tell the truth, it was very difficult at the beginning, but it was great later. It was due to the cooperation with my colleagues and our director. We speak, share information and support each other.*

When a school has adopted inclusive education approach and implemented it in its everyday practice, the teachers feel cooperation and learning from each other to be much more important than the teachers of non-inclusive schools. One participant (group A) concluded that “shared beliefs are important”.

### *Personal factors*

**Professional characteristics of the teachers.** “Teachers must know about the child’s disability”, “some special methods should be acquired”, “individual work is very important”, “play is what can help to start to communicate and to speak”, “you must observe the development of the disabled child very carefully”... In one sense, these examples may appear to represent too general abstractions. However, they demonstrate which professional characteristics are meaningful for the teachers. Interestingly, the greatest difference between the views of group A and B is about the role of observation: it was three times more strongly distinguished by the teachers of inclusive schools (group A – 47%, group B – 16%).

The relationship between inclusion and cooperation with parents is considered as consistently positive by both groups. Even more, most of the survey participants (42% from group A and 45% from group B) seem to grant that the teacher of inclusive classroom must cooperate with parents:

*We must cooperate; we cannot reach good results alone. I have spent hours in discussions with parents. (Parents of the child with special needs were quite shamed and suspicious at the beginning. Z. B.). But it was worth it. We all know and feel it.*

*Even if the parents are not interested and it is a family at risk, we should explain and help them to develop their child with special needs. We have more special pedagogical knowledge. But we must also listen to them. In my experience, I was very surprised when a father who drinks often told me so much about his son (The boy has Cerebral Palsy. Z. B.). Now we always talk with him when we meet.*

However, a notable number of surveys and life stories contain a lot of complaints about parents who “do not want, are not interested and refuse to cooperate”.

The profession demands that teachers need to ‘renew’ themselves periodically and get new perspectives for their work from educational theory or from different conferences and seminars. The need to improve their knowledge in the field of special education and inclusion is defined three times more frequently by the participants of group B – 64% (35% in group A). The very few objections against the necessity of the continuing professional development are based on the assumption that after “all life spent in this profession, there is enough practical knowledge and life wisdom” (2 participants).

**Personal characteristics of the teachers.** References to love and respect towards each child regardless of his or her abilities are often mentioned by group A and B (42%

and 78%). But the following explanations reveal that the teachers of group A understood these terms as more related to the child's achievements and development. They do not mention the words 'love' and 'respect' so much, but their love is more expressed by the context of their stories:

*I was so happy when M. graduated the first grade. He had learned so much during the year. It was not easy for him but he did.*

*I spoke with other children about N. I told them that he is like us, only he does everything slower. Soon the children started to notice and to tell me every little success they had noticed in N. It was a kind of competition among them later, who will tell me the good news first.*

*I know that I spent more time with D. But she does need my help. I hope she could become more independent, but not yet.*

A large number of teachers (62% of group A and 51% of group B) expressed an opinion that equal attitude to all children, responsibility, patience, endurance, responsiveness and generosity are necessary to work with the children with special needs. Similarly, the need for risk taking and responsibility were stressed.

It should be noted that though the study was limited to preschool and primary school teachers, its findings may also be applied to the other stages of education – basic and secondary schools.

## Conclusions

This study was started with two assumptions to test: 1) the national educational policy sets clear direction of school reforms towards inclusive education and 2) despite the two decades of educational reform towards inclusive education, the complaints of non-inclusive schools remain essentially the same – about the inadequate policy and insufficient financial resources. The results of the analysis of teachers' perceptions overthrow these initial assumptions. Contrary to the wide spread views in Latvian educational community that political and financial factors are the most influential for the change towards inclusive education, this study distinguished the issues of the human dimension in teachers' perception of their work for the change that has occurred or has been considered to occur when a school implements inclusive education approach. The study reveals that human and professional factors prevail considerably over the policy and financial resources factors. It is the first conclusion of this study that the problem with development of inclusive schools lays not so much in the lack of policy or financial and material resources. It rests more in something more fundamental: in the organizational culture of the schools in Latvia. This conclusion coincides with international research findings. It also matches some local research findings. Salite (2006) concludes on teachers' perceptions of the present and future education that "the teachers' hopes for the future education claimed for the need of more spiritual relationships, common aim of upbringing" (p. 407).

The second conclusion of this study is that while almost all teachers, those having or lacking inclusive education experience in their schools, place the teachers' professional and personal categories at the top of the preconditions for inclusive education (98% in total), they do not relate it to beliefs and values – the most essential component of

school culture. Actually, they do not mention the term 'culture' or the term 'climate', which would sound more used in Latvian context. Although, curiously, many of the statements are semantically close, for example, I am sure..., I believe..., I do think that.... This may be explained by insufficient attention to the issues of the school culture in pre-service and in-service training of teachers. While the study shows that the obstacles for the change towards inclusive education are less connected with external factors, it suggests: 1) that the change is much more difficult; 2) that there is much more risk of it being unsustainable. Consequently, the current reform efforts require considerably greater emphasis on school culture. To address this need, the issues of school culture should be more thoroughly investigated and reflected in pre-service and in-service teacher education.

This study only partly reflects what teachers value as important factors in implementing inclusive education. There may be many other factors that influence the development and sustainability of inclusive school culture. However, this study revealed that effective and sustainable change to inclusive education requires reorientation from solely external and knowledge-based factors to the cultural factors in our efforts to build inclusive schools. The research area, which should be considered in future studies, is how to build the understanding of inclusive school culture and how to implement and sustain changes related to inclusive education.

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## SOCIAL EXCLUSION IN EDUCATION: PRE-SERVICE TEACHERS' PERSPECTIVE

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### Abstract

*This study explores pre-service teachers' views on the features and causes of social exclusion in the context of educational unsustainability. The data from expert questionnaires, assessment of research participants' personal experience with social exclusion in educational setting, their current understanding of the problem and individual suggestions for solving it were analysed qualitatively. The results indicate that, in teachers' opinion, social exclusion in education can be caused by subjective and objective factors – pupils' personal characteristics, school climate, parental influence and social causes. The research participants particularly emphasise teacher's role in reducing pupils' social exclusion by adhering to values, such as fairness, equality, empathy, cooperation and respect. The research results highlight the need for addressing the issue of social exclusion in teacher education programmes by raising future teachers' awareness of the problem and their responsibility to overcome it.*

*Key words: social exclusion, educational unsustainability, pre-service teachers, teacher education*

### Introduction

Year 2010 has been declared the European Year for Combating Poverty and Social Exclusion. Scientific circles and broader society begin to realise the gravity of these problems and the necessity to seek possible solutions. At the same time, discussions about the essence and causes of social exclusion are still topical. Interpretations of this problem can vary, thus producing different accents and directions for solving it.

Several studies closely relate the notion of social exclusion to the issues of poverty. Estivill (2003) metaphorically interprets poverty as a photo, but social exclusion as a film, emphasising its procedural nature. Researchers argue that social exclusion is a set of factors and processes (Arthurson & Jacobs, 2004) through which individuals or groups are fully or partially closed out from participation in their local communities due to low income, limited access to employment, social benefits and services and various other aspects of social and cultural life (Kammerman, 2001). It is a process when imaginary or real characteristics hamper a person's or group's participation in social situations

(Williams, Wesselmann, & Chen, 2007); a process or model of relations when persons are forbidden participation, solidarity and access to social processes – consumption, production, political engagement and social interaction (Hobcraft, 2007). Social exclusion is, thus, concerned with a specific form of relationships among people and groups and is manifested as inability to participate in social processes, as well as a lack of access to social goods and services, which can be caused by a series of objective or subjective factors.

In some studies, social exclusion is viewed through the prism of a horizontal spatial metaphor (not a vertical model of inequality). Namely, to be socially excluded means to be ‘inside’ or ‘outside’ the mainstream society, not ‘above’ or ‘below’ in the hierarchy of income distribution (Todman, 2004; Daly, 2006; Béland, 2007). Social exclusion is therefore closely related to the notions of belonging, membership and participation, and to be excluded means to be on the margins of the society, devoid of the opportunity to feel and act as a rightful part of it.

Some researchers believe that social exclusion is not a real phenomenon and does not describe a concrete problem. Instead, it is regarded as a theoretical concept or specific outlook – a lens through which we can perceive the reality and society (de Haan, 1999, 2000). As Saraceno (2001) puts it, social exclusion is a paradigm, on the grounds of which society becomes aware of its dysfunction. At the same time, some authors argue that social exclusion is not merely a theoretical concept that characterises a series of social and economic problems, but also a powerful socio-political discourse (Kamerman, 2001; Saraceno, 2001; Béland, 2007).

Arthurson & Jacobs (2004) admit that the concept of social exclusion is exceedingly wide, that is why almost everyone or everything can be regarded as socially excluded. Béland (2007) agrees that the notion of social exclusion can have various meanings. The authors of this paper tend to share the opinion of those researchers who underscore that no universal definition of social exclusion exists and that interpretations of this phenomenon can vary considerably (Micklewright, 2002; Todman, 2004). Such a lack of a unified perspective, however, can pose serious challenges. If there is no clear understanding as to what exactly social exclusion is and what it comprises, seeking and implementing solutions to this problem will be delayed or only part of the total problem will be addressed, ignoring its other aspects. Thus, studying the essence of social exclusion still remains topical.

Depending on the type of perspective, the researchers highlight different features of social exclusion (Figure 1). As seen in Figure 1, social exclusion is a multidimensional phenomenon that encompasses the diverse aspects of human life through its economic, political, social, cultural and moral dimensions (Arthurson & Jacobs, 2004). Consequently, social exclusion is an accumulative process which can be the result of various causes that are mutually interactive and influential – either intensify or lessen each other. Social exclusion is also a dynamic process – a progression or trajectory where one problem leads to another just as past leads to present and future (for example, if a child is excluded from education, he or she is potentially excluded from opportunities to get fully included in the labour market in the future). Social exclusion can be characterised as a relative and contextual phenomenon where specific circumstances play a crucial role – a socially excluded person or group, for example, can find themselves in less advantageous conditions as compared to another person or group and lack opportunities for participation and involvement. Therefore, social exclusion is also a

relational process that is concerned with a certain distance or a kind of isolation when particular persons or groups are rejected, prohibited social support and/or denied opportunities to become included in the community. It can be concluded that social exclusion is a complex phenomenon, inextricably bound with person's life activity in social and natural systems.

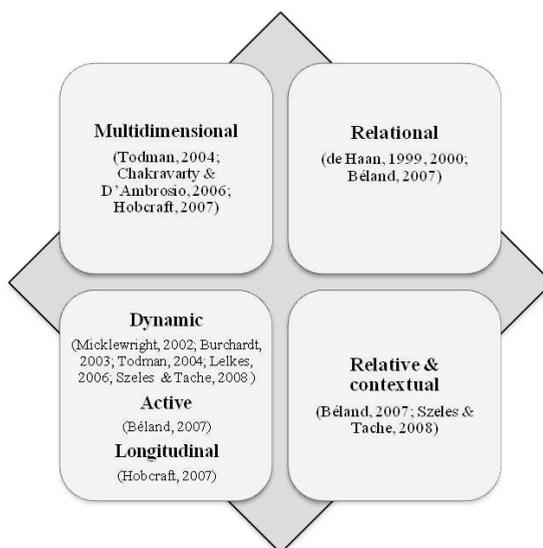


Figure 1. Features of social exclusion

What causes social exclusion? Different studies underscore different causes of social exclusion, which are summarised in Table 1.

Table 1. Causes of social exclusion

<b>Socioeconomic causes</b>	
– Unemployment and lack of employment opportunities	<i>Kamerman, 2001; Saraceno, 2001; Arthurson &amp; Jacobs, 2004; Béland, 2007</i>
– Poverty and continuously low income	<i>Kamerman, 2001; Arthurson &amp; Jacobs, 2004; Béland, 2007; Hobcraft, 2007</i>
– Health problems (invalidity, disability, mental disease) and a lack of access to medical facilities	<i>Kamerman, 2001; Arthurson &amp; Jacobs, 2004; Béland, 2007</i>
– Living environment (inadequate place of residence, impoverished physical and social environment)	<i>Arthurson &amp; Jacobs, 2004</i>

*Sequel to Table 1 see on p. 88.*

Sequel to Table 1.

<b>Legal causes</b>	
– Discrimination and unrealised rights	<i>Todman, 2004; Béland, 2007</i>
– Lack of social and legal rights	<i>Saraceno, 2001</i>
<b>Changes on the macro level</b>	
– Mass migration	<i>Saraceno, 2001</i>
– Mass deindustrialisation	<i>Saraceno, 2001</i>
<b>Institutional and structural causes</b>	
– Changes in the labour market	<i>Todman, 2004; Levitas et al., 2007</i>
– Extension of knowledge society	<i>Todman, 2004</i>
– Globalisation	<i>Todman, 2004</i>
– Socio-demographic changes	<i>Todman, 2004; Levitas et al., 2007</i>
– Territorialism and geographic prejudices	<i>Todman, 2004</i>
– Failures of socioeconomic policies	<i>Todman, 2004; Levitas et al., 2007</i>
<b>Individual causes of self-exclusion</b>	
– Lack of information or experience	<i>Le Grand, 2003</i>
– Myopia (acting without considering long-term results)	<i>Le Grand, 2003</i>
– Antisocial and self-destructive behaviour, morale and values of the excluded individuals	<i>Le Grand, 2003</i>
– Individuals'/groups' special experience of (self-) exclusion	<i>Saraceno, 2001</i>
– Lack of the sense of belonging and loyalty	<i>Saraceno, 2001</i>
<b>Specific causes of children's exclusion</b>	
– Child's exclusion as a result of the activity of parents, school, employers, government, or children's activity towards themselves and other children	<i>Micklewright, 2002</i>
– Dim future prospects	<i>Micklewright, 2002</i>

As seen from Table 1, social exclusion can have various causes, many of which can affect people already in childhood or youth, int. al. in educational contexts. Education is one of the basic human rights and a precondition for successful socialisation and life activity. One of the contemporary tendencies in education is its reorientation to address sustainability (UNESCO, 2005), which envisages promoting persons' responsibility before themselves and every member of the community, as well as before nature and the world at large, awareness of this responsibility and consequent ethical and moral choices and actions (Jämsä, 2006). Conversely, unsustainability in education is understood as orientation towards consumerist mechanisms by dividing people in winners' and losers' and as a focus on a false and narrow economic and social development which is not directed towards humane, spiritual, ethical and relational peculiarities and values (Jämsä, 2006; Mandolini, 2007). Therefore, it is imperative that the process of education for children and youth be implemented in accordance with the core ideas of

sustainability. Obviously, social exclusion ought to be decreased or even totally eliminated in education, because it hampers not only pupils' learning and participation in the social and academic life of the school, but also undermines their future prospects and opportunities for a full-fledged involvement and participation in the labour market, social and civic processes. Teacher education programmes hold great potential for reaching this aim, since they strongly influence and, to a great extent, form teachers' views and attitudes, and it is the latter that play the crucial role in maintaining teachers' activity in the contexts of sustainability and social inclusion (Silverman, 2007; Salite, 2008).

## Research design and methods

This paper attempts to establish what features can be identified in pre-service teachers' reflections about their experiences related to the manifestations and causes of social exclusion in the context of educational unsustainability. The issue of educational unsustainability was brought forth during the action research based study course *Education for Sustainable Development*. 24 first year female students of pre-school and basic school teacher education programmes and one male student participated in the study.

In order to answer the research question, the study was structured deductively in four stages (Figure 2).

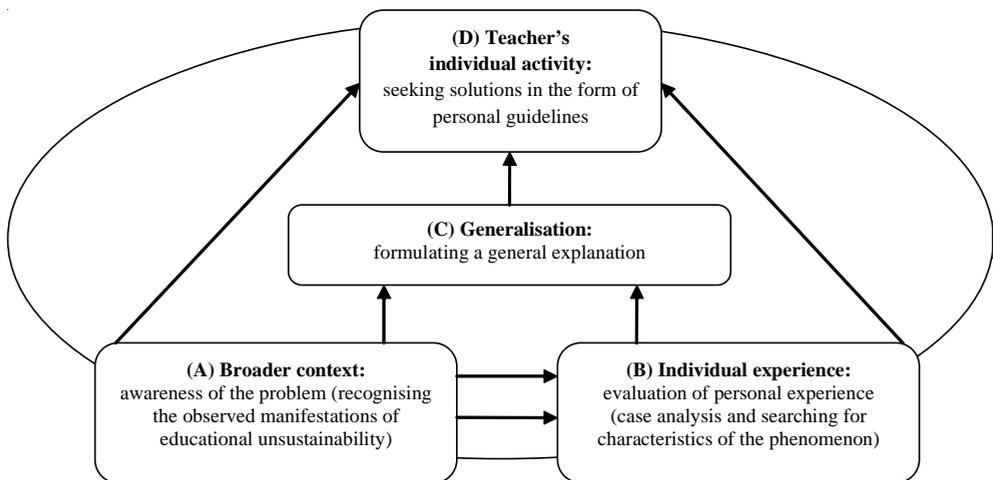


Figure 2. Research structure and stages

Data were gathered in written form during practical classes which were organised and conducted as workshops. The research participants were engaged in reflective activities both individually and in small groups or pairs. During the first research stage (A), the research participants ( $n=25$ ) were asked to individually formulate 10 manifestations of unsustainability that they had observed in contemporary educational milieu in Latvia and evaluate them by using the expert questionnaire method, i.e. determine the significance of each item with respect to each of the other items. During the second stage (B), the research participants individually evaluated their personal experience with social exclusion (things felt, observed, read and heard) on the grounds

of their individual views that are partly subjective, but authentic to their personal experience. The research participants formulated three features of social exclusion in education, proceeded by evaluating them in small groups or pairs in the context of various experiences and selected the most significant features. During the third stage (C), the research participants continued to work in groups and formulated their views about the issue of social exclusion in education on the grounds of the ideas triggered and conclusions made at the previous research stages. During the fourth research stage (D), the research participants individually sought possible ways for reducing social exclusion in education on the level of teacher’s individual activity i.e. formulated action guidelines that they would follow in order to reduce social exclusion in their classroom(s).

### Research results

#### (A) Social exclusion as a feature of educational unsustainability

The first research stage permitted to identify the features of social exclusion from the perspective of pre-service teachers. The data obtained via expert questionnaires indicate that, when examining the unsustainability of contemporary education, pre-service teachers mention several processes and phenomena related to social exclusion. Five sources can be recognised for social exclusion and its causes (Figure 3): individual pupil’s level, teacher’s level (int. al. teacher–pupil relations), classroom/school environment level, parents’ level (int. al. parent–child relations) and the broader social level (objective factors).

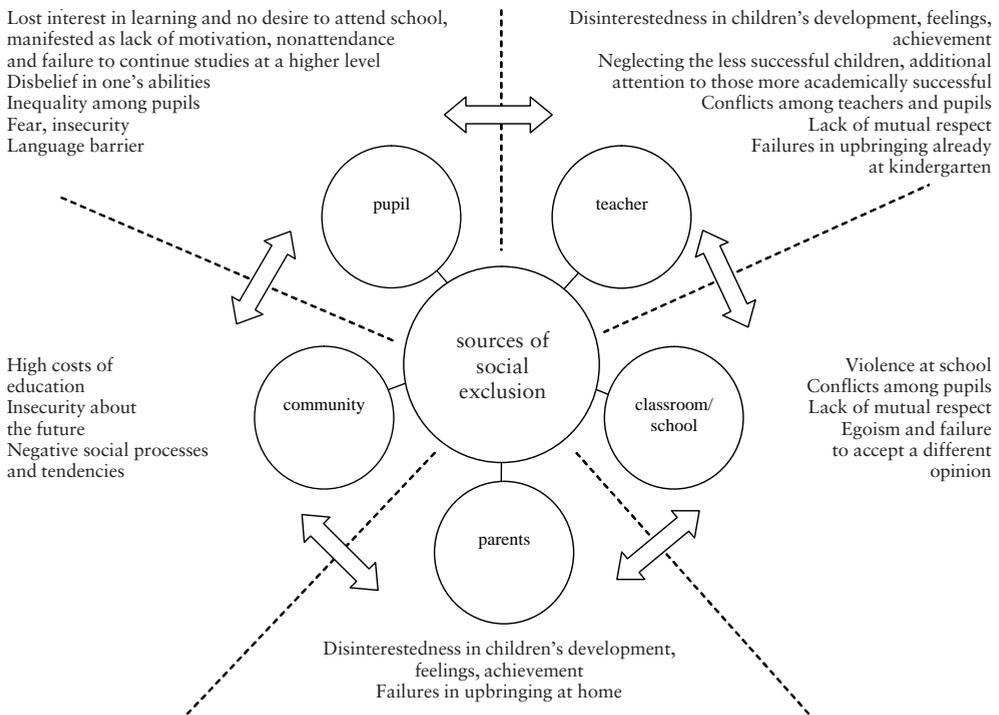


Figure 3. Unsustainability in education: the sources and features of social exclusion from the perspective of pre-service teachers (n=25)

One of the main features of social exclusion, in pre-service teachers' opinion, is pupils' disbelief in their powers and abilities, which is increased by teachers' and parents' disinterestedness in pupils' development, feelings and academic achievement. The research participants believe that pupils' exclusion is the result of inequality among them and the fact that teachers often tend to neglect academically less successful children and pay more attention to the more successful ones. Consequently, many children become disinterested in their learning and lose the desire to attend school, which results in lack of motivation for learning, nonattendance and failing to continue studies at a higher level (secondary and higher education). In the pre-service teachers' opinion, the latter tendency may also be caused by the costliness of education. The research participants admit that social exclusion in education is characterised by children's fear i.e. lack of security, int. al. security about the future. The students also mention such factors that increase social exclusion as violence at school, conflicts between pupils and teachers and among pupils, a lack of mutual respect, language barrier, egoism and inability to accept a different point of view. Pre-service teachers recognize that these problems can be the result of upbringing at an early stage (at home or kindergarten), as well as may proceed from the unsustainable social processes and tendencies in a contemporary society. It is possible to conclude that the research participants are aware of the mutual inter-relatedness of various processes and phenomena in school, family and community contexts, which cause social exclusion in education, and relate them to the manifestations of educational unsustainability.

### *(B) Individual experience: Evaluation of personal experiences with social exclusion*

The second research stage permitted to obtain evaluation of pre-service teachers' personal experiences in the context of social exclusion. When characterising their individual experiences with social exclusion in education, the research participants emphasised that in every class and school there are children who, for one reason or another, are excluded. Among the major factors that cause social exclusion the research participants mention visual appearance and behaviour, poverty and low material status, academic achievement (in this case research participants argue that both high and low achievers may become excluded in the classroom), health or lack thereof (disability, special needs), religion, gender or family problems. In pre-service teachers' opinion, these factors may lead to inequality and discrimination, which they perceive as both causes and manifestations of social exclusion. The research participants also underscore the teacher's role in the context of social exclusion and argue that it is often the result of teacher's indifference and disinterestedness, conflicts with pupils, disrespect towards pupils and vice versa, comparing pupils, disbelief in their abilities, paying excessive attention to the more successful and active ones and neglecting the silent ones and those with learning difficulties.

When characterising a socially excluded pupil (Figure 4), pre-service teachers admit that such children are often reserved and self-contained and fail to become included in the class. Socially excluded pupils are shy, lack self-confidence, attend school unwillingly because they feel lonely and have few or no friends. Such children are often humiliated, ridiculed and afraid to express their opinions for fear of being criticised, laughed at and rejected. They have poor communication skills, low self-esteem and often fail to establish a good rapport with their peers.

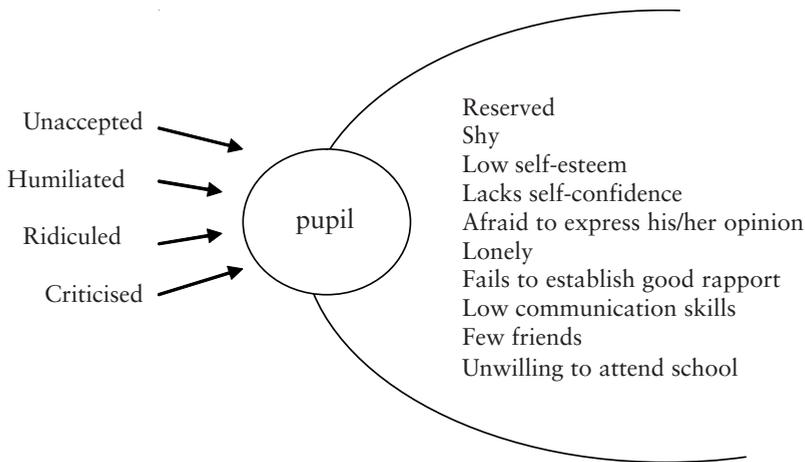


Figure 4. A socially excluded pupil from the perspective of pre-service teachers (n=25)

Summarising the results of this research stage that dealt with research participants' individual experiences with social exclusion, it becomes possible to conclude that pre-service teachers relate the causes of social exclusion to pupils' individual characteristics, family influence and teacher's and peers' activity. The research participants recognise that socially excluded pupils have difficulties to participate in the academic and social life of the classroom and particularly emphasise the psychological problems that such children tend to encounter.

### *(C) Generalisation: Formulating a general explanation*

The third research stage permitted to obtain a generalised formulation of social exclusion in education from the research participants' working in small groups. The findings indicate that the pre-service teachers understanding of social exclusion comprises the causes, manifestations, influence factors and results of this problem. The research participants recognise such main causes of social exclusion in education as material inequality and different-level academic achievement. In pre-service teachers' opinion, social exclusion in education is manifested as racism and discrimination on the grounds of person's religion, gender or visual appearance. The students note that social exclusion generates conflicts and misunderstandings among people, when they do not realise that they are hurting others. The research participants emphasise that social exclusion is manifested as both intentional (conscious) and unintentional (unconscious) action and behaviour. Social exclusion precludes empathy, helpfulness, cooperation; those who are weaker or different are rejected, ridiculed, humiliated, unaccepted, which leads to instances when such children lose their self-esteem, are afraid to express their opinion and avoid participation in classroom processes. The research participants particularly underscore the teacher's and parents' role in provoking children's social exclusion. The students believe that the major factor is parents' indifference towards their children's academic progress and behaviour and the fact that teachers tend to divide children into winners' and losers' under the influence of pupils' social background or other people's opinions. In general, pre-service teachers

ascertain that social exclusion not only hampers children's academic and social development, but also reduces the quality of education, prevents its development and degrades the society. Therefore they underscore the teacher's responsibility and mission in preventing social exclusion both at the pre-school and school levels.

*(D) Teacher's individual activity: Seeking solutions in the form of personal guidelines*

The results of this research stage reflect pre-service teachers' aims and practical intentions for reducing and preventing social exclusion in their future pedagogical activity at school. The research participants state that, when working and interacting with their pupils, they will try to avoid being violent or aggressive and will attempt to prevent or adequately solve conflicts among pupils. Pre-service teachers' resolutions testify their intention to preclude discrimination in their teaching and upbringing work, avoid stigmatising children according to their social status, previous grades and academic achievement, not to compare their children with one another, not to humiliate them, treat them so that they would feel equal, but resort to individual approach when such becomes necessary. The students admit that in their future pedagogic activity they will attempt to prevent children's fear and make them feel confident by praising their successes, listening to their opinions and try to avoid displaying indifference towards their feelings, needs, interrelations and emotional experiences. Pre-service teachers realise how important it is to try to make pupils feel safe at school, stress each individual's contribution and value diversity in the classroom, involve everyone, not to reject anyone, stimulate cooperation and mutual respect. Thus, it is possible to conclude that the research participants, already as pre-service teachers, have started to be aware of their responsibility and role in reducing social exclusion at school. It is therefore important to strengthen these good intentions in teacher education programmes, by enabling students to broaden respective attitudes and values, as well as acquire practical abilities and skills, so that future teachers not only desire, but also be practically capable to ensure the inclusion of all their pupils in the social and academic life at school.

## **Discussion**

The findings presented in this paper can be compared to the results of a broader international study conducted in 2006 within a project Teacher Education for the Future (Conner & Greene, 2006). Its aims were to qualitatively research pre-service and in-service teachers' vision of the aim of education, teacher's role and educational challenges in the present days and in future in Fiji, Korea, the USA and Latvia. The study determined that some of the main aims of education are the holistic development of pupils, int. al. social, emotional, physical spiritual and intellectual one, emphasis on promoting cooperation and values for a better society, as well as sensitivity towards beliefs and values of others (Greene, Thorpe, Kim, & Hilligoss, 2006; Salite, 2006; Tuinamua, Burnett, Dorovolmo, & Koya-Vaka'uta, 2006; Yoon, 2006). Some of the most important research findings from Fiji, the USA and Latvia about the aim of education are the following:

- Fiji – going beyond a vision of schools as suppliers of human resources for the local and global labour market and striving for a better society by creating changes in attitudes and beliefs (Tuinamuana, Burnett, Dorovolmo, & Koya-Vaka'uta, 2006);
- USA – promoting students' growth as respectful individuals, capable of empathising with other representatives of the society, fostering a sense of belonging and awareness of one's self-worth in the learning community (Greene, Thorpe, Kim, & Hilligoss, 2006);
- Latvia – teachers' concern with the problem of alienation in education and attempts to reduce it through emphasis on cooperation and general human values as some of the main aims of education (Salīte, 2006).

These findings partly correspond to the idea actualised in the present study – future teachers' awareness of the effect that their and their pupils' views and attitudes, which are manifested in action, have on reducing or increasing social exclusion in the educational setting. In the present study it has been established that pre-service teachers consider respect and sensitivity towards the feelings and differences of others necessary to prevent social exclusion of pupils, make them see themselves as a valued and accepted part of the classroom and school community. It means that teachers in Latvia continue to feel the need to realise a more inclusive approach to education – one that would be based on overcoming estrangement, nurturing values and more spiritual relationships among those involved in the process of education.

The role of teachers and teacher education was actualised in the *Teacher Education for the Future* project research:

- Fiji – teachers should assume a more caring' and humanistic role in relations with their pupils, adding a spiritual and moral focus to teacher education programmes. Teacher's task is to provide not only for the child's academic, but also social development, enabling him/her to fit into the community, learn to appreciate others and their differences in values, opinions and culture (Tuinamuana, Burnett, Dorovolmo, & Koya-Vaka'uta, 2006).
- Korea – teacher's task is to help students recognise respect for human life and consideration for others, establish an open, accepting classroom climate, be understanding and helpful towards their pupils (Yoon, 2006).
- Latvia – the need to promote spiritual relationships, including a vision of education in a wider ecological context (Salīte, 2006) and foster a deeper insight in the environment, sustainable development and social needs (Kravale, 2006), while admitting that currently educational process does not have a sufficient social orientation and is focused on anthropocentric and individualised values and environment (Stakle, 2006).

These ideas are mirrored in the opinions of the participants of the present study who, when contemplating their future pedagogical activity aimed at reducing social exclusion, express their intention to value diversity, promote everyone's involvement and be sensitive towards their pupils' feelings, needs, social interactions and emotional experiences. The pre-service teachers who participated in the present study also relate the issue of social exclusion to the manifestations of unsustainability in education, and their personal guidelines reflect the tendency to orient their future pedagogical activity towards a more sustainable and inclusive approach.

## Conclusions

The results of the present study reveal several tendencies in pre-service teachers' reflections about their experiences related to the features and causes of social exclusion in the context of educational unsustainability. The results of stage (A) indicate that the research participants relate social exclusion to the manifestations of unsustainability in education. The following features of social exclusion in education can be identified in the research participants' reflections on this issue:

- lack of such humane and ethical values as compassion, mutual respect and supportiveness;
- dividing pupils into more and less successful ones, into 'winners' and 'losers';
- decrease in pupils' motivation and interest in learning and participation in the social life of the school;
- emergence of personal barriers, fear, reserve and loss of self-confidence.

These features of social exclusion were detected by research participants not only on the level of an individual pupil, but also on the teacher's, parents', classroom and the broader community levels. The pre-service teachers recognise the interrelatedness and interaction of the various factors that provoke social exclusion in education, when one problem leads to another and causes a series of side effects that can result in further complications.

The results of stage (B) reveal that the main causes of social exclusion in education, which were identified in research participants' experience, are:

- inequality and discrimination as a result of unappreciated diversity;
- pupils' individual characteristics (physical appearance, gender, behaviour, academic achievement, health issues, religion);
- social causes (low material status);
- family influence and actions of teachers and peers.

Similarly as in stage (A), the pre-service teachers emphasise internal and external barriers and problems that prevent socially excluded pupils from inclusion and involvement in the social and academic life of the classroom. Besides, at this stage the research participants particularly underscore the teacher's role in reducing or provoking social exclusion of pupils. The research participants, as future pedagogues, realise that the teacher's attitude and actions directly determine whether the pupils will be and feel excluded or included in the classroom, as confirmed by several other studies (Bricker, 2000; Silverman, 2007; Pijl & Frissen, 2009).

Generalisation of the research participants' experience in stage (C) reveals that the preservice teachers consider material inequality and pupils' diverse academic achievement as the main causes of social exclusion in education. They provoke conflicts and discriminatory attitudes and actions both from the part of the teacher and peers. The research findings permit to conclude that pre-service teachers interpret social exclusion as a dynamic and multidimensional relational process, which mirrors the interpretations of this issue presented in theoretical studies (Béland, 2007, Hobcraft, 2007). Similarly as in stages (A) and (B), the research results reveal research participants' persuasion about the teacher's mission and responsibility to eliminate social exclusion in education.

The results from stage (D), which reflect the research participants' personal action guidelines for future teaching work, permit to conclude that pre-service teachers realise the necessity to attempt to reduce not only the manifestations of social exclusion, but

also its causes and influence factors. The research participants declare their resolution not to allow violence and discrimination, to treat all pupils with justice and equality, but resort to individual approach when necessary. Action guidelines of future teachers are grounded in the understanding of the value of diversity and embody such other core values as mutual respect, cooperation and empathy.

Consequently, the results of the present study confirm the need to address the issue of social exclusion in teacher education programmes by raising future teachers' awareness of the problem and their responsibility to overcome it. Teacher education should address not only cognitive, but also affective dimensions – beliefs, attitudes, feelings and values related to teaching and learning, since they determine the teacher's professional activity and his/her influence on the pupils (Conner & Greene, 2006) and can either lower or increase the level of social exclusion in the classroom. In future studies, it would be expedient to explore which other values and attitudes teachers consider important for reducing social exclusion in education. Moreover, it would be advisable to test whether the tendencies that were revealed in the views about social exclusion of the pre-service teachers who participated in the present study are identifiable in other pre-service teacher groups and how they differ from in-service teachers' perception of this problem in education.

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