

Environmental education in Kosovo: current state and future developments

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1 General introduction

This thesis is concerned with the current situation and future developments of environmental education in Kosovo. The Republic of Kosovo is the newest country in Europe, located in the middle of South-Eastern Europe. It declared its independence on 17 February 2008, after nearly ten years of United Nations (UN) administration. The Republic of Kosovo is located in the centre of the Balkan and landlocked by Macedonia, Albania, Serbia and Montenegro (Figure 1.1). The country is characterized by a young multi-ethnic society with approximately half of the population under the age of 25 years. In stark contrast to countries such as Germany, less than 7% of the population is older than 65 years (CIA, 2012).

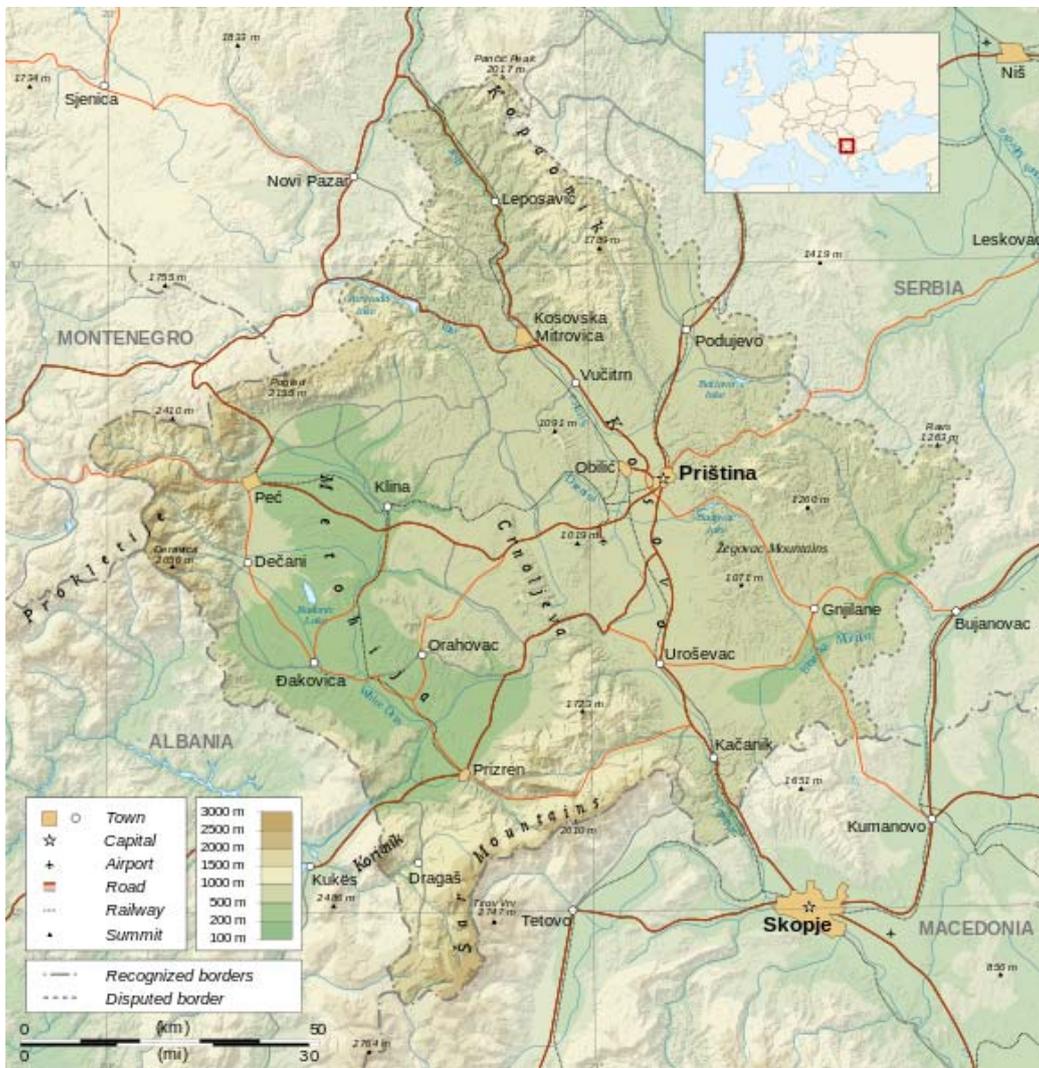


Figure 1.1: Location of Kosovo in the Balkan.
http://en.wikipedia.org/wiki/File:Kosovo_map-en.svg

In 2012, about two million people were living in Kosovo on an area of 10,887 km², i.e. 200 persons per km² (CIA, 2012). However, because only 50% of the land area is suitable for settlement, the actual population density amounts to 400 persons per km² (Pushka & Isufi, 2006). Over the past few years Kosovo's economy has shown significant progress in transitioning to a market-based system and maintaining macroeconomic stability. However, Kosovo's citizens are still the poorest in Europe with an average annual per capita income of only US\$ 6,500 (CIA, 2012). In 2010, approximately 30% of the inhabitants of Kosovo lived in general poverty (CIA, 2012).

Unemployment, around 45%, is a significant problem that encourages outward migration. Women are more affected by unemployment than men (UNDP, 2004) and more worried about it (Lindemann-Matthies & Hyseni, 2009). In 2007, the female unemployment rate in Kosovo was about 61%, whereas the male one was only about 36% (Krause & Kalludra, 2007). The high population density in combination with an annual population growth rate of 2.6%, but also the poor economic situation, accounts for severe ecological problems in Kosovo.

1.1 The environmental situation in Kosovo

Ecological problems in Kosovo have accumulated over decades as a consequence of the uncontrolled use of natural and mineral resources, a growing industrial production with a high level of pollution, and a lack of appropriate policies, laws, and institutions which could treat and solve the problems (KEAP, 2006). As a result, the environment in Kosovo has been degraded, and severe negative impacts on the health of the population have already occurred (Frese et al., 2004; Young & Tahirukaj, 2009; Zeneli et al., 2011). Industrial pollution from heavy metal smelting activities is a main threat to the health of people in Kosovo (Young & Tahirukaj, 2009), but there are also other sources of air, surface- and groundwater as well as soil pollution. At least 98% of electricity is produced by lignite coal, and the dust emissions from power plants near Prishtina, for instance, are 74-times higher than European environmental standards would allow (UNDP, 2010). Air pollution in Kosovo not only originates from power plants, but also from cars that are run with low quality gasoline and often do not have catalytic converters (Frese et al., 2004). With regard to water, drinking water resources are

dwindling, and access to safe drinking water is among the lowest in Europe (REC, 2000). The main watercourses in Kosovo get contaminated with organic waste as there is no working sewage or wastewater treatment facility, and rivers are used as sinks for industries (Frese et al., 2004). Other important issues are household garbage that is not correctly disposed of and deforestation (KBA, 2003). Studies from Hungary, Romania and FYR Macedonia came to similar results. In all three countries, air, water and soil pollution as well as waste problems are regarded as the main national environmental threats (Lang, 2000).

One major environmental problem both in Kosovo and elsewhere is the loss of biodiversity (KBA, 2003; MEA, 2005; Mehmeti et al., 2009). Biodiversity means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (article 2 of the Convention on Biological Diversity, 1992). Sand and gravel mining as well as industrial and domestic waste pollution have drastically reduced the diversity and number of fish in rivers in Kosovo (KBA, 2003). Moreover, agricultural intensification has led to a severe decline in plant species richness (Mehmeti et al., 2009). Deforestation is also a major cause for biodiversity loss in Kosovo (Zeqir et al., 2012). Kosovo's plains were once covered by oak-dominated forests, but have been almost entirely cleared for agriculture and, particularly since the 1960s, seriously degraded through firewood harvesting and grazing (KBA, 2003). Due to a lack of appropriate law enforcement, people in Kosovo still harvest firewood for cooking and heating. Recent studies thus emphasize the implementation of a country-wide household energy efficiency program including investments in more efficient wood stoves (Bowen et al., 2009).

Projections suggest that approximately 10% of all plant and animal species in Kosovo will become extinct in the near future if no actions are undertaken to preserve them (Mustafa & Hoxha, 2004). However, reliable baseline data on species richness in Kosovo are lacking (KBA, 2003). To date, no comprehensive surveys have been carried out to systematically investigate the flora and fauna of Kosovo, and red data lists – although required - do not exist (KEAP, 2006; Zeqir et al., 2012). It has been estimated that Kosovo contains approximately 20% of the Balkan's biodiversity, while it covers

only 2.3% of its area (Mustafa & Hoxha, 2004). About 1,800 vascular plant species, 46 mammal, and 255 bird species have so far been inventoried, whereas lower plants, including mosses, fungi, lichens, and algae, other groups of vertebrates and invertebrates have not yet been systematically studied (KEAP, 2006). Thirteen plant species are considered to be endemic, among them the endangered Albanian Forsythia (*Forsythia europaea*), whereas endemic animal species are not inventoried yet (KBA, 2003). Examples for endangered plant species are Macedonian Oak (*Quercus trojana*), Macedonian Pine (*Pinus peuce*), Bosnian Pine (*Pinus heldreichii*), and Great Yellow Gentian (*Gentiana lutea*) (Mustafa & Hoxha, 2004). Examples for endangered animal species are Wild Cat (*Felis sylvestris*), Brown Bear (*Ursus arctos*), Eurasian Lynx (*Lynx lynx*), and Griffon Vulture (*Gyps fulvus*) (KBA, 2003).

There is deep concern that the loss of biodiversity and deteriorating ecosystem services contribute to worsening human health, higher food insecurity, increasing vulnerability of ecosystems to natural disasters, lower material wealth, worsening social relations by damage to ecosystems highly valued for their aesthetic, recreational, or spiritual values, and less freedom for individuals to control what happens and to achieve what they value (MEA, 2005). Measures against the loss of biodiversity are thus urgently needed. Until 2008, 168 parties have signed the 'Convention on Biological Diversity', an international treaty to sustain the diversity of life on Earth. Without official status as a country, Kosovo cannot sign the convention. However, strategies on how to sustain biodiversity in Kosovo have been drafted, but are hardly implemented yet (KEAP, 2006; Zeqir et al., 2012). Measures to conserve biodiversity in Kosovo are almost completely restricted to setting aside protected areas (KBA, 2003). Until 2004, about 46,000 ha of Kosovo have been legally protected (Mustafa & Hoxha, 2004). Among these protected areas are one national park (Sharr/Sara Mountains National Park), eleven wildlife sanctuaries, 37 natural monuments, and two protected landscapes (KBA, 2003). Setting aside protected areas has been regarded as an important strategy to conserve biodiversity (MEA, 2005). However, biodiversity conservation requires a combination of strategies, including the protection of endangered species, the promotion and protection of ecological reserves, the control of destructive human actions, the control of non-native species, ecosystem restoration, captive breeding, but also public information and education (Jacobson & McDuff, 1998; Trombulak et al., 2004).

1.2 People's perception and knowledge of environmental issues in Kosovo

Although environmental degradation in Kosovo is alarming, the public's knowledge about environmental issues has been found to be rather limited (Lindemann-Matthies & Hyseni, 2009). People's perception of environmental issues in Kosovo is strongly influenced by their everyday life experiences; for instance, with polluted air and household waste. Non-academics, in particular, were found to be rather unaware of issues such as the loss of biodiversity which cannot be perceived as directly as, for instance, garbage piles (Lindemann-Matthies & Hyseni, 2009). One explanation for the public's lack of environmental knowledge is that in contrast to Croatia, for instance, where environmental issues are already included in pre-school curricula (Vican et al., 2007) this is not the case in Kosovo, at least not in primary and secondary school education (Pupovci, 2002). However, there are hardly any data about the extent to which single teachers include environmental issues into their teaching in Kosovo.

The results of a study by Lindemann-Matthies & Hyseni (2009) indicate that at least in higher education some information about local and global environmental issues is provided. Nevertheless, this study also shows that laypersons in Kosovo often feel powerless when asked what they themselves could do to protect the environment. This is in line with the notion that in Kosovo public perceptions of citizens' ability to influence policy and hold leaders accountable is extremely low. Only 13% of citizens believe that they can influence decision-making processes in their municipality, and 12% believe that they can influence decision-making at the central level (UNDP, 2004). Educational approaches which enable people in Kosovo to deal with participatory and democratic processes are thus urgently needed, both in formal and informal education settings. Such approaches should be combined with the provision of sound knowledge about environmental issues and skills needed to deal with these issues.

Little environmental knowledge and awareness result in lifestyle choices by Kosovars themselves which greatly contribute to a health-damaging environment. The new 'Kosovo Programme Action Plan' (from 2011 to 2015) thus strongly emphasizes sustainable development, and a strategy for sustainable education has already been drafted (Kabashi-Hima, 2011). According to the 'Kosovo Education Centre' (KEC), environmental issues should be integrated in ways of education for sustainability into all

levels of education (Kabashi-Hima, 2011). However, little is known to which degree and how environmental issues are already tackled in schools in Kosovo, and how well-prepared teachers feel to approach education for sustainable development.

1.3 The education system in Kosovo

In 1999, the education system had acknowledged the authority of the United Nation's Mission (UNMIK) in Kosovo. Today, UNMIK has fully transferred all competencies in the education sector to the government of Kosovo. The 'Ministry of Education, Science and Technology' (MEST) is now responsible for all issues related to education in the country. Education is provided in Albanian, Bosnian and Turkish. However, in parallel there is also the Serbian system which recognizes the authority of Serbia and covers education in Serbian.

In August 2000, the present education system was introduced. It now consists of nine (instead of eight) years of compulsory education, of which five years are spend in primary and four years in lower secondary schools (Table 1.1). In addition, three optional years of upper secondary education are offered (Kabashi-Hima, 2011). In the near future, upper secondary education should also become compulsory (Kosovo Curriculum Framework, 2010).

There are still many obstacles to reform which have to be tackled. The education system in Kosovo is characterized by outdated preservice and missing inservice teacher education. Classroom education is often teacher-centred, and little emphasis is placed on the understanding of concepts and issues, or the development of critical thinking skills (Pupovci, 2002). Moreover, especially at the upper secondary level average class sizes of 30 pupils are about 50% higher than the OECD and EU norms (World Bank, 2007). The education system in Kosovo is also characterized by high drop-out rates between primary and secondary school. They are especially serious for girls, ethnic minorities and children from rural areas (Sommers & Buckland, 2004). Table 1.2 provides an overview of the number of female and male pupils in pre-university education in Kosovo (MEST, 2013).

Table 1.1: Structure of the education system in Kosovo (as in June 2013).

Level	Age (years)	Grade
Preschool education	3 - 5	Kindergarten
	5 - 6	Pre-primary
Primary education (compulsory)	6 - 7	Grade 1
	7 - 8	Grade 2
	8 - 9	Grade 3
	9 - 10	Grade 4
	10 - 11	Grade 5
Lower secondary education (compulsory)	11 - 12	Grade 6
	12 - 13	Grade 7
	13 - 14	Grade 8
	14 - 15	Grade 9
Upper secondary education (optional)	15 - 16	Grade 10
	16 - 17	Grade 11
	17 - 18	Grade 12

Table 1.2: Number of female and male pupils in pre-university education in Kosovo. Source: MEST (2013).

Level	No of pupils	Female	Male
Preschool education	5,389	2,520	2,869
Primary education (compulsory)	20,317	9,925	9,392
Lower secondary education (compulsory)	288,378	138,999	149,379
Upper secondary education (optional)	104,268	47,996	56,272
Total	418,352	199,440	218,912

Already before the Kosovo conflict (1990-1999), only marginal investments were made in maintaining the educational sector, resulting in extensive dilapidation and abandonment of schools (Sommers & Buckland, 2004; Young & Tahirukaj, 2009). In 1989, Kosovo's decision-making autonomy over education was abolished, and approximately 500,000 Kosovo Albanian pupils were forced by the Serb authorities to leave the formal education system (Kosovar Stability Initiative, 2010). In 1991, only 6,000 official seats were made available for 36,000 Albanian schoolchildren finishing primary education, and by 1992 Albanian pupils were entirely excluded from schools in Kosovo and Albanian head-teachers dismissed (Kosovar Stability Initiative, 2010). In the Albanian parallel system, lessons were held in improvised classrooms in private houses and garages or in afternoon shifts in schools, and teaching materials were smuggled from Albania (Sommers & Buckland, 2004). Finally, during the 1998/1999 conflict, 50% of the schools were destroyed, 17% damaged, and almost all left without running water and sanitary equipment (Kosovar Stability Initiative, 2010).

The aftermath of the conflict is still visible today. Not all schools have been rebuilt and many pupils attend school in overcrowded classrooms in morning, afternoon and sometimes even evening shifts (Kosovar Stability Initiative, 2010). School teaching in shifts is characterized by shortened lesson hours of about 35 instead of 45 minutes and by teachers who can hardly pay attention to individual children or practice teaching methods other than frontal instructions (Kosovar Stability Initiative, 2010). One priority of the recent 'Kosovo Education Strategic Plan 2011-2016' is thus to reduce the number of shifts by building new primary and secondary schools (MEST, 2011). Another priority is to improve school infrastructure. School buildings are badly insulated and highly energy inefficient. They are characterized by, for instance, out-dated heating systems (some schools have wood stoves in each classroom), limited or non-existent gym, kitchen and sanitary facilities as well as broken and ergonomically challenging chairs for both pupils and their teachers (MEST, 2011).

Low quality education also results from low salaries. In Albania and Kosovo teacher incomes are far below the average national salary and sometimes oblige school staff to take on after-school employment in a range of occupations (European Training Foundation, 2008). This clearly impedes teachers' energy and enthusiasm to get

involved in other resource-consuming activities such as the implementation of new educational policies.

The education system in Kosovo has a long history of inseparability with the politics of the region (Bache & Taylor, 2003). In Kosovo and other countries of the former socialist block in Central and Eastern Europe, the school system primarily served political regimes, and teaching focused on delivering selected knowledge with little space for learners' own interpretations, initiatives, or critical thinking (Sahlberg & Boce, 2010). Even today, young people in Kosovo have limited impact on decision-making processes in institutions such as schools, and do not consider participation a civic responsibility (Kosovar Stability Initiative, 2010). Therefore, education reform in Kosovo especially aims at the development of knowledge, attitudes and skills required for democratic citizenship (Kosovo Curriculum Framework, 2010). This should enable young people to engage competently in public affairs, and to be active and responsible citizens in a pluralistic and democratic society.

1.4 Environmental education and education for sustainable development

The first definition of environmental education (EE) by William B. Stapp and his colleagues in 1969 outlined EE as a mean of producing an environmentally literate citizenry, empowered and motivated to solve environmental problems (Stapp et al., 1969). Soon after, environmental education became one of the principal topics on the agenda of the 'UN Conference on Human Environment' held in Stockholm in 1972. The first intergovernmental conference on environmental education took place in Tbilisi in 1977, and its report on environmental education is seen as the beginning of attempts to develop environmental education curricula around the world (UNESCO, 1978). Environmental education was regarded as a process aimed at developing a world population that is aware of and concerned about the total environment and its associated problems, and has the attitudes, motivations, knowledge, commitments and skills to work individually and collectively toward solutions of current programs and the prevention of new ones (Stapp & Cox, 1981).

In Europe, the introduction of environmental education into all sectors of education, including vocational training and adult education, was advocated by the European

Community in 1988 (Council and the Ministers of Education, 1988). Already in 1980, an international debate on the imperative of sustainable resource use was initiated, mainly due to the publication 'World Conservation Strategy' (IUCN, 1980). In the 1987 'Brundtland Report on Our Common Future', published by the 'World Commission on Environment and Development', the term 'sustainable development' was popularized (WCED, 1987). The Brundtland report defined sustainable development as a "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, chapter 2). The report also pointed out the importance of environmental education on future world development.

In 1992, the principles of sustainable development were set out at the 'United Nations Conference on Environment and Development' in Rio de Janeiro, Brazil. As the concept of sustainable development was discussed and formulated, it became apparent that education is a key to sustainability, and initial thoughts concerning education for sustainability were captured in Chapter 36 of Agenda 21¹. In December 2002, resolution 57/254 on the 'United Nations Decade of Education for Sustainable Development' (2005-2014) was adopted by the 'United Nations General Assembly', and UNESCO was designated as lead agency for the promotion of the Decade.

Many articles have addressed the differences between environmental education (EE) and education for sustainable development (ESD). McKeown and Hopkins (2003, p.117) framed the issue as follows: "Some insist EE is the same as ESD; others draw a distinction. ... The education community is grappling with an issue for which there is little clarity of definition or intent." By analyzing documents such as the 'Belgrade Charter', the 'Tbilisi Declaration', and the 'Agenda 21', McKeown & Hopkins (2003) argued that EE and ESD are distinct yet complementary. While EE has its focus on the preservation of the natural environment and the reduction of human impacts, ESD wants to teach awareness, skills, perspectives, and values that will guide and motivate people to pursue sustainable livelihoods, participate in a democratic society, and live in a sustainable manner. In other words, EE has its focus on problem solving, whereas ESD is focused around capacity-building (Gough, 2006). However, influenced by the emerging ESD discussion, in various regions of the world EE has recently been

¹ http://www.un.org/esa/dsd/agenda21/res_agenda21_36.shtml

critically reviewed and revised into a long-term empowerment issue, thus decreasing its difference to ESD (examples in McKeown & Hopkins, 2007; Breiting, 2009).

In many European countries, EE is now seen as part of ESD which implies a process-oriented, participatory, and action-oriented learning approach (e.g. Bolscho & Hauenschild, 2006; Stevenson, 2006; Sleurs, 2008). However, ESD is still more than EE. The former is not only dealing with aspects of people's dependence on the quality of the environment and access to natural resources, but also with economic and socio-cultural aspects such as equality and social justice (Breiting et al., 2005; Tilbury, 2007a; region-specific ESD issues in UNESCO, 2009). ESD is thus centred far more on humans than EE, and it has even been feared that EE becoming ESD would lose some of its uniqueness, i.e. the underlying worldview that humans are part of nature (McKeown & Hopkins, 2007).

1.5 Environmental education and education for sustainable development in Kosovo

The integration of ESD into all levels of education is one of the key priorities in Kosovo's environmental action plan (Kabashi-Hima, 2011). A competency-based approach, developed through practically-oriented learning is envisaged (Beqiri, 2010). In compliance with the Kosovo education vision and policies underpinning the curriculum framework, the following six key competencies are central for the Kosovo education system (Kosovo Curriculum Framework, 2010, p. 31):

- (1) Communication and expression competencies → effective communicator
- (2) Thinking competencies → creative thinker
- (3) Learning competencies → successful learner
- (4) Life-, work-, and environment-related competencies → productive contributor
- (5) Personal competencies → healthy individual
- (6) Civic competencies → responsible citizen

The competency-based approach will have important implications for classroom practices such as the integration of cross-cutting issues, creative problem solving, interactive teaching and learning, and a focus on teaching and learning that is student-

centred (MEST, 2010; Kabashi-Hima, 2011). As environmental destruction is one of Kosovo's most pressing issues, the new strategy for sustainable development explicitly demands a strong focus on environmental issues and environmental protection when integrating ESD in schools (Kabashi-Hima, 2011).

As mentioned before, it is not yet known to which degree and how environmental issues are already approached in schools in Kosovo, and which possibilities exist to link classroom practices suitable for ESD with already existing ones. Moreover, hardly anything is known about the identity and breadth of issues approached, for instance whether the issues taught are more local or global ones and whether typical ESD issues such as the loss of biodiversity or climate change are included. Studies indicate that there is a large gap between recent policy rhetoric (advertising ESD as the dominant principle) and actual practices in schools (see discussion in Stevenson, 2007; UNESCO, 2009). Both complexity and ambiguity of EE and ESD coupled with constraints of lack of time, space, and appropriate support from educational leaders are substantial challenges for teachers to deal with (Stevenson, 2007). Especially in countries such as Kosovo that lack tradition in EE, sustainability education cannot just be imposed from above. A bottom-up approach that builds upon teachers' experiences, perceived obstacles and needs might be more promising.

1.6 Key players for a successful implementation of EE / ESD in the educational system

Novel teaching and learning approaches such as ESD cannot be outlined as purely rational, cognitive operations. They need engagement from credible leaders within the institutions to support the innovation from within and to set up realistic goals (Van Petegem et al., 2005). Internal stakeholders can be staff both in teacher education institutions and in schools, parents, the community and the school environment. Head teachers, for instance, but also department heads were found to have a major controlling effect on how a curriculum is implemented, and a leading role in educational reform (Fullan, 2002; Powers, 2004). Their attitudes can determine how much emphasis is placed on ESD within their school's or institution's curriculum.

Parents also play a role in the implementation process, but are often ignored as potential players. In a recent study on vocational school reforms in Albania, Kosovo and Turkey, clearly defined roles for both deputy principals and parents were missing (European Training Foundation, 2008). Parents were considered in a rather instrumental fashion as a potential source for extra resources for the school rather than as true partners in improving learning environments.

(State) curricula can also be regarded as one major obstacle for the implementation of novel subject matters and educational approaches in the teacher preparation system. If novel teaching and learning approaches such as ESD cannot find their way into official (state) school curricula, they might not appear in preservice teacher education programs at all. Because of its potential multiplier effect (Powers, 2004), preservice teacher education has been regarded as particularly important for the spreading and implementation of innovations such as ESD (Käpylä & Wahlström, 2000; Powers, 2004; Van Petegem et al., 2005; Lindemann-Matthies et al., 2009, 2011). Every teacher educator will educate a large number of teacher students, who will become part of the educational community and eventually educate a large number of children, and share ideas with teacher colleagues. It is thus essential to ensure the quality of the teacher preparation system, because it will ultimately contribute to the formation of future citizens (Barker & Elliot, 2000). 'What teachers teach' will most likely be influenced by their own environmental literacy. Moreover, effective education - be it EE or ESD - strongly depends on the motivation of educators and their quality of training (Kassas 2002; Sirmo et al. 2006). Recent studies from various countries have shown that teacher education programs do not place sufficient emphasis on EE or ESD (Kyburz-Graber & Robottom, 1999; Plevyak et al., 2001; Powers, 2004; Van Petegem et al., 2005; Lindemann-Matthies et al., 2009, 2011).

In Kosovo, the preparation of new teachers takes place at the Faculty of Education at the University of Prishtina (Breca & Anderson, 2010). Although since more than ten years teacher preparation is under reform, teaching methods in preservice education are still mostly lectures, and learning is a matter of memorizing verbatim information (Walker & Epp, 2010). Textbooks are in many cases over 20 years old, and professors are authoritarian in their approach to students. Practice teaching is of short duration (two weeks in total). The programs for training high school students are mostly intensive

four-year studies of a single subject such as biology. Included in the programs designated as teacher preparation are usually a course in psychology and a methods or didactics course in the single subject (Walker & Epp, 2010). A lack of teaching practice as well as a teacher preparation that is subject- and content-focused rather than aimed at building systemic holistic competences are also typical for teacher education in other countries of the Western Balkan (Pantic et al., 2011), and might strongly impede new ways of teaching EE / ESD in Kosovo and elsewhere.

1.7 Examples for the implementation of ESD in schools and evaluation studies

Several examples of good practice exist on how ESD could be implemented in school. The implementation could either be voluntarily, for instance by offering toolkits such as 'Green Pack', or compulsory by integrating ESD issues in curricula of existing school subjects and programs. Green Pack, for instance, is a multi-medium environmental education curriculum kit to teach children about environmental protection and sustainable development. Green Pack was primarily intended for European primary school teachers and their pupils. It became rather popular in Kosovo after it had been translated into both Albanian and Serbian language². Here, it is for use in teaching children aged between 11 and 14 years. The Green Pack Kosovo teachers' handbook contains lesson plans on 22 environmental topics, including information specific to Kosovo, structured to provide users with information on each theme as well as the lesson's objectives and methodology. Teachers can also find fact sheets and diagrams at the end of each lesson plan for distribution to their pupils. Green Pack materials are now developed by the 'Regional Environmental Center' (REC) in Kosovo.

Another practical example is the 'Education for Sustainable Development' toolkit by R. McKeown (2002), albeit only available in English, which provides background information on ESD and multiple exercises how ESD issues could be integrated in the classroom. A recent publication called 'Enough for all forever' also includes multiple innovative approaches to engage pupils in sustainability activities (Murrey et al., 2012).

A worldwide country comparison has recently shown that ESD is mainly addressed through existing subjects (UNESCO, 2009). However, 'whole-school approaches' are

² English version at: <http://www.greenpackonline.org/english/menu.html>

also gaining in popularity (examples in Henderson & Tilbury, 2004; UNESCO, 2009; Evans, 2011). A whole-school approach seeks to address sustainability not only in teaching and learning, but also in school's operations and linkages with the wider community, and can thus be called an integrative approach towards ESD (UNESCO, 2009). Already in 1998, the 'Office for Standards in Education' (OFSTED), i.e. England's school curriculum and inspection authority, brought together a panel of experts to recommend what action should be taken in schools to promote ESD. In order to identify characteristics of good practice, these experts visited overall 26 primary, middle and secondary schools, and came up with a report on success factors (OFSTED, 2003). Beneath more 'outside school' factors such as the use of networks and partnerships, several 'inside' ones were found of which the following might be of special interest for the implementation of ESD in schools in Kosovo:

- In most of the British schools investigated, a small project initiated by one individual or a small group of individuals had launched the process of implementing ESD. The enthusiasm of pupils and staff involved had raised awareness in school and led to further actions as part of the implementation process.
- For many pupils, the profile of ESD had risen when it became an integral part of their school's curriculum. This reinforced a greater understanding of key concepts of ESD and led to positive attitudes and values towards sustainability issues across the whole school.
- The profile of ESD had also risen in schools which had a member of staff who was responsible to co-ordinate the work throughout the curriculum. This was also a strong success factor in a subsequent evaluation (OFSTED, 2008).
- Schools actively promoted ESD by providing positive messages about sustainability and the environment. For example, displays in school foyers promoted the message of stewardship and sustainability. Dedicated days or weeks that focused on one aspect of sustainable development provided opportunities for pupils to become active, and produced tangible and sustainable outcomes.
- Pupils were involved in decision-making processes that affected their own learning environment. This fostered feelings of stewardship and citizenship. They were, for

instance, encouraged to conserve energy, recycle materials and improve the whole school environment, including school grounds.

Evaluation and monitoring are key strategies for advancing the 'UN Decade of Education for Sustainable Development' (Tilbury, 2007b). Daniela Tilbury provides a list of quality indicators which might help to evaluate and improve large-scale sustainability education programs. Moreover, as shown above several organisations are engaged in evaluating success factors for the implementation of ESD into subjects or the whole school community (e.g. OFSTED, 2003, 2008; UNESCO, 2009). However, there is a lack of research evaluating the outcomes of ESD approaches on smaller scales, i.e. the level of the classroom, and in controlled experimental designs. One example is the study by Rieß & Mischo (2009). This study investigated in a controlled pretest/posttest-design the effects of different teaching methods (normal lessons, computer simulations especially designed for the study) on systems thinking in the field of ESD. Pupils who received both instructions fared best in the posttest. A recent Australian study focused on the teacher, indicating that a preparatory course on ESD can change teachers' ways of thinking and doing things in the classroom (Evans, 2011).

1.8 Outline of the thesis

This thesis is concerned with the current situation and future developments of environmental education in Kosovo. Contributions are made to better understand (1) how environmental topics are integrated in textbooks and the national curriculum of Kosovo, (2) which environmental issues are included in the country's upper secondary education and how they are approached by high school teachers, and (3) how new teaching contents and approaches suitable for ESD affect classroom behaviour of both teachers and pupils.

Chapter 2 provides an overview about the different methodological approaches used, i.e. textbook analysis, written questionnaire, in-depth interviews, and structured observations.

Chapter 3 studies the integration of environmental topics in all official textbooks and the national curriculum in Kosovo. It was investigated how many and which

environmental topics they included, in which subjects and grades they were taught, and which teaching approaches were used.

Chapter 4 investigates the integration of environmental issues in high schools in Kosovo and the teaching approaches used. By identifying how teachers tackle environmental issues in school, the study provides baseline data for Kosovo. Overall, 272 biology, geography, chemistry and civic education teachers from all high schools in Kosovo filled-in a written questionnaire and 18 of them were subsequently interviewed in-depth.

Chapter 5 describes the underlying criteria for the design of a toolkit on ESD content and methods for use in high schools in Kosovo. The toolkit was put into practice during a one-day inservice teacher education workshop with nine biology teachers. At the end of the workshop, the feasibility of the toolkit was evaluated. Moreover, one year later all study participants were contacted again and asked about their experiences with the toolkit.

Chapter 6 investigates the influence of the one-day inservice workshop for high school teachers in Kosovo on ESD teaching content and methods used (see chapter 5). Based on observations of nine classes in three different municipalities in Kosovo, the behaviour of teachers and their pupils during normal lesson hours was observed before and after the workshop.

Chapter 7 discusses the main findings of the previous chapters in a larger context. The different aspects as outlined in chapters 3-6 are further investigated.

Chapter 8 presents future directions for the development of environmental education in ways of education for sustainable development in Kosovo.

Chapter 9 summarizes the main ideas, research questions, methods and results of the thesis, and **chapter 10** provides a translation into German.

2 General methodologies

To identify the current status of environmental education in Kosovo, different methodological approaches were used (Figure 2.1). In a first step, all official textbooks and the national curriculum³ of Kosovo (New Kosovo Curriculum Framework 2001) were scrutinized to identify how many and which environmental topics were included, in which subjects and grades they were taught, and which teaching approaches were used. Although textbooks are powerful determinants of the curriculum, it is the teacher who adapts the material and determines how it is used (Lebrun et al., 2002). Beneath an analysis of textbooks and national curricula it is thus important to investigate what teachers are actually doing in school. In a second step, a written questionnaire was thus sent to a representative sample of biology, geography, chemistry and civic education teachers (overall 244 persons) to investigate the integration of environmental education in high schools (optional upper secondary education) in Kosovo. In a third step, in-depth interviews with 18 of these high school teachers were carried out to extend and deepen the discussion of reasons for choosing certain responses in the questionnaire. In a fourth step, a toolkit on EE / ESD was developed and introduced to nine high school teachers during a one-day inservice workshop. In a fifth step, structured observations were used to investigate the impact of the workshop on high school teachers' performance in the classroom.

Both qualitative and quantitative research approaches were used in this thesis. In qualitative research, the information sought is about how something is experienced and not specifically about facts and figures. The emphasis is on the quality and depth of information. Qualitative research typically uses document reviews, interviewing and observations to collect data (see Figure 2.1). In contrast, quantitative research is a method based on collecting statistical data often from large samples through, for instance, written questionnaires. It is a systematic attempt to define, measure, and report on the relationships between various elements (e.g. Cohen et al., 2007).

³ At that time, only the first draft of the Kosovo Curriculum Framework (2010) existed. It was the official guideline.

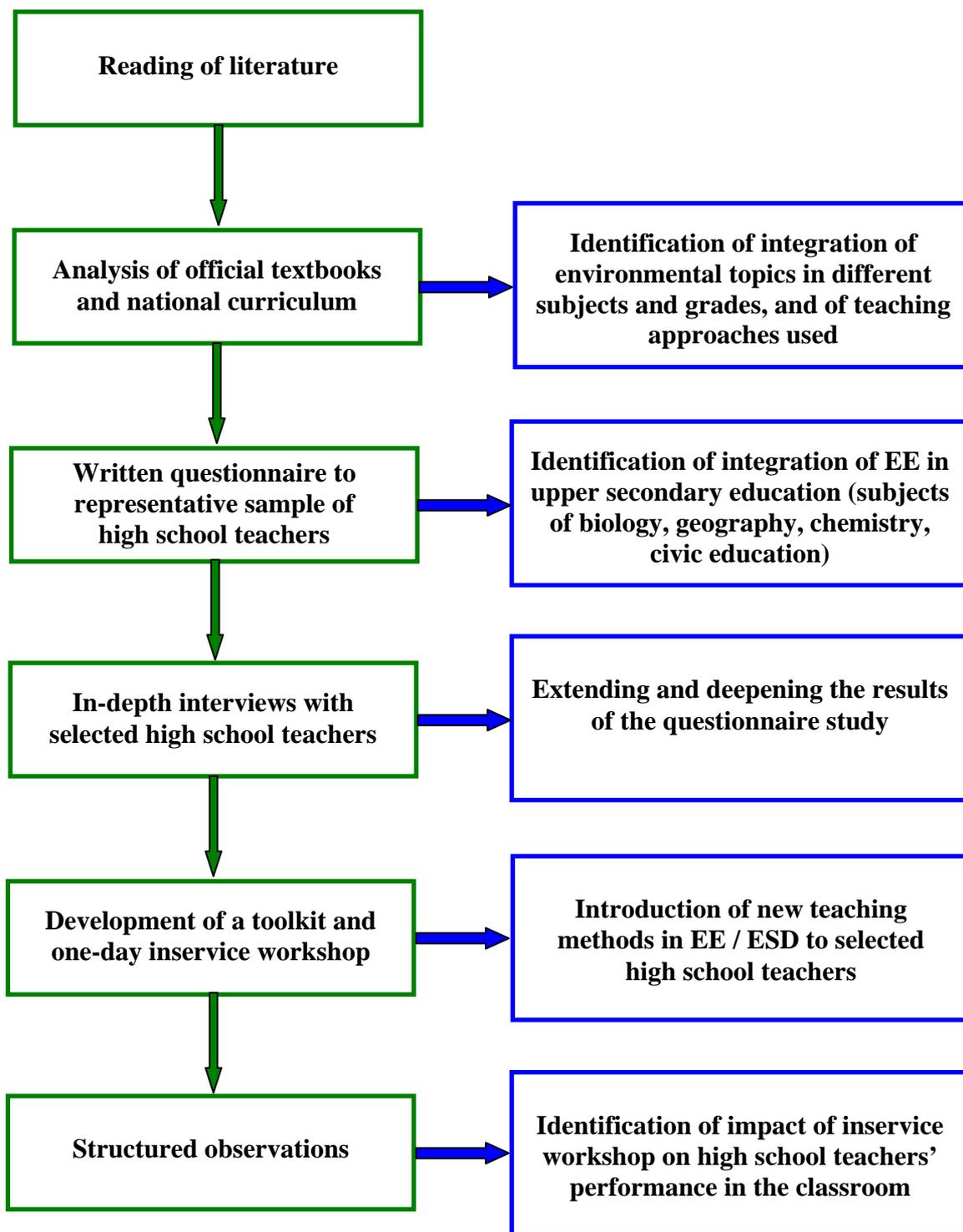


Figure 2.1: Overview of the research project.

2.1 Document analysis

Many documentary resources exist that can be analysed in education research such as policy documents, reports and statistics, or books and articles (Cohen et al., 2007, p. 201). Textbooks⁴ are cultural artefacts which participate in the cognitive and social organization of knowledge (Lebrun et al., 2002). They translate national program guidelines which are the expression of national education policies, and are used by teachers as guidelines and didactical resources (Carvalho et al., 2009). The textbook analysis is thus a relevant tool for studying socio-cultural determinants of environmental issues (Mohammad & Kumari, 2007). It helps to determine what goes on in a class and to assess what pupils do or do not learn (Oakes & Saunders, 2004).

There are many ways how documents such as textbooks can be investigated. They can, for instance, be analysed in terms of quality of content or instructional design. Textbooks for history are often analysed in terms of ideological and cultural bias. Other areas investigated by research on textbooks are cognitive processes, scientific rigour, clarity, or readability (see review in Lebrun et al., 2002, pp. 66). In this thesis, a special focus was on the content and pedagogy displayed in official textbooks in Kosovo that dealt with aspects of EE or ESD. These textbooks were content analysed. Content analysis defines a strict and systematic set of procedures for the rigorous analysis, examination and verification of the contents of written data (Mayring, 2004).

Mayring (2000) outlines a number of procedures of qualitative content analysis amongst which two approaches are central: inductive category development and deductive category application. The classical (inductive) content analysis has few answers to the question from where the categories come or how the system of categories is developed, while the deductive category application works with prior formulated, theoretical derived aspects of analysis, bringing them in connection with the text. In this thesis, a deductive category application was used as prior studies had already given some indication how the textbook content could be approached (e.g. Gayford, 2000; Caravita et al., 2008; Lindemann-Matthies et al., 2009). By analyzing the material step by step, smaller content analytical units were created (as advised by Mayring, 2004). Such units,

⁴ Textbooks are books that offer a pedagogical and didactic presentation of a certain field of knowledge. They might include the textbook for pupils, the teacher's guide as well as exercise or learning workbooks (Lebrun et al., 2002).

e.g. words, phrases, sentences, were coded and sorted under categories. These categories had to be carefully defined and revised during the process of analysis (feedback loops). Categories will need to be exhaustive in order to address content validity. Moreover, coding should be done by more than one researcher and inter-coder reliability checked for. From here, statistical analysis and quantitative methods are possible, leading to an interpretation of the results (see also Cohen et al., 2007, pp. 476).

2.2 The written questionnaire

“The questionnaire is a widely used and useful instrument for collecting survey information, providing structured and often numerical data, being able to be administered without the presence of the researcher and often being comparatively straightforward to analyse” (Wilson & McLean, 1994; cited in Cohen et al., 2007, p. 317). A written questionnaire is especially useful in measuring interests, opinions and attitudes (Bennett, 1988), and was thus seen as a suitable approach to investigate high school teachers’ views on environmental education in Kosovo. As a representative sample of teachers was envisaged, the questionnaire was rather structured, closed and numerical (as advised in Cohen et al., 2007, p. 320). However, it also included a series of open-ended questions, i.e. questions without pre-given answer options, which allowed respondents to state their opinion without restraint. Even if a number of answer categories could have been foreseen, e.g. from literature, they would have ended in a (too) long list of options to tick. Due to its semi-structured, rather closed character, the questionnaire needed careful pilot-testing and afterwards some refinement (Bennett, 1988). A pilot study has multiple purposes such as to check the clarity of the questionnaire items, the instruction and layout; to gain feedback on the validity of the questionnaire items; to eliminate ambiguities or difficulties in wording or to gain feedback on the type of question and its format used (Cohen et al., 2007).

Questionnaires can be submitted in different ways. They can be sent by mail or be posted in the internet. Moreover, they can be distributed personally by the researcher. However, all of these approaches have their advantages and disadvantages. Postal (mail) questionnaires have the advantage that they can gather data at comparatively low cost and reach a large number of people. Moreover, they can be completed by respondents in

their own time and convenience, i.e. enable respondents to check information if necessary and think about the responses. Disadvantages are, for instance, that they might not reach the intended people, that people do not answer all questions or that they do not answer at all (Cohen et al., 2007). Nevertheless, difficulties of securing high response rates to postal questionnaires for the general public can be overcome as already outlined by Don Dillman more than forty years ago (Dillman, 1972). In Kosovo, however, postal questionnaires are not feasible at all due to ambiguous postal addresses and dysfunctional mail services throughout the country (personal experiences). Moreover, people might not respond to a postal questionnaire, even when anonymity is guaranteed, out of fear of possible consequences for themselves. For a long time civic and political participation in Kosovo was limited, and inhabitants, in particular those exposed to criticism such as teachers, are still rather reluctant to frankly express their opinions (UNDP, 2004; Lindemann-Matthies & Hyseni, 2009). Even if mail services would operate effectively, it was thus assumed that without appearing in person at school and explaining in detail the study objectives and data gathering procedure only few questionnaires would be returned.

The use of web-based questionnaires is becoming increasingly popular in education research. Conducting survey research online has advantages such as access to individuals in distant locations, the ability to reach difficult to contact participants, and the convenience of having automated data collection, which reduces researcher time and effort (Wright, 2006). Disadvantages include uncertainty over the validity of the data and sampling issues, and concerns surrounding the design, implementation, and evaluation of an online survey (Wright, 2006). Although the use of web-based questionnaires is becoming increasingly popular in education research (e.g. Bennett & Nair, 2010), this approach was also not feasible in Kosovo. Not all schools or teachers at home have internet access and even if so, internet connections are often erratic. Broadband Internet access is not measured formally in Kosovo, but most reports peg it at 11% to 17% of the population. Compared to the average 52% internet penetration for countries in the EU, Kosovo's internet penetration still lags many of its neighbours (USAID, 2007). Moreover, as discussed above, it would have been just another impersonal data collection procedure with little prospect for success.

Due to the special situation in Kosovo, personal visits to schools were regarded as the only promising option to collect data with the help of a written questionnaire. The questionnaire was self-administered, but had not to be answered in the presence of the researcher. This allowed teachers to complete the questionnaire in private and whenever they had time to do so. Moreover, they could spend as much time as they wanted on answering the questions (see also Cohen et al., 2007). However, this approach was rather time-consuming and expensive as schools throughout the country had to be visited twice, i.e. once to deliver and once to collect the questionnaires. Nevertheless, by self-administering the questionnaire, its purpose could be explained to the teachers, questions could be answered and potential tensions towards the use of data lessened. A high response rate later on revealed that the efforts of the researcher were clearly rewarded.

2.3 The interviews

Just like questionnaires, interviews are a widely used instrument for data collection. The use of an inter-view means an exchange of views between two or more people on a topic of mutual interest (Cohen et al., 2007, p. 349). Several different methods exist on how to interview people, e.g. personal interviews, group or round table discussions or consensus finding approaches such as the Delphi technique (Linston & Turoff, 1975). One promising approach in ESD research is the use of focus groups. In a British study, a panel of science teachers with interest in biodiversity education discussed approaches how best to integrate the ESD issue in school (Gayford, 2000). However, in the present research project, only face-to-face interviews were carried out. As outlined above, people in Kosovo are not used to work and discuss in groups, and to express their opinion freely in the open.

The interview is a powerful tool to gather information that is varied, in-depth and rich. In this thesis, standardized open-ended interviews were used. With the help of an interview-guideline, the wording and sequence of questions asked was already determined in advance, and all interviewees received the same questions. This allowed a comparison of their answers, but also restricted flexibility (Cohen et al., 2007, p. 353). Structured, instead of unstructured, interviews were used as the researcher already knew

what she wanted to know as the purpose of the interviews was to extend and deepen the discussion of reasons for choosing certain responses in the questionnaire (which all interviewees had answered some time before participating in the interviews). The open-ended questions allowed respondents to choose their own terms when answering, and offered space for unexpected or unanticipated answers. The questions were posed as neutral as possible to avoid influences on the answers. Some questions started with a broad issue to which only a brief yes/no-answer was expected and then narrowed down to more specific ones ('funnel' questions; see Cohen et al., 2007, p. 357).

From a previous study it was known that stakeholders in Kosovo can be rather unwilling and reluctant to discuss environmental issues in the open, sometimes resulting in very short or hardly any answers to interview questions asked (Lindemann-Matthies & Hyseni, 2009). The interviews in this thesis were thus prepared with great care. Interviewees were carefully selected by criterion based sampling among those high school teachers who, in the preceding questionnaire study, had already indicated an interest in being interviewed (see Figure 2.1). The selected candidates were thought to provide the most credible information about environmental education in Kosovo. However, their willingness to openly and honestly share this information could not be predicted, but partly depended on the interview situation.

It was ensured that all interviewees understood the purpose of the interview and that they were in a setting with little distraction, i.e. a quiet place in school, where they felt comfortable and not restricted to share information. Moreover, terms of confidentiality were addressed. They were asked in advance whether they had any questions, told how long an interview would approximately take, and informed on how to get in touch with the interviewer later on (Turner, 2010). The interviews were tape-recorded (with permission of the interviewees), but not videographed to ensure anonymity, trust and cooperation between the interviewer and the interviewees (see also Dooley, 2001). They were then content analysed according to the recommendations by Mayring (2002, 2004; see chapter 2.1).

2.4 The observations

Observation allows the researcher to gather data *in-situ* from naturally occurring situations, so that he or she must not to rely on second-hand accounts (Cohen et al., 2007). Observation therefore provides a reality check as “what people do may differ from what they say they do” (Robson, 2002, p. 310). Observation can be of facts, such as the number of books in a classroom, or can focus on events as they happen in a classroom. Observation can also focus on behaviours such as the friendliness of a teacher or the degree of aggressive behaviour in class (Cohen et al., 2007). In qualitative research, researchers often do not approach the observation with pre-determined questions in mind. Because of this openness, observation is often referred to as unstructured. In more quantitative research, structured observation instruments are used.

In this thesis, non-interventionist direct observations were used, i.e. the observer made notes without manipulating the situation or subjects (see Cohen et al., 2007, p. 397). A structured observation instrument was employed, based on the Flanders Interaction Analysis Categories (FIAC; Flanders, 1970). The FIAC is commonly used to analyze teacher-pupil and pupil-pupil interactions (Wragg, 1999). It is an easy to use tool that can help to distinguish one instructional method from another. The original instrument comprises of seven categories applicable to teacher talk and two to pupil talk. The FIAC procedure requires observers to make regular and systematic notes on verbal interaction in the classroom. However, this requires more than one observer.

In general, observation studies can be very time consuming and resource intensive. In the present research, just one observer was feasible (M. Hyseni-Spahi) due to financial restrictions, and the observation had to be narrowed down somewhat. The observation was as non-intrusive as possible, i.e. both teachers and their pupils did what they were normally doing without being disturbed by the observer. However, the possibility of the so-called ‘Hawthorne Effect’, i.e. the fact that people perform better under observation because of the attention paid to them, could not be excluded, especially not in case of the participating teachers (see detailed explanation in Wickström & Bendix, 2000).

A fundamental potential weakness of all observation is that it is susceptible to observer bias thus undermining reliability and validity of the data gathered. This can be because the observer records not what actually happened, but what they either wanted to see,

expected to see, or merely thought they saw. Recording devices (tapes, video cameras) would increase objectivity as the classroom situation could later be watched, listened to and then be analyzed from different angles. However, as outlined above, such an obtrusive observation method was just not possible in Kosovo. The high school teachers observed had only agreed upon that notes were taken during the observation sessions.

3 The integration of environmental topics in textbooks and the national curriculum in Kosovo

Abstract

In 2009, all official textbooks and the national curriculum in Kosovo were scrutinized. It was investigated how many and which environmental topics they included, in which subjects and grades they were taught, and how they were approached. Only 15 out of 130 books, most of them for biology teaching, included environmental topics or even whole chapters on environmental issues. Environmental topics were most prominent in textbooks for grade 8, 10 and 12, whereas they were almost lacking at the primary-school level. Most environmental teaching units provided pupils with mere environmental / ecological information (91%); only 9% had a different approach. They aimed to raise pupils' awareness of environmental values, critically reflected links between the natural, social and cultural environment, and demonstrated the importance of a healthy environment for human health, quality of life and sustainable development. They were most prominent in textbooks for civic education. However, no environmental teaching unit aimed at promoting pupils' action competence.

3.1 Introduction

Ecological problems in Kosovo have accumulated over decades as a consequence of the uncontrolled use of natural resources, a growing industrial production with a high level of pollution, and a lack of appropriate policies, laws, and institutions which could treat and solve the problems (KEAP, 2006). As a result, the environment in Kosovo has been degraded, and severe negative impacts on the health of the population have already occurred (examples in REC, 2000, and references therein). Moreover, the public's knowledge in Kosovo about environmental topics has been found to be very limited (Lindemann-Matthies & Hyseni, 2009). Environmental education and communication are thus urgently needed both in schools and elsewhere.

Education in Kosovo is currently under reform (Pupovci, 2002; Sommers & Buckland, 2004). In September 2001, the 'New Kosovo Curriculum Framework' was launched (The New Kosovo Curriculum Framework, 2001). For the first time, environmental

education was explicitly mentioned as a cross-curricular theme which should be approached in ways of education for sustainable development, implying a process-oriented, participatory, and action-oriented learning approach (see Gayford, 2000; Stevenson, 2006). In 2007, the 'Ministry of Education, Science and Technology (MEST)' issued its so-called 'Strategy for Development of Pre-University Education in Kosovo 2007-2017'. Objective 4.2 of this strategy 'Fully functional system for ensuring quality learning built on standards comparable to those of developed countries' regards the revision of the Kosovo Curriculum Framework of 2001 as a priority of the MEST (Webber, 2010). Today, a revised curriculum framework exists (Kosovo Curriculum Framework, 2010) but is still not put into practice (as in June 2013).

Beneath the provision of environmental / ecological information from a natural science perspective, the main objectives of the curriculum framework (as in 2009) regarding environmental issues were as follows (The New Kosovo Curriculum Framework, 2001):

- Pupils should learn to understand that the environment represents a value in itself.
- Pupils should learn that the environment has to be protected and preserved not only for utilitarian reasons.
- Pupils should be supported to explore the links between the natural, social and cultural environment, and should understand the importance of a natural and 'artificial' environment for health, quality of life and sustainable development.
- Pupils should be encouraged to study the environment, to identify environmental topics, to identify environmental problems and to seek constructive solutions.
- Pupils should be made aware of possibilities for practical interventions for protecting and preserving the environment, and should be encouraged to take initiatives in tackling environmental topics in their communities.

However, little is known to which degree and how environmental topics are actually integrated in the formal education system in Kosovo. Textbooks can be a valuable indicator of what is actually done in school. They are one of the pillars of formal education and should represent the core elements of the national curriculum (Mohammad & Kumari, 2007; Caravita et al., 2008). Moreover, they should reflect the grade-specific objectives of the different subjects. It was therefore investigated how

many and which environmental topics official textbooks in Kosovo contained and how these topics were approached. Moreover, it was investigated whether the educational approaches identified were in line with the respective subject goals. It was assumed that this might not always be the case in Kosovo. In a country that lacks tradition in environmental education (Pupovci, 2002) textbooks might not tackle environmental topics in much detail.

The word 'textbook' instead of 'schoolbook' was used. According to Stray (1993, p. 73) schoolbooks are books used for teaching and learning purposes, but are not necessarily intended for educational purposes. Textbooks, on the contrary, are meant to offer a pedagogical and didactic presentation of a certain field of knowledge. The present study is thus concerned with textbooks which might include, among others, the textbook for the pupils, the teacher's guide as well as exercise or learning workbooks (Lebrun et al., 2002).

The results of this study will be helpful for curriculum designers and other people involved in the process of re-structuring environmental education in Kosovo. They contribute to the discussion about the integration of education for sustainable development into formal education in Kosovo (e.g. Kabashi-Hima, 2011), and to international studies on environmental literacy in (science) education curricula (Vican et al., 2007; Caravita et al., 2008; Erdogan et al., 2009; Srbinovski et al., 2010).

The following research questions were asked:

1. How many environmental topics are included in textbooks and the national curriculum⁵ in Kosovo?
2. In which subjects and grades are they meant to be taught?
3. In which ways are they approached?
4. Does their representation in textbooks reflect the objectives of respective subjects?
5. Which major environmental themes are apparent in textbooks in Kosovo?

⁵ The curriculum framework always refers to the 2001 version (The New Kosovo Curriculum Framework, 2001) as the revised draft was not put into practice at the time of investigation in 2009.

3.2 Methodology

In 2009, all official textbooks in Kosovo, including those from fields other than natural sciences, were scrutinized. Overall, 130 textbooks were reviewed. It was investigated how many and which environmental topics they included, and in which subjects and grades these topics were meant to be taught. It was then cross-checked whether the environmental topics presented in textbooks were actually part of the national curriculum, which was always the case. Environmental topics were identified by firstly scrutinizing the table of contents of each textbook, and secondly by browsing through the relevant chapters. According to similarities, the environmental topics were then grouped into major categories, i.e. environmental themes. Coding was always compared between the researcher and the research project leader.

The analysis of approaches to environmental topics (in both textbooks and subject curricula⁶) was based on three sets of criteria originally compiled by Gayford (2000, pp. 355) during focus group discussions with teachers in the UK. The criteria sets were used as a tool that helps to decide whether good environmental / biodiversity education is taking place in school. They were also used in an international study on the integration of environmental topics in the initial education of primary school teachers (Kadji-Beltran et al., 2006; Lindemann-Matthies et al., 2009). The first set of criteria relates to the scientific aspects of environmental education, while the second set relates to the non-scientific ones. The third set of criteria relates to ways how an institution can support and encourage environmental education, and how behaviours can be fostered that are appropriate to protect the environment (instrumental aspects). A topic, and thus teaching unit, can be regarded as relevant to environmental education when it includes one or more of the following criteria:

- 1st approach (scientific aspects): one way of approaching environmental topics in school is to provide pupils with the ecological and environmental information required to understand environmental issues. Respective education units might include information on ecosystems and ecosystem functioning, climate change, biodiversity, endangered species, pollution and habitat destruction. This information is provided from a natural science point of view.

⁶ Retrieved from the webpage of the Ministry of Education (in Albanian): http://www.masht-gov.net/advCms/#id=159,&opened=1_1&subOppened=1_1_1&myId=1_1_1_2

- 2nd approach (non-scientific aspects): another, not mutually exclusive, way of approaching environmental topics in school is to make pupils understand that the environment represents a value in itself and should be protected and preserved not only for utilitarian reasons, that humans attach different values to the environment and to nature conservation, that there are links between the natural, social and cultural environment, and that a healthy environment is important for human health, quality of life and sustainable development.
- 3rd approach (instrumental aspects): a third approach is to provide pupils with ways for constructive solutions to environmental problems, and to encourage them to become active in protecting the environment.

3.3 Results

Only 15 out of 130 official textbooks (11.5%) incorporated environmental topics (Table 3.1; list of relevant textbooks in appendix I). Overall, 149 different environmental topics were identified. They were most prominent in textbooks for biology and least prominent in textbooks for social education and chemistry (Figure 3.1). While textbooks for biology, for instance, contained 116 different environmental topics, those for chemistry included only six different ones. Moreover, only biology textbooks included full chapters on environmental topics (Table 3.2).

Most environmental topics were included in textbooks for grade 8, 10 and 12 (Figure 3.2). Only few topics (8%) were included in textbooks for the primary school level (grades 1 to 4).

About 91% of all environmental topics reflected the 1st approach. They were presented in textbooks in a way that only information from a natural science point of view was given (see Table 3.2). The other 9% reflected the 2nd approach. They emphasized environmental values, illustrated links between the natural, social and cultural environment, and emphasized the importance of a healthy environment for human health, quality of life and sustainable development. None of the topics, however, reflected the 3rd approach (promotion of action competence).

Table 3.1: Integration of environmental topics in the official textbooks for different subjects and grades in Kosovo (n = 130). The symbol denotes the presence of a textbook and the grey colour the inclusion of one or more environmental topics.

Subject	Grade												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Arts	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Astronomy													✓
Biology					✓	✓	✓	✓	✓	✓	✓	✓	✓
Chemistry							✓	✓	✓	✓	✓	✓	
Civic education			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Economy											✓	✓	
English language			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
French language										✓	✓	✓	
Geography						✓	✓	✓	✓	✓	✓	✓	✓
German language									✓	✓	✓	✓	
History					✓	✓	✓	✓	✓	✓	✓	✓	✓
Man and nature			✓	✓	✓								
Mathematics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mother tongue	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Philosophy											✓	✓	✓
Psychology											✓	✓	✓
Physics						✓	✓	✓	✓	✓	✓	✓	
Social education			✓	✓	✓								
Sociology											✓	✓	✓
Technology						✓	✓	✓	✓	✓			
Technology / IT											✓	✓	✓

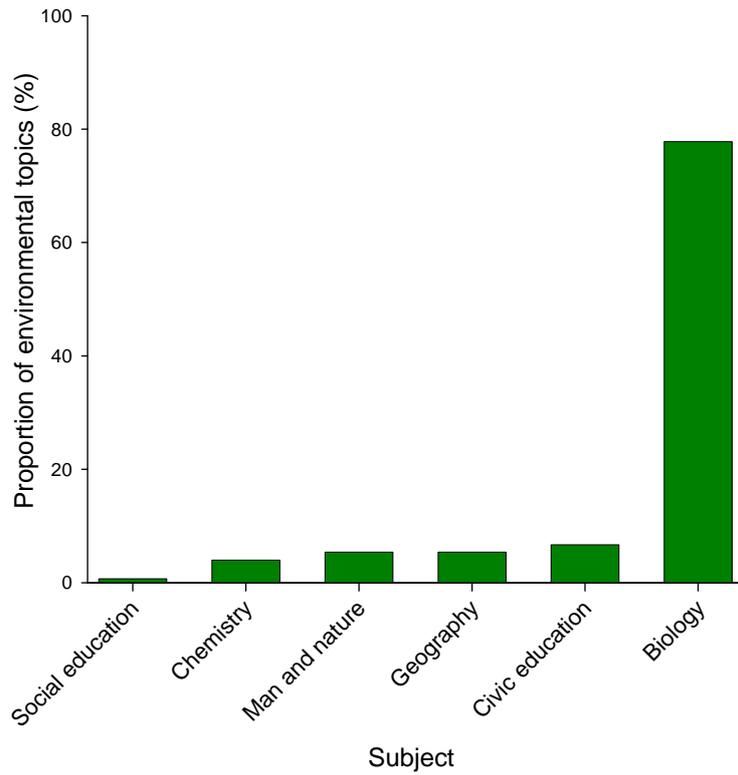


Figure 3.1: Integration of environmental topics in textbooks (n = 15) for different subjects in Kosovo. Overall, 149 different environmental topics were included.

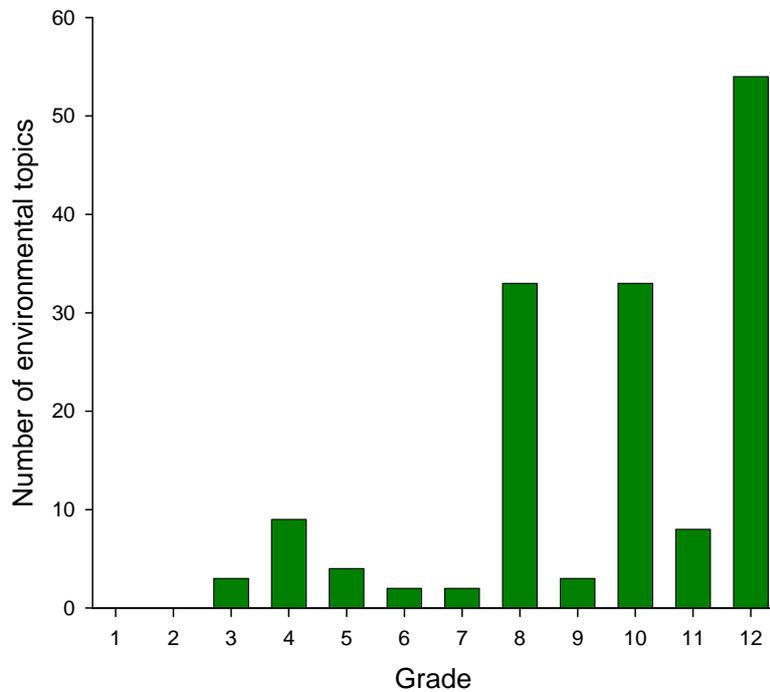


Figure 3.2: Integration of environmental topics in textbooks (n = 15) for different grades in Kosovo. Overall, 149 different environmental topics were included.

Table 3.2: Environmental topics and approaches present in textbooks (n = 15) for different subjects and grades in Kosovo. None of the topics was approached in an instrumental way.

Subject	Grade	Environmental topic	Approaches	
			Scientific	Non-scientific
Biology	8	- Ecological factors	X	-
		- Chapter on ecosystems including 26 different environmental topics	X	-
		- Humans and environment	X	-
		- Kosovo biodiversity	X	-
Biology	10	- Chapter on ecology including 28 different topics	X	-
Biology	11	- Chapter on animal diversity including 7 different topics	X	-
Biology	12	- Chapter on ecology including 39 different environmental topics	X	-
		- Human and environment	-	X
		- Consequences of pollution	X	-
		- Noise	X	-
		- Waste	X	-
		- Biodiversity and extinction	X	-
		- Reasons for extinction	X	-
		- Natural resources	X	-
		- Meaning of ecosystems	X	-
		- Energy today and tomorrow	X	-
		- Nuclear energy	X	-
		- Nuclear bombs	X	-
		- Effects of radiation	X	-
		- Greenhouse effect	X	-
- Ozone layer	X	-		
- Water pollution	X	-		
Chemistry	7	- Water	X	-
		- Air	X	-
Chemistry	8	- Air pollution	X	-
		- Acid rain	X	-
		- Water pollution	X	-
		- Soil pollution / waste management	X	-

Subject	Grade	Environmental topic	Approaches	
			Scientific	Non-scientific
Civic education	3	- Respect for the environment - Natural resources - Natural environment	- X -	X - X
Civic education	4	- Earth, rivers and water - Nature - Plants and animals - Environment and health	- - X -	X X - X
Civic education	9	- Environmental awareness - Global environmental crisis - Environment and laws in Kosovo	- - -	X X X
Geography	6	- Weather and climate - Mountains	X X	- -
Geography	10	- Nature protection - Divisions of ecology - Ecological factors - Ecology and ecosystems - Influence of social factors on the environment	- X X X -	X - - - X
Geography	11	- Plants and animals in the world	X	-
Man and nature	4	- Earth and life - Air for life - Water as a source of life - Environmental pollution	X X - -	- - X X
Man and nature	5	- Rainforests - Deserts - Savannahs - Endangered animals	X X X X	- - - -
Social education	4	- Human and environment	-	X

The first approach (providing environmental information from a natural science point of view) was especially prominent in the biology and chemistry curricula (Table 3.3; compare Table 3.2). Main objectives were to provide pupils with the ecological and environmental information required to understand environmental issues. The second approach (non-scientific aspects) was especially prominent in the curricula for the subjects 'civic education' and 'social education', while the geography curricula contained a mix of scientific and non-scientific approaches.

The third approach (providing pupils with ways for constructive solutions to environmental problems and encouraging them to become active in protecting the environment) was also present in the subject curricula, albeit not in the textbooks (see Table 3.3; compare Table 3.2). The biology curricula mentioned the development of teamwork and other personal skills which are needed for the constructive solution of environmental issues (biology grade 10 and 12), the development of cooperative, open, tolerant and critical behaviour (biology grade 11) and the ability to think globally and act locally (biology grade 12). The curricula for 'civic education' as well as 'man and nature' also aimed at developing skills in environmental protection, which was also the case for the geography curriculum for grade 11 (see Table 3.3).

Table 3.3: Curriculum aims of the different subjects and grades that were identified to include environmental topics in Kosovo.

Subject	Grade	Aims: pupils should ...
Biology	8	<ul style="list-style-type: none"> - become familiar with ecology, evolution, and its principles - become familiar with the diversity of species - become aware of the ecological equilibrium in nature - learn to use biological literature, and to collect and work with scientific data - learn to apply their knowledge in real-life situations
Biology	10	<ul style="list-style-type: none"> - become familiar with the whole living world - acquire scientific information by observing and measuring - express ideas, phenomena and life processes in a scientific way - understand the importance of scientific facts for environmental solutions - understand that scientific ideas and technological advances are related - develop teamwork and other personal skills which are needed for the constructive solution of environmental issues
Biology	11	<ul style="list-style-type: none"> - understand basic life processes - become familiar with organisms and their evolution - become aware of biodiversity and understand its role for the ecological equilibrium - develop skills in collecting and analyzing scientific data, and apply such skills in real-life situations - develop cooperative, open, tolerant and critical behaviour
Biology	12	<ul style="list-style-type: none"> - become aware of life processes, organisms and their evolution - become aware of biodiversity and understand its role for the ecological equilibrium - develop skills in collecting and analyzing scientific data, and apply such skills in real-life situations - understand cause-effect-relationships, e.g. global warming - contribute to the environmental debate by thinking globally and acting locally - develop skills to counter environmental problems
Chemistry	7	<ul style="list-style-type: none"> - understand that chemistry is an experimental science - become familiar with research approaches, e.g. experiments - become familiar with substances and laboratory equipment - become aware of the importance of chemical substances for life - understand the negative environmental impact of substances
Chemistry	8	<ul style="list-style-type: none"> - become familiar with elements and their characteristics as well as chemical reactions, calculations and the chemical equilibrium - understand chemistry as an experimental science which contributes to the development of society, economy and culture - understand the negative environmental impact of substances

Subject	Grade	Aims: pupils should ...
Civic education	3	<ul style="list-style-type: none"> - develop attitudes and values needed for democracy and citizenship - develop skills to understand and analyze daily-life situations - become familiar with problem-solving strategies - become aware that environmental issues are interrelated
Civic education	4	<ul style="list-style-type: none"> - become familiar with environmental factors such as water, air, soil - become aware that human health and well-being are important, and that the environment is important for both - understand the relationship between human actions and environmental changes - develop a want to protect the environment and become familiar with means of its protection
Civic education	9	<ul style="list-style-type: none"> - develop feelings of responsibility and learn to act in sensible ways in families, schools and other places - develop communication skills, tolerant behaviour and intercultural understanding - develop respect for human rights and cultural and ecological diversity - become aware of the importance of environmental protection and develop skills in environmental protection - become familiar with sustainable development principles and activities
Geography	6	<ul style="list-style-type: none"> - become familiar with aspects of physical geography, e.g. water, water circulation, water as a resource - become familiar with the importance of water for natural processes and society, and aware of the necessity to protect water from pollution - understand that plants and animals are dependent on climatic conditions - become familiar with extreme climatic conditions and its reasons - be able to formulate problems related to countries and the environment from a geographical point of view - learn to use simple geographical sketches, plans and models - develop critical thinking skills
Geography	10	<ul style="list-style-type: none"> - become familiar with different aspects of geography and with issues such as global warming, erosion, pollution, ozone layer depletion, rapid population growth, unequal economic development - be able to formulate problems related to countries and the environment from a geographical point of view - learn to use simple geographical sketches, plans and models - develop critical thinking skills

Subject	Grade	Aims: pupils should ...
Geography	11	<ul style="list-style-type: none"> - become familiar with climate zones and other natural features as well as human features such as populations, settlements, economy - understand links between natural and social characteristics and their impact on future developments - become familiar with geographical tools such as photographs, images, graphs, tables, diagrams and maps - appreciate the cultural legacy and natural heritage of Kosovo and its neighbouring countries - respect human rights in Kosovo and neighbouring countries - develop skills to approach local, regional and national environmental problems
Man and nature	4	<ul style="list-style-type: none"> - become familiar with nature and its components, the environment and its protection - become aware of the near-by environment - understand the relationship between organisms and the environment - become aware of how nature benefits people and how people's behaviour influences nature - develop observation and monitoring skills - develop personality, self-criticism, cooperation skills, and skills to confront challenges in life
Man and nature	5	<ul style="list-style-type: none"> - become familiar with nature, its components, the environment and environmental protection - become aware of the near-by environment - become aware of natural processes which create and change the environment (surface structure, climate, weather) - become aware of the role of nature for humans - develop observation and monitoring skills - develop personality, self-criticism, cooperation skills, and skills to confront challenges in life
Social education	4	<ul style="list-style-type: none"> - become familiar with social relationships and phenomena - recognize social norms, develop moral consciousness, knowledge, skills and attitudes required for democratic citizenship in an open society - become familiar with the history, tradition, culture and spirituality of their own community and with those of other people and countries - know about their rights, responsibilities and duties as local and global community members

Most environmental topics could be sorted under the theme 'ecology' (Figure 3.3). Topics under this header included, for instance, information on ecosystems and ecosystem functioning as well as on abiotic and biotic factors.

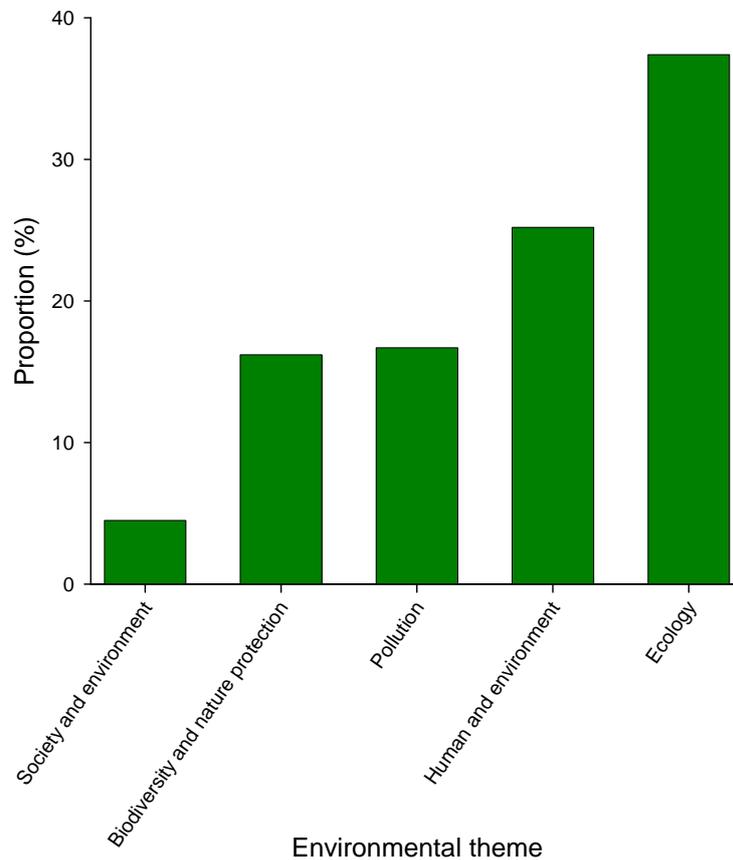


Figure 3.3: Environmental themes in textbooks (n = 15) in Kosovo. Overall, 149 environmental topics were sorted under the different themes.

The theme 'human and environment' provided information on the consequences of environmental destruction, including environmental values and the importance of a healthy environment for humans. The theme 'pollution' provided information on air, water and soil pollution, but did not cover attitudes and attitude changes towards environmental destruction. Similarly, topics under the theme of 'biodiversity and nature protection' did not deal with human attitudes or environmental values, but provided scientific information on species diversity, endangered plants and animals, and ways of nature conservation in parks and other areas. Few topics dealt with the relationship between society and the environment, i.e. with environmental awareness, human

attitudes towards the environment, and with links between the natural, social and cultural environment, both locally and globally.

3.4 Discussion

Environmental topics were only included in few textbooks in Kosovo, most of them for biology teaching. As this reflects most likely the current situation in school, it at least partly explains why environmental issues are hardly in the mind of people in Kosovo today (Lindemann-Matthies & Hyseni, 2009). Few books for the primary-school level contained environmental topics. This is unfortunate as environmental topics should be integrated into all levels of the educational system (UNDP, 2007). Raising environmental awareness at the primary school level is particularly important as the time between the first and fifth grade is seen as the most opportune period for emphasizing affective, emotional concern for living species (Chawla, 1998).

Almost all environmental topics were meant to be taught from a natural science point of view and provided only ecological and environmental content knowledge. Pupils were hardly made aware of ways how to protect and conserve the environment, and were also not encouraged to become active during school time. Moreover, a critical reflection of human attitudes towards the environment and the consequences of certain actions were hardly included in textbooks in Kosovo. A similar situation is found in the neighbouring countries Bulgaria and Turkey, where environmental education is mostly part of the science education curriculum (Erdogan et al., 2009). In the neighbouring country Macedonia, however, an elective course 'Environmental Education' is offered for schoolchildren from grade 7 to 9 (Srbinovski et al., 2010). A neglect of approaches other than scientific ones was also apparent in a study on the initial education of primary school teachers in several European countries (Lindemann-Matthies et al., 2009). Here, teacher students were provided with content knowledge regarding biodiversity, but not with knowledge about benefits and values attached to biodiversity and its conservation, and the methodological approaches needed to deal with the controversial nature of biodiversity.

Environmental topics were rarely included in subjects such as 'civic education, 'man and nature' and 'social education'. However, these subjects are obligatory in school and

would, due to their subject orientation, provide excellent opportunities for educational approaches that enable people to deal with participatory and democratic processes. Such approaches are urgently needed in both formal and informal education in Kosovo (UNDP, 2004; Lindemann-Matthies & Hyseni, 2009). The subject 'man and nature' aims at developing pupils' competence for scientific inquiry. It also aims at developing ecological awareness and action competence in order to preserve a healthy environment and quality of life. The subject 'social education' aims at developing pupils' cultural and collective identity. Pupils should learn how to live together peacefully, develop attitudes of tolerance and respect for natural and cultural diversity, and to engage in the process of democratic renewal of the Kosovo society. The new subject 'civic education' focuses on the development of knowledge, skills and attitudes necessary for democratic citizenship (for more information see the Kosovo Curriculum Framework, 2010).

Interestingly, the third approach (providing pupils with ways for constructive solutions to environmental problems and encouraging them to become active in protecting the environment) was strongly reflected in the objectives for certain subjects and grades, albeit not in the respective textbooks. Almost all biology curricula wanted to provide pupils with environmental problem-solving skills, and to encourage them to become active in protecting the environment. Moreover, curricula for 'civic education' as well as 'man and nature' also aimed at developing skills in environmental protection. This gives reason to hope that with the creation of new textbooks, ways on fostering action skills and competence might be included and thus reach teachers in school. However, this would also mean that teachers actually value textbooks and regard them as an important teaching and learning resource which might not necessarily be the case (Mohammad & Kumari, 2007).

Even with the development of new textbooks, teachers might still be reluctant to include approaches other than the 1st one (provision of content knowledge) into their teaching. Although teacher preparation is under reform in Kosovo, it is still rather subject- and content-focused than competency-based. Teaching methods in preservice education are mostly lectures, university textbooks are often rather old, professors authoritarian in their approach to students, and practice teaching of short duration (Walker & Epp, 2010). All of these characteristics might impede the envisaged process-oriented,

participatory, and action-oriented learning approach to environmental education in school (see The New Kosovo Curriculum Framework, 2001).

3.5. Conclusions

The results of this study clearly show that only few environmental topics are currently integrated in textbooks in Kosovo. Moreover, almost all of these topics are approached from a natural science point of view. However, several subjects in school such as 'civic education, 'man and nature' and 'social education' would provide excellent opportunities to integrate the different elements of education for sustainable development, as they comprise scientific inquiry, ecological awareness-raising as well as process-oriented, participatory, and action-oriented learning approaches.

At present, classroom education in Kosovo is teacher-centred, and little emphasis is placed on the understanding of environmental concepts and topics or the development of critical thinking skills (Pupovci, 2002). Although the promotion of critical thinking skills as well as action competence is explicitly mentioned in at least some subject curricula, it is rather neglected in the corresponding textbooks. This might impede modern educational approaches that envisage fostering creative problem solving, communication and social skills in all stages of education (Pupovci, 2002; Kosovo Curriculum Framework, 2010). Upgrading teachers' professional knowledge and skills and renewing textbooks are thus seen as necessary conditions for substantial educational reforms in countries of the Balkan (UNESCO, 2009; Sahlberg & Boce, 2010).

However, it is hardly known to which extent single teachers are already including environmental topics into their teaching in Kosovo and how they approach these topics. Future research should thus investigate teachers' engagement in environmental education in Kosovo, the teaching approaches used, the obstacles perceived, and the needs expressed.

4 Environmental education in high schools in Kosovo - a teacher perspective

Abstract

The integration of education for sustainable development (ESD) into all levels of education is a key priority in Kosovo's environmental action plan. However, at present it is not even known how environmental education (EE) is integrated in the country's educational system. With the help of a written questionnaire and in-depth interviews with 18 teachers, this study investigated the integration of EE in high schools (optional upper secondary education) in Kosovo. The representative sample of biology, geography, chemistry and civic education teachers (overall 244 persons) focused on various kinds of pollution and hazards of pollutants. Teachers' choice of topics was highly relevant, place-based and linked to the experiences of pupils, but excluded sustainability issues such as the loss of biodiversity. EE was approached in three ways. The first approach critically reflected links between the natural, social and cultural environment, while the second approach was characterized by knowledge submission of environmental facts. The third approach aimed at capacity-building and, in the sense of ESD, understood learning as process-oriented, participatory and action-oriented. However, this approach was rather uncommon, most likely due to insufficient teacher preparation, too large classes (up to 50 pupils) and too little time (just one hour per week for EE). Class size and time also restricted outdoor activities, in particular field work. Nevertheless, in view of the interviewees' ideal EE would mean outdoor education, field work and other place-based, capacity-building practical experiences, and the development of critical thinking skills. This exemplifies that approaches to ESD may find support from dedicated teachers in Kosovo.

4.1 Introduction

The integration of education for sustainability (ESD) into all levels of education is a key priority in Kosovo's environmental action plan (Kabashi-Hima, 2011). A competency-based approach is envisaged (Beqiri, 2010) that will have important implications for classroom practices such as the integration of cross-cutting issues, creative problem solving, interactive teaching and learning, and a focus on teaching and learning that is

student-centred (MEST, 2010; Kabashi-Hima, 2011). As environmental destruction is one of Kosovo's most pressing issues, the new strategy for sustainable development explicitly demands a strong focus on environmental issues and environmental protection when integrating ESD in schools (Kabashi-Hima, 2011).

Studies indicate that there is a large gap between recent policy rhetoric (advertising ESD as the dominant principle) and actual practices in schools (see discussion in Stevenson, 2007; UNESCO, 2009). Both complexity and ambiguity of EE and ESD coupled with constraints of lack of time, space, and appropriate support from educational leaders are substantial challenges for teachers to deal with (Stevenson, 2007). Especially in countries such as Kosovo that lack tradition in EE, sustainability education cannot just be imposed from above. A bottom-up approach that builds upon teachers' experiences, perceived obstacles and needs might be more promising.

This study investigated with the help of a written questionnaire and in-depth interviews how high school teachers (grades 10-12) in Kosovo tackle environmental issues in school. The upper secondary level was chosen as environmental issues are most likely taught at this stage (Hyseni & Lindemann-Matthies, 2011; see chapter 3). The present study contributes to international studies on the implementation of environmental education or, more recently, education for sustainability in schools (e.g. Chatzifotiou, 2005; Sleurs, 2008; Srbinovski et al., 2010). It helps to identify ways how best ESD approaches can be linked to recent classroom practices and teaching content. It also helps to identify areas for increased pre-service and in-service teacher education, which are seen as an important component of a strategy towards sustainable development (KEAP, 2006; UNDP, 2007). As ESD has not yet been introduced into Kosovo's education system (Kabashi-Hima, 2011), teachers were not expected to know much about it. Teachers' familiarity with ESD was therefore briefly investigated, but otherwise this study focused on teachers' experiences with EE.

Main objectives of the study were to investigate:

1. how familiar upper secondary teachers in Kosovo are with EE and ESD, and where they receive their knowledge from,
2. which information sources they use when approaching environmental issues in school,

3. which issues they address and why,
4. which obstacles they perceive and which needs they have with regard to EE,
5. how they approach EE, and how much time they spend on certain activities,
6. whether they conduct outdoor education and field work,
7. which goals they prioritize and how they imagine ideal EE to be.

4.2 Methods

4.2.1 Study design and data collection

In summer 2010, 74 of the overall 82 high schools in Kosovo were visited. The remaining eight schools were specialized on subjects such as arts and did not tackle natural science / environmental issues. In each school, a written questionnaire (in Albanian) was handed to the biology, geography, chemistry and civic education teachers (overall 272 persons). They were asked to fill in the questionnaire and to have it ready in one week (second personal visit). All teachers cooperated, but 28 did not teach environmental issues and were thus removed from the sample.

The final sample (n = 244) included 80 biology, 64 chemistry, 52 civic education and 48 geography teachers. They were between 23 and 65 years old (mean age = 47 years), and had between one and 43 years of teaching experience (mean experience = 20 years). About 77% of participants were men which is typical for the upper secondary level in Kosovo (Ministry of Public Administration, 2010).

Due to ambiguous postal addresses and dysfunctional mail services in Kosovo, a mail questionnaire was not feasible. Moreover, school visits, although time-consuming and more expensive, ensured that a representative number of high school teachers participated. Anonymity was guaranteed, but teachers were asked to state their name and address in case they were willing to participate in a subsequent interview study. Overall, 105 biology and civic education teachers volunteered to do so, and of those 18 were selected (14 biology and 4 civic education teachers). Selection criteria consisted of a special interest in EE / ESD (indicated by comments in the questionnaire), but also of different age, sex, teaching experience, and location of school. Chemistry and

geography teachers only occasionally approached environmental issues and regarded themselves as unsuitable interview partners.

The interviews were conducted in spring 2011. All interviewees were contacted in advance by phone. The half-hour interviews took place in teachers' respective schools as not to interfere with their teaching schedule. All interviews were audio recorded. Interviewees (50% women) were between 26 and 56 years old (mean age = 39.8 years). Six of them were less than 35 and further six more than 45 years old. They had between one and 30 years of teaching experience (mean experience = 14 years), and were from nine different schools in five different municipalities (Figure 4.1).

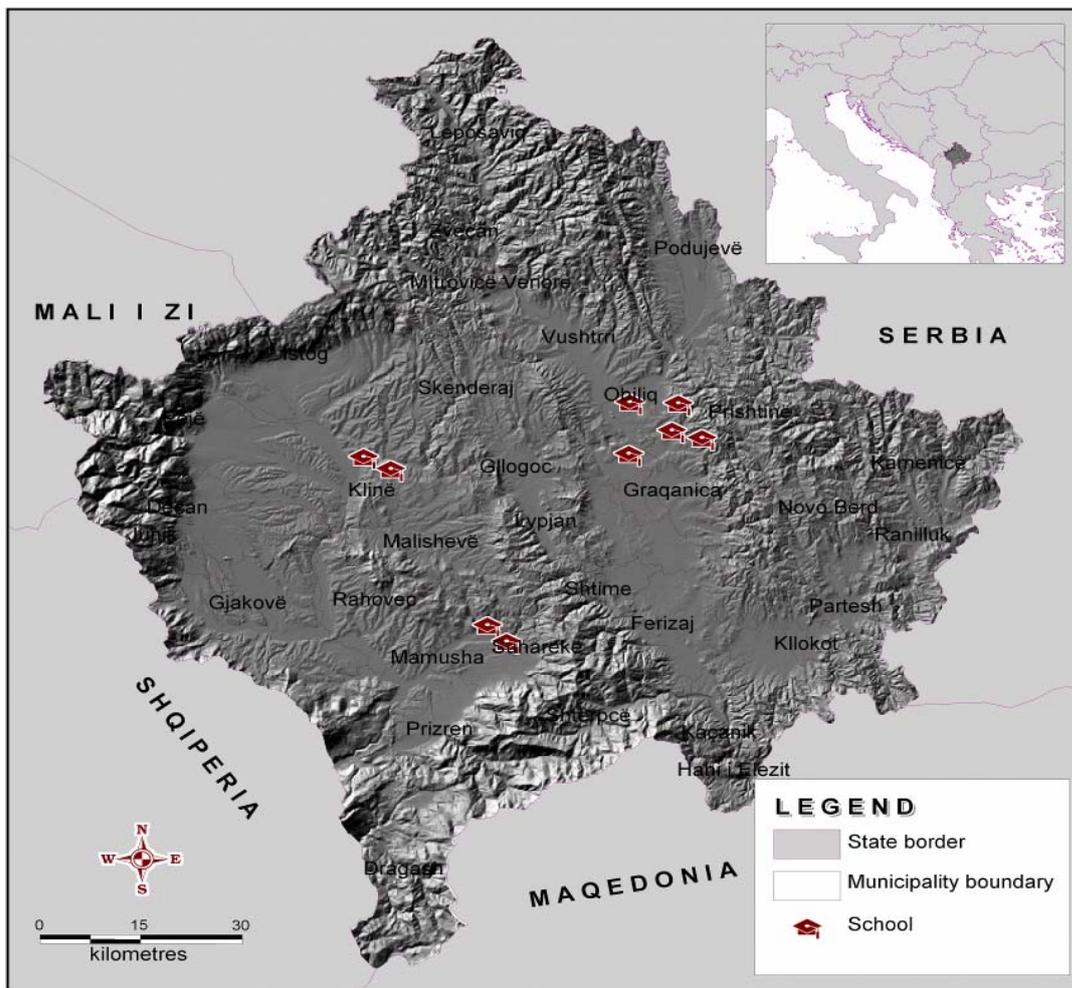


Figure 4.1: Location of schools in which the interviews were carried out. Source: Kosovo Environmental Protection Agency, GIS sector.

4.2.2 Questionnaire

The first part of the questionnaire addressed teachers' familiarity with EE and ESD, the issues taught and obstacles perceived (English translation and original version of the questionnaire in appendix II and III). Study participants were asked whether they had heard about EE and ESD and, if so, where. They were then asked which environmental topics they teach and which information sources they use. They were further asked to write down obstacles they face when teaching EE and needs they have. Other studies have shown that large class sizes, timetable problems, lack of infrastructure and unsupportive colleagues might impede EE (e.g. Keown, 1986; Simmons, 1998; Tilling, 2004).

The second part of the questionnaire investigated how EE was approached. Study participants were shown a list of 33 different approaches (as shown in Table 3) and asked to estimate the proportion of time they dedicate to each approach (<20%, 21-40%, 41-60%, 61-80%, >80%). We used a questionnaire for teacher educators in Switzerland (published in Schleicher, 2001), but left out and rephrased items to adapt it to the situation in Kosovo. The third part investigated teachers' priorities. Study participants were shown a list of 26 different goals of EE (also derived from the Swiss questionnaire; items in Table 4) and asked to indicate for each goal their priority (on 4-step scales, ranging from 1: no priority to 4: high priority). Finally, participants were asked about their age, sex, years of teaching experience, and subject specialization as this might influence their teaching content and way of teaching.

4.2.3 Interview guideline

The in-depth interviews aimed at extending and deepening the discussion of reasons for choosing certain responses in the questionnaire (English translation and original version of the interview agenda in appendix IV and V). As all interviewees had filled-in the questionnaire, items were not repeated. Instead, interviewees were asked to explain what ESD means and how it might differ from EE. If they were unsure about the meaning of ESD, a definition was presented. Corresponding to the first part of the questionnaire, interviewees were then asked to reflect about their choice of issues, curriculum demands and support of colleagues. Corresponding to the second and third

part of the questionnaire, interviewees were asked to describe in detail their educational approaches to EE, including outdoor education and field work, and to reflect about obstacles and needs. They were also asked to describe an ideal EE lesson, i.e. ignoring all obstacles that might impede their teaching in reality. Finally, they were asked whether they had already participated in teacher training courses and, if so, in which ones.

4.2.4 Pretest and data analysis

All questions addressed were previously discussed in the research team and with colleagues. The validity and reliability of the questionnaire items were tested in a trial run with 23 teachers from a large high school in Kosovo who did not participate in the study. The answers to the open questions were content-analyzed and sorted into categories according to the type of responses given. Coding was always carried out by author 1 and at least one other member of the team. Reliability was judged by comparing the categorizations of author 1 and the other reader(s). The interviews were fully transcribed and translated into English.

Multiple regression analyses with backward elimination of non-significant variables were used to identify possible predictors for study participants' leaning on certain approaches and goals for EE. Because this type of analysis does not allow strong correlations between explanatory variables, Pearson correlations between the explanatory variables were tested first. Only variables with $r < 0.350$ were included in the models (Crawley, 2005). As study participants' age was strongly correlated with teaching experience ($r = 0.75$), only the latter was included in the analyses.

Before the analyses, the number of items (approaches and goals) was reduced by factor analysis (Eigenvalues >1). An orthogonal type of factor rotation (varimax) was used according to the recommendations in Frane & Hill (1976), and three factors were extracted. The influence of the following variables was then tested: location of school, sex, teaching experience (years), subject specialization.

4.3 Results

4.3.1 Familiarity with EE and ESD

While all study participants felt familiar with the term EE, only about 70% had heard about ESD. Both terms were mainly known from TV or radio, university education and from literature (Table 4.1).

Table 4.1: Main sources of information about (a) environmental education (EE) and (b) education for sustainable development (ESD) by high school teachers (n = 244) in Kosovo. Answers to the open questions were sorted into broad categories. Multiple answers were possible.

Source of information	(a) EE	(b) ESD
	Responses (%)	Responses (%)
Media (TV, radio)	46.3	36.9
Education	41.4	16.8
<i>University</i>	26.2	13.9
<i>School</i>	15.2	2.9
Literature	22.5	9.8
Internet	8.6	5.3
Seminars	5.1	8.2
Others answers	4.5	2.5
Never heard the term	-	29.1

Although the term ESD in itself was known from different sources (see Table 4.1), none of the 18 interviewees knew its meaning. Moreover, after reading the definition most interviewees felt that EE is the same as ESD:

- “*This is the first time I hear about ESD. I have no idea what it means*” (female biology teacher, 26 years old).

- *“I have heard about ESD, but cannot explain what it is. There is no difference between ESD and EE”* (male biology teacher, 49 years old).
- *“I have never heard about ESD. There is no difference between EE and ESD”* (female civic education teacher, 47 years old).

4.3.2 Information sources used

About 93% of participants used books as an information source for EE, 80% the mass media, 71% the internet, 41% material from their own teacher education and 27% other sources such as booklets from environmental organizations. The interviews also showed that a variety of sources was used. However, one university book, although almost 30 years old, was explicitly mentioned by 14 interviewees:

- *“I use the book by Dervish Rozhaja on pollution and protection of the environment. It is from 1984 and I have used it myself during studies”* (male biology teacher, 56 years old).
- *“I use the university book by Dervish Rozhaja on pollution and protection of the environment, but also booklets and sometimes the media. We do not have enough literature which means that we do not have enough information”* (male biology teacher, 40 years old).
- *“I often use the internet but also literature I still have from university, e.g. the book by Dervish Rozhaja”* (female biology teacher, 26 years old).

The internet was mentioned by 11 interviewees of all ages:

- *“I speak English and do not have problems in finding literature. I use my university books and also search the internet for scientific articles. Every Tuesday I watch “Voice of America” in Albanian. In the science section, environmental topics are often presented. Good information is available, but sometimes has to be simplified. Information from international sources is more useful for EE than those from national ones”* (female biology teacher, 34 years old).

- *“I use the internet and university books. The problem is that these books are not written for pupils in school; they are too complicated”* (female civic education teacher, 28 years old).

4.3.3 Environmental issues taught and selection criteria used

Study participants strongly focused on environmental pollution and environmental protection (Table 4.2). While aspects of global warming were at least approached by almost a third of participants, the loss of biodiversity and related conservation aspects were hardly dealt with. Some teachers explicitly pointed out that they wanted pupils to understand human-environment-interactions, and to foster environmental awareness and behaviour.

All interviewees placed great care on the selection of local, up to date issues. Typical statements included:

- *“I select high priority issues such as air, water and soil pollution or global warming. I always start with national and then move to international issues”* (female biology teacher, 26 years old).
- *“I select issues in line with the curriculum, but as we are allowed to change up to 20% of its content, I also include local issues such as water or river pollution into my teaching”* (female biology teacher, 34 years old).
- *“My selection of issues is based on the curriculum. However, if pupils are interested otherwise, I select up to date issues they want to know about. To teach these issues, I have to find extra literature”* (male biology teacher, 56 years old).
- *“Usually, I choose topics in line with the curriculum. However, this depends on my pupils. Together, we might choose topics that are attractive and up to date”* (female civic education teacher, 47 years old).
- *“Usually, I choose topics which are pressing ones such as air or water pollution”* (male biology teacher, 40 years old).

Table 4.2: Environmental issues taught by high school teachers (n = 244) in Kosovo. Answers to the open question were sorted into broad categories. Multiple answers were possible.

Category	Responses (%)
Environmental pollution	118.5
<i>Water pollution</i>	32.8
<i>Air pollution</i>	29.1
<i>Environmental pollution in general</i>	21.3
<i>Soil pollution</i>	20.5
<i>Radioactive pollution</i>	5.3
<i>Waste</i>	3.3
<i>Acid rain</i>	3.3
<i>Food pollution</i>	2.9
Environmental protection	60.2
<i>Environmental protection in general</i>	35.7
<i>Water protection</i>	6.1
<i>Nature protection and protection of greenspaces</i>	6.1
<i>Waste management</i>	4.9
<i>Air protection</i>	4.5
<i>Soil protection</i>	2.9
Global change	39.7
<i>Global warming</i>	24.6
<i>Greenhouse gases</i>	6.1
<i>Ozone layer depletion</i>	5.3
<i>Loss of biodiversity and species protection</i>	3.7
Society and environment	13.1
<i>Interaction between humans and environment / nature</i>	10.3
<i>Environmental awareness and behaviour</i>	2.8
Deforestation and forest protection	6.1
Noise	3.3
Energy consumption	2.9

4.3.4 Obstacles and needs

Study participants named various obstacles to EE. Irrespective of their subject specialization, teachers most often mentioned the lack of suitable literature, IT technology and equipment (Table 4.3). Their needs corresponded to the obstacles, i.e. more up-to-date literature, IT technology and equipment, and time (Table 4.4).

For all interviewees restricted time was *the* constraint to EE, while colleagues and head teachers were considered as rather supportive and not a constraint at all. Typical statements included:

- *“I have only one hour per week and this is almost nothing. We have already applied for more teaching hours at the ministry of education. However, the experts who draft the curricula know nothing about the importance of EE and do not react to our requests”* (male biology teacher, 45 years old).
- *“I have only one hour per week and this is very little. But in this way it is regulated by the ministry of education. We would at least need three hours per week for EE”* (male civic education teacher, 31 years old).
- *“We need more hours. People who draft the curriculum know nothing about the importance of EE”* (female biology teacher, 40 years old).
- *“I have two hours per week for biology and one hour per month for EE, i.e. eight hours a year. This is nothing, but it is impossible to change the curriculum. We need many more hours if we want to change our environmental situation”* (male biology teacher, 46 years old).

Table 4.3: Obstacles perceived by high school teachers (n = 244) in Kosovo when teaching environmental education. Answers to the open question were sorted into broad categories. Multiple answers were possible.

Obstacles	Responses (%)
Lack of suitable literature	57.8
<i>Lack of literature in general</i>	41.8
<i>Lack of textbooks</i>	16.0
Lack of IT technology and equipment	35.2
<i>Lack of PCs</i>	15.6
<i>Lack of data projectors</i>	15.1
<i>Lack of working tools in general</i>	3.3
<i>No internet</i>	1.2
Lack of time for outdoor teaching	20.5
<i>Lack of time for field work</i>	16.0
<i>Lack of time for field trips and excursions</i>	4.5
Curriculum constraints	11.5
<i>Not enough hours for EE</i>	8.2
<i>Not enough space for EE in curriculum</i>	3.3
Missing lab facilities	8.2
Other obstacles	5.6
<i>Insufficient teacher preparation</i>	3.6
<i>Missing support from authorities and lack of funding</i>	2.0
No obstacles mentioned	8.2

Table 4.4: Needs perceived by high school teachers (n = 244) in Kosovo when teaching environmental education. Answers to the open question were sorted into broad categories. Multiple answers were possible.

Needs	Responses (%)
More suitable literature	58.2
<i>More literature in general</i>	41.8
<i>More textbooks</i>	16.4
More IT technology and equipment	26.2
<i>More PCs</i>	9.0
<i>More data projectors</i>	6.6
<i>More working tools in general</i>	5.3
<i>Internet</i>	5.3
More time for outdoor teaching	22.5
<i>More time for field work</i>	19.7
<i>More time for field trips and excursions</i>	2.8
Curriculum improvements	14.3
<i>More hours for EE</i>	13.1
<i>More space for EE in curriculum</i>	1.2
More lab facilities	10.2
Better teacher preparation	7.8
Other needs	3.6
<i>More support from authorities and more funding</i>	2.8
<i>Better working conditions</i>	0.8

4.3.5 Time spent on certain activities

Study participants spent a considerable proportion of time to work out consequences of environmental change for humans. Least time was spent on practical activities (highest and lowest mean scores in Table 4.5). For the most part, EE was carried out indoors, with teachers as the primary agents of knowledge transfer.

Table 4.5: Time spent on environmental education (EE) by high school teachers (n = 244) in Kosovo. Teachers were asked to estimate the proportion of time spent on 33 different aspects. In brackets: mean scores \pm SE (coding from 1: <20% to 5: >80%).

Aspects of EE	Proportion of time spent on certain aspects of environmental education (% of responses)				
	<20%	21-40%	41-60%	61-80%	>80%
We work on consequences of environmental change to humans. (3.9 \pm 0.08)	9.8	5.7	15.6	24.6	44.3
The teaching takes place in school. (3.8 \pm 0.08)	8.6	9.0	13.9	27.0	41.4
As a teacher I am active. (3.7 \pm 0.08)	7.4	8.2	19.3	33.6	31.6
I choose topics from books. (3.7 \pm 0.08)	7.0	11.1	21.3	26.6	34.0
We analyze pupils' environmental behaviour. (3.7 \pm 0.08)	6.6	7.8	22.1	33.2	30.3
We work on the origin of environmental problems. (3.7 \pm 0.08)	7.0	10.2	22.5	30.3	30.0
We discuss our own attitudes towards nature when talking about solutions. (3.7 \pm 0.08)	8.2	9.0	19.7	27.9	35.2
I spend time on national (compared to international) topics. (3.6 \pm 0.07)	4.5	10.7	31.1	30.3	23.4
We link societal values to the origin of environmental problems. (3.5 \pm 0.08)	8.7	12.3	25.6	26.7	26.7
We work on general environmental problems. (3.5 \pm 0.08)	9.4	11.1	26.2	27.5	25.8

Aspects of EE	Proportion of time spent on certain aspects of environmental education (% of responses)				
	<20%	21-40%	41-60%	61-80%	>80%
We analyze stakeholders' environmental behaviour. (3.5 ± 0.08)	11.5	13.5	15.6	36.9	22.5
I teach environmental education as a disciplinary subject. (3.5 ± 0.09)	12.3	11.9	19.7	27.9	28.3
We link people's lack of initiative to the origin of environmental problems. (3.4 ± 0.08)	9.4	16.4	20.5	28.3	25.4
My pupils work theoretically. (3.4 ± 0.09)	13.1	14.8	19.3	24.2	28.7
I select topics for environmental education. (3.3 ± 0.09)	14.4	13.5	25.4	21.7	25.0
We discuss pro and cons of technical solutions to environmental problems. (3.2 ± 0.08)	13.5	15.2	29.1	26.6	15.6
We analyze how many different environmental problems exist. (3.2 ± 0.09)	14.3	17.2	24.2	24.6	19.7
We discuss technical solutions for environmental problems. (3.1 ± 0.09)	18.4	16.0	23.4	25.0	17.2
We talk about wrong economic incentives in society. (3.1 ± 0.09)	21.1	14.9	18.2	26.0	19.8
We work on everyday situations such as washing, shopping. (3.1 ± 0.09)	18.8	16.4	24.6	16.8	23.4
I teach environmental education as an interdisciplinary subject. (3.1 ± 0.09)	20.1	16.8	20.9	20.1	22.1
My pupils are active. (3.0 ± 0.07)	11.1	23.4	33.6	23.8	8.2
I submit knowledge about the environment to my pupils. (3.0 ± 0.08)	12.7	23.8	26.2	24.6	12.7
We analyze how groups of society react to environmental problems. (2.8 ± 0.08)	20.9	20.1	29.5	17.6	11.9

Aspects of EE	Proportion of time spent on certain aspects of environmental education (% of responses)				
	<20%	21-40%	41-60%	61-80%	>80%
We speak about international topics. (2.7 ± 0.09)	28.7	16.0	27.9	16.8	10.6
We speak about national topics. (2.5 ± 0.09)	33.2	21.7	20.9	12.7	11.5
My pupils gather knowledge about the environment. (2.0 ± 0.06)	40.2	29.5	23.8	6.1	0.4
When working theoretically, my pupils choose the teaching material. (1.9 ± 0.07)	49.6	24.2	16.0	7.8	2.5
I choose up-to-date topics from press. (1.9 ± 0.07)	49.6	25.0	12.3	9.4	3.7
My pupils select topics for environmental education. (1.8 ± 0.07)	54.5	20.1	15.6	7.4	2.4
When working practically, my pupils conduct interviews outside. (1.6 ± 0.06)	67.2	18.0	9.8	1.2	3.7
When working practically, my pupils carry out scientific investigations. (1.4 ± 0.05)	74.6	13.1	9.0	2.0	1.2
The teaching takes place outside. (1.6 ± 0.07)	66.0	15.6	11.1	5.3	2.0

4.3.6 Approaches to EE

EE was approached in three different ways (as shown in a factor analysis). The first approach (factor 1 in Table 4.6) was characterized by critical reflections about human-environment-interactions with a focus on local issues and environmental problem-solving. The second approach (factor 2) was characterized by a disciplinary, teacher-centred knowledge submission in the classroom, while the third approach (factor 3) summarized aspects of inquiry-based teaching, i.e. active pupils outside school who work independently to gain environmental insights (see Table 4.6).

The first factor (critical reflections) and the third one (action orientation) were not correlated with any of the tested variables. The second factor (classic approach), however, was strongly correlated with the location of schools ($F_{5,231} = 4.45$, $P = 0.001$), a teacher's subject specialization ($F_{3,231} = 4.34$, $P = 0.005$) and teaching experience ($F_{1,231} = 12.64$, $P < 0.001$). Schools in the region of Gjilan and Mitrovica, biology teachers and experienced (older) teachers loaded high with factor 2.

Table 4.6: Approaches to environmental education by high school teachers (n = 244) in Kosovo. The number of items was reduced by factor analysis to three factors. Factor 1 (critical reflections) summarizes critical reflections about values, attitudes and environmental solutions; factor 2 (classic approach) summarizes a teacher-centred approach in the classroom; factor 3 (action orientation) summarizes aspects of inquiry-based teaching.

Aspects of environmental education (EE)	Factor scores		
	Factor 1	Factor 2	Factor 3
We link people's lack of initiative to the origin of environmental problems.	0.705		
We link values in society to the origin of environmental problems.	0.693	0.362	
We discuss technical solutions to resolve environmental problems.	0.687		
We talk about wrong economic incentives in society.	0.654		
We work on everyday situations such as washing, shopping.	0.642		
We discuss pro and cons of technical solutions to environmental problems.	0.627	0.377	
We speak about national topics.	0.607		
We discuss our own attitudes towards nature when talking about solutions.	0.598	0.447	
We speak about international topics.	0.597		
We work on general environmental problems.	0.575	0.460	
We work on consequences of environmental change for humans.	0.571	0.477	
We analyze how many different environmental problems exist.	0.482	0.452	
We analyze how groups of society react to environmental problems.	0.469		
I choose up-to-date topics from press.	0.465		0.387
I teach environmental education as an interdisciplinary subject.	0.361	0.304	
I spend time on national (compared to international) topics.	0.351		

Aspects of environmental education (EE)	Factor scores		
	Factor 1	Factor 2	Factor 3
As a teacher I am active.		0.790	
My pupils work theoretically.		0.722	
My pupils are active.		0.666	0.376
The teaching takes place in school.	0.332	0.640	
We analyze pupils' environmental behaviour.	0.402	0.630	
I submit knowledge about the environment to my pupils.		0.622	0.355
I choose topics from books.	0.339	0.605	
We work on the origin of environmental problems.	0.526	0.588	
I select topics for environmental education.		0.568	
We analyze stakeholders' environmental behaviour.	0.382	0.538	
I teach environmental education as a disciplinary subject.		0.509	
When working practically, my pupils carry out scientific investigations.			0.757
When working practically, my pupils conduct interviews outside.			0.665
When working theoretically, my pupils choose the teaching material.			0.629
My pupils select topics for environmental education.			0.595
My pupils gather knowledge about the environment by themselves.		0.419	0.493
The teaching takes place outside.			0.485

All interviewees made use of the second approach (teacher-centred knowledge submission indoors). Half of the interviewees used this approach alone. One explanation was that large class sizes did not allow other approaches. Interestingly, teachers themselves used the term 'classic' or 'traditional' when describing their teaching and argued as follows:

- *“I use the classic teacher-centred method. With 50 pupils in class other approaches are just not feasible”* (male biology teacher, 46 years old).
- *“Sometimes, I conduct field work. However, most of the time we stay inside and I lecture in the classic teacher-centred way: I talk and my pupils listen to me”* (male biology teacher, 40 years old).

The other half of interviewees combined the classic teacher-centred approach with other approaches and stated, for instance:

- *“I use debates and independent or group work, but sometimes also the classic approach”* (female civic education teacher, 28 years old).
- *“I combine new approaches with the traditional one, although the ministry of education wants us to use new methods only”* (male biology teacher, 56 years old).
- *“I use interactive approaches such as group work and debates whenever it is possible”* (male biology teacher, 49 years old).

4.3.7 Outdoor education and field work

Seven interviewees did not conduct outdoor teaching or field work. All of them mentioned time limitations and too many pupils in class, but only two referred to an unsuitable school ground. Typical statements included:

- *“Although I am sure that pupils would like it, I never conduct outdoor teaching. I do not have enough lesson hours, only 45 minutes per lesson, and too many pupils in class”* (male civic education teacher, 37 years old).
- *“I never conduct outdoor teaching. I have too many pupils in class and time limitations. However, we collect water samples from rivers and analyze them in the lab”* (female biology teacher, 48 years old).

- *“Our head teacher forbids us to go outside as it is too dangerous with 50 pupils. We cannot use the school ground; it is close to a main road and very noisy”* (male civic education teacher, 31 years old).

Nine interviewees did not conduct field work, but outdoor education:

- *“I conduct outdoor teaching very often. We discuss environmental issues and at the same time experience pollutants. I think that pupils like it very much and that it has a strong impact on their awareness. I use the school ground more often than other places, but it depends on the topic. For water pollution we go to the river, for air pollution to the city centre, and for deforestation to the forest. The school ground nicely fulfils my requirements for outdoor teaching as we have a lot of green space. I cannot conduct field work as I have too many pupils in class and time limitations (only 2 hours with 45 minutes each). However, if one day I will carry out field work, I am sure to have support from our head teacher and my colleagues”* (male biology teacher, 45 years old).
- *“We are often outside as it is attractive for pupils. They like it because they see things in reality. When, for example, the topic is about water, we visit a river nearby and observe its pollution. Our school ground is green and I often use it for EE. I cannot conduct field work as we have no lab facilities and too many pupils in class. Instead, I encourage pupils to search the internet for information and to make power point presentations”* (male biology teacher, 26 years old).
- *“I conduct outdoor teaching, usually near rivers or in the forest. Outdoor teaching is very attractive for pupils and they are interested in it. As I cannot only teach one hour outside (45 minute lessons), from time to time I organize a one-day excursion by bus. Sometimes, my pupils collect water samples in their free time and we analyze these samples in school. However, we do not own a lab and have only one microscope that I carry from class to class. We are facing many obstacles such as missing lab facilities and too many pupils in class”* (male biology teacher, 49 years old).
- *“I frequently conduct outdoor teaching. We visit rivers, forests, the city centre and landfills. In the lesson before, I present information about the topic. When we are outside, we discuss about the topic. Very often, I use the school ground for outdoor*

teaching. We have a lot of green space. I do not carry out field work as classes are too large and time is too limited” (female biology teacher, 40 years old).

Some interviewees provided further information about their teaching approaches outside. Typical statements included:

- *“When we talk about deforestation, we go to a place where we can see it. We usually start with a brainstorming to find out what pupils already know about it. We then discuss reasons for and impacts of deforestation, and how we could protect the forest. Finally, I draw some conclusions. Pupils like it very much” (female biology teacher, 35 years old).*
- *“I carry out outdoor teaching and pupils like it very much. In the lesson before we go out, I provide information about the topic and place we are going to visit. Outdoors, we start with a brainstorming and then discuss what we see. In the end, I make some concluding remarks. The location depends on the topic, e.g. rivers for water pollution and forests for deforestation. I like to use our school ground. It has a lot of green space. Sometimes, we collect water samples from rivers, but also butterflies. Pupils are interested in field work and I have support from our head teacher” (female biology teacher, 45 years old).*

4.3.8 Priorities and ideal EE

High school teachers placed high priority on fostering their pupils’ pro-environmental behaviour and careful use of resources. Moreover, they wanted pupils to know about the danger of pollutants for human health (Table 4.7). Least priority was placed on the analysis of political decisions.

Table 4.7: Priority placed on 26 different goals of environmental education (EE) by high school teachers (n = 244) in Kosovo. Teachers indicated their priorities on 4-step scales, ranging from 1: low priority to 4: high priority. In brackets: mean scores \pm SE.

Goals of environmental education (EE)	Priority placed on goals of EE (% of responses)			
	Low	—————▶		High
Pupils should learn how dangerous certain substances are for humans. (3.7 \pm 0.04)	3.3	1.6	13.5	81.6
I want to raise environmentally friendly behaviour in my pupils. (3.7 \pm 0.05)	3.7	2.9	17.2	76.2
Pupils should learn that environmentally-friendly behaviour means careful use of resources. (3.7 \pm 0.04)	2.5	2.0	23.4	72.1
Pupils should learn in simple ways how to behave environmentally friendly. (3.6 \pm 0.04)	2.0	4.5	29.5	64.0
I want my pupils to act environmentally friendly. (3.6 \pm 0.04)	2.9	3.3	23.0	70.8
Pupils should know indigenous plants and animals. (3.6 \pm 0.04)	1.6	1.6	32.0	64.8
Pupils should understand that nature functions in cycles. (3.6 \pm 0.04)	2.5	2.9	30.7	63.9
Pupils should discuss openly their ideas. (3.6 \pm 0.04)	2.9	2.5	28.7	66.0
Saving energy and water should be natural for my pupils. (3.6 \pm 0.05)	3.7	1.6	21.3	73.4
I want my pupils to have positive experiences. (3.6 \pm 0.04)	2.0	2.0	31.2	64.8
Pupils should learn to develop solutions to environmental problems. (3.5 \pm 0.04)	2.9	2.5	34.4	60.2
Pupils should learn how environmental problems can be solved. (3.5 \pm 0.05)	4.1	2.9	29.5	63.5

Goals of environmental education (EE)	Priority placed on goals of EE (% of responses)			
	Low	—————→		High
Environmental education should take place outside as often as possible. (3.5 ± 0.05)	5.7	3.7	25.0	65.6
I want to change my school. (3.5 ± 0.05)	4.5	4.1	30.3	61.1
I demonstrate that environmental problems start in everyday life. (3.4 ± 0.05)	3.7	8.2	30.7	57.4
Pupils should critically reflect their own consumer behaviour. (3.4 ± 0.05)	3.3	6.1	39.3	51.3
Pupils should recognize that the destruction of nature leads to environmental problems. (3.4 ± 0.05)	5.3	8.2	31.1	55.3
Pupils should learn how modern teaching can solve environmental problems. (3.4 ± 0.05)	4.5	7.8	29.5	58.2
Pupils should learn how environmentally friendly different products are. (3.3 ± 0.05)	2.9	6.1	45.5	45.5
Pupils should recognize that their attitudes are influenced by values. (3.3 ± 0.05)	3.7	8.2	43.4	44.7
I show pupils how landscapes have changed over time. (3.3 ± 0.05)	4.9	8.6	41.4	45.1
I do practical observations with my pupils. (3.2 ± 0.05)	5.3	11.5	44.7	38.5
Pupils should recognize that people have conflicting ideas about the use of nature. (3.2 ± 0.05)	4.1	10.7	45.9	39.3
Pupils should learn that environmental solutions might not be liked by public. (2.9 ± 0.06)	10.7	20.5	42.2	26.6
I demonstrate that environmental issues can be discussed differently. (2.6 ± 0.07)	27.5	17.6	27.9	27.0
I analyze political decisions with my pupils. (2.6 ± 0.07)	25.0	19.7	30.3	25.0

Certain goals were prioritized together (as shown in a factor analysis). The first factor summarized goals that focused on pupils' environmental and consumer behaviour from a teacher-centred perspective. Biology teachers loaded positive with this factor ($F_{3,238} = 3.77$, $P = 0.011$). The second factor comprised practical problem solving activities in every-day life, and the third factor critical reflections of values and attitudes in society. Both factors were not correlated with any of the tested variables. Teachers, who considered the critical reflection of values and attitudes as a priority goal, also approached EE accordingly (strong positive correlation between factor 1 in Table 4.6 and factor 3 in Table 4.8; $P < 0.001$).

Table 4.8: Goals that were prioritized together (see Table 4.7). The number of items was reduced by factor analysis to three factors. Factor 1 (teacher-centred learning and understanding) summarizes goals that focus on learning and understanding of pupils, factor 2 (student-centred problem solving) comprises goals that focus on problem solving in every-day life, and factor 3 (critical reflection) comprises critical reflections of values and attitudes in society.

Goals of environmental education	Factor scores		
	Factor 1	Factor 2	Factor 3
Pupils should learn how dangerous certain substances are for humans.	0.710		
Pupils should learn how environmental problems can be solved.	0.690		
I demonstrate that environmental problems start in everyday life.	0.664		
I want to raise environmentally friendly behaviour in my pupils.	0.663		
Environmental education should take place outside as often as possible.	0.648		
Pupils should learn in simple ways how to behave environmentally friendly.	0.626	0.424	
I want my pupils to act environmentally friendly.	0.609	0.460	
Pupils should critically reflect their own consumer behaviour.	0.597		
Pupils should know indigenous plants and animals.	0.595	0.350	
Pupils should learn that environmentally-friendly behaviour means careful use of resources.	0.561	0.523	

Goals of environmental education	Factor scores		
	Factor 1	Factor 2	Factor 3
Pupils should understand that nature functions in cycles.	0.437	0.711	
Pupils should discuss openly their ideas.	0.431	0.699	
Pupils should learn how environmentally friendly different products are.		0.686	
Saving energy and water should be natural for my pupils.	0.382	0.607	
Pupils should learn to develop solutions to environmental problems.	0.419	0.606	
I want my pupils to have positive experiences.	0.513	0.580	
Pupils should recognize that the destruction of nature leads to environmental problems.		0.580	
I want to change my school.		0.480	
Pupils should learn how modern teaching can solve environmental problems.		0.397	0.332
I demonstrate that environmental issues can be discussed differently.			0.643
I analyze political decisions with my pupils.			0.629
Pupils should learn that environmental solutions might not be liked by public.		0.351	0.619
I do practical observations with my pupils.	0.478		0.526
Pupils should recognize that people have conflicting ideas about the use of nature.	0.382		0.522
Pupils should recognize that their attitudes are influenced by values.	0.423		0.508
I show pupils how landscapes have changed over time.	0.329		0.359

Interviewees placed high priority on practical activities. When asked to imagine their ideal EE, ten interviewees referred to the importance of field work and other practical experiences for pupils. They often mentioned the investigation of pollutants:

- *“Best would be to carry out field work in polluted areas, to experience the pollutants and to learn more about them. In Kosovo, we talk much about the environment, but hardly act. Ideal EE for me would be a combination of awareness rising and practical experiences. I would also ask pupils what they want to know and leave it to them to organize a lesson”* (male biology teacher, 40 years old).
- *“The most important thing would be to go outside and see problems in reality. Unfortunately, we do not have such lessons. All I can do is to visit a river or forest and discuss some topics there. I cannot even take all of my pupils with me; I take the best ones from each class”* (male biology teacher, 49 years old).
- *“Good EE should be done in the field. We could recycle waste with our pupils or visit a recycling factory to see both environmental and economic aspects. If we have to stay inside, I would organize a debate so that pupils could actively present their ideas and conclusions”* (female biology teacher, 35 years old).
- *“Best would be to conduct as much field work as possible, e.g. observe and discuss the morning smog from power plants: what is it, who is causing it, what are consequences”* (male biology teacher, 46 years old).
- *“We should go outside and see problems in reality, for example air pollution by cars that are usually more than 20 years old and do not have filters. From my point of view, this would be the best way to do EE”* (female biology teacher, 48 years old).
- *“I would send pupils outside to see pollution and pollutants”* (female civic education teacher, 28 years old).

Seven interviewees did not mention practical activities. For them, good EE was rather teacher-centred, but included debates among the pupils, and one interviewee focused on critical thinking skills. Typical ideas were:

- *“I might introduce pupils to pollutants and preventive measures, and we discuss it then”* (female biology teacher, 26 years old).

- *“While some pupils study a paper on environmental pollution, others study preventive and treatment measures. Afterwards, they come together and discuss the issue from different angles. I sit among them and only interfere when something is unclear or wrong”* (male biology teacher, 45 years old).
- *“I would discuss with pupils measures to encounter environmental problems”* (male civic education teacher, 37 years old).
- *“Good EE would mean to have fewer pupils and to discuss in groups and exchange ideas”* (female civic education teacher, 47 years old).

One interviewee focused on critical thinking skills and argued:

- *“While some pupils study a paper on environmental pollution, others study preventive and treatment measures. They then discuss the issue and I could sit among them and only interfere when something is unclear or wrong”* (male biology teacher, 45 years old).

4.3.9 Teacher training courses

Three interviewees had not yet participated in any teacher training courses. However, they argued in line with the other interviewees that courses especially on new teaching methods and EE are urgently needed in Kosovo. Most interviewees liked their courses.

Typical statements included:

- *“Since 2001, I participate in training courses. Most of them are on methods. The courses are very informative and useful, and have a large impact on my teaching techniques. However, we need more courses especially for EE”* (male biology teacher, 45 years old).
- *“I have participated in a method course organized by GTZ. It was very informative. I need this training to expand my knowledge”* (female biology teacher, 45 years old).
- *“I have participated in one course and liked it very much. I would need more training in EE. We do not have many experiences here”* (female biology teacher, 40 years old).

- *“I have, for instance, participated in courses on critical thinking skills. I liked them very much and they were informative. They gave us a lot of literature. I need to expand my knowledge and learn new methods”* (female civic education teacher, 28 years old).

4.4 Discussion

High school teachers in Kosovo were rather unfamiliar with ESD, although they had heard about it in the media and sometimes at university. This is hardly surprising as ESD has not yet been introduced into the country’s educational system, including teacher education. Nevertheless, only few high school teachers did not include environmental issues in their teaching. Interviewees pointed out how important they considered EE to be, although their engagement and choice of topics was often confined by parameters of the curriculum. Similar to other European countries, EE in Kosovo has to be realized during normal teaching hours, most often in those reserved for biology (Hyseni & Lindemann-Matthies, 2011). Some interviewees had already discussed the problem of a too tight curriculum with experts from the ministry of education, however to no avail. They concluded that these experts were not interested in EE, most likely because their expertise lies more in general rather than environmental education or in administration.

Most high school teachers focused on various kinds of pollution when teaching EE, and also placed high priority on the dissemination of knowledge about the effects of pollutants on human health. Teachers’ choice of topics appeared to be strongly influenced by everyday life experiences; for instance, with polluted air and household waste. Studies from Hungary, Romania and FYR Macedonia came to similar results (Lang, 2000). In all three countries, air and water pollution, waste problems, and soil pollution were perceived as the main national environmental threats, and were thus in mind of people. In Kosovo, the dust emissions from power plants near Prishtina, for instance, are 74-times higher than European environmental standards would allow (UNDP, 2010), and access to safe drinking water is among the lowest in Europe (REC, 2000). Air pollution in Kosovo not only originates from power plants, but also from cars that are run with low quality gasoline or without catalytic converters (Frese et al.,

2004). Other important issues are garbage that is not correctly disposed of and deforestation (KBA, 2003). The topics that high school teachers selected for EE were thus highly relevant, place-based and linked to the experiences of their pupils.

Other pressing issues, however, such as global warming and especially the loss of biodiversity received much less attention, although teachers wanted their pupils to know indigenous plants and animals (high priority; see Table 4.7). Both global warming and biodiversity loss are prototypes of sustainability issues as they are characterized by a strong interrelationship between ecological, social and economic aspects, and uncertainty about the routes that should be followed to find solutions (Sleurs, 2008; Lindemann-Matthies et al., 2009, 2011). However, as long as high school literature is missing or outdated, global change issues might not be tackled in school. University books that are almost 30 years old such as the popular book by D. Rozhaja (just one edition dating back to 1984) do not include issues related to global change. Moreover, when teachers access the internet, a popular information source, they might face language problems. Scientific articles about global change are often written in English and thus of no use for teachers who lack the respective language skills.

EE was approached in three different ways. Two of these approaches were characterized by classroom education with little space for learners' own initiative. Central to the one approach (critical reflections) were human-environment-interactions. Teachers with a leaning on this approach considered the critical reflection of values and attitudes a priority goal of EE. Central to the other approach (classic approach) was a teacher-centred knowledge dissemination of environmental facts. The prominence of this approach in the regions of Gjilan and Mitrovica can be explained by residents' strong leaning on traditions and reluctance to make changes. This is reflected in a traditional, teacher-centred way of education and a strong supervision of teachers by the heads of school (personal communication with an education expert). Experienced and thus older teachers also showed a leaning on the classic approach, most likely due to their socialization in the authoritarian system in Kosovo (see Pupovci, 2002). However, also biology teachers who are the main transmitters of EE in their already tight syllabus (Hyseni & Lindemann-Matthies, 2011) fancied the classic approach as not to lose valuable teaching time. The third approach (action orientation) aimed at capacity-building and included elements of ESD, i.e. learning that is process-oriented,

participatory and action-oriented (Stevenson, 2006; Sleurs, 2008). However, this approach was rather uncommon (measured as the proportion of time that was dedicated to its single components), most likely due to a lack of teaching units on action competence (Lindemann-Matthies & Hyseni, 2011), insufficient teacher preparation, time constraints and too large classes.

Outdoor teaching and field work, although important components of EE (e.g. Kenney et al., 2003; Malone & Tranter, 2003; Rowe & Humphries, 2004; Lindemann-Matthies, 2006), were rather restricted by large class sizes, timetable obligations, and missing lab facilities. However, interviewees who actually conducted outdoor teaching felt very positive about it. They sometimes used the school ground as a teaching source, and only few regarded their school ground unsuitable (too noisy, too small, not enough green space). There are many advantages of using school grounds for EE. Working 'nearby' saves valuable teaching time and money, and provides a safe environment for large classes (e.g. Lindemann-Matthies, 2006, and discussion therein). However, teachers have to be encouraged to do so as they are often unaware about the potential of nearby nature (Simmons, 1998; Brewer 2002).

In view of the interviewees, ideal EE would include outdoor education, field work and other place-based, capacity-building practical experiences, but also the development of critical thinking skills. These are pleasing results as they exemplify that modern educational approaches, regardless under which header - EE or ESD, may find support from dedicated teachers in Kosovo. The strong emphasis on 'debates' can be explained by a popular teacher training initiative in Kosovo. Since more than ten years, certified courses on 'reading and writing for critical thinking' (RWCT) are offered, and more than 6,000 teachers have already participated in one of these courses (KEC, 2012). The RWCT training wants to equip teachers with skills for creating a democratic, student-centred learning environment (Pupovci & Taylor, 2003). Regardless of such offers, in-service teacher education in Kosovo is scarce (Pupovci, 2002), inadequate, often donor-led, and offered ad hoc in relation to specific projects (European Training Foundation, 2008). Interestingly, as mentioned by one of the interviewees, the ministry of education wants teachers to use only new methods. However, as long as respective training courses are not offered and structural parameters such as large class sizes, few lesson

hours and 45-minute units are not changed by the ministry, such summons might come to no avail.

Caution should be exercised in generalizing the results of this study. Although using a representative sample of high school teachers who are at present most likely the only ones approaching environmental issues in Kosovo, the sample is restricted to one country in Southeast Europe. Other developing countries might face other problems and might also set other priorities when integrating EE or ESD into their educational systems (examples in UNESCO, 2009). As mentioned before, the new strategy for sustainable development in Kosovo explicitly demands a strong focus on environmental issues when integrating ESD in schools (see Kabashi-Hima, 2011). However, economic and especially social aspects such as poverty have also to be dealt with when addressing SD issues in school.

4.5 Conclusions

Due to the strong need of Balkan countries for sustainable development, ESD should be integrated into all levels of the educational system (UNDP, 2007). This is especially important as Kosovo and other countries in the area are facing severe environmental problems which have to be dealt with. It has been pointed out that ESD should relate to the specific characteristics and circumstances of a region, and should be tailored to the needs of local people (UNDP, 2007). In this sense, high school teachers' interest in various kinds of pollution could be a good starting point for the development of suitable, up-to-date teaching units and respective educational materials. However, other important SD issues such as climate change and the loss of biodiversity must also be included.

The education system in Kosovo has been characterized as 'authoritarian', 'frontal' and 'directive' (Pupovci, 2002). However, with up to 50 pupils in class and little time for EE, approaches other than teacher-centred ones might be difficult. Interestingly, a study from Albania showed little evidence that reducing class-size would, in itself, lead to less teacher talk and more active pupils in high schools (Sahlberg & Boce, 2010). Similar to Kosovo, teacher talk in Albanian upper secondary schools occupied more than 70% of all lesson time and pupil-initiated talk constituted less than 30 seconds within typical

45-minute lessons. Without providing teachers with skills to apply group-work, problem solving and project activities in school, they will most likely continue with the lecture method and pupils will continue to memorize the material (Pupovci, 2002).

Upgrading teachers' professional knowledge and skills, renewing textbooks and providing schools with new technologies are necessary conditions for substantial educational reforms in countries of the Balkan (UNESCO, 2009; Sahlberg & Boce, 2010). As seen in this study, special assistance to teachers on student-centred approaches and the use of the outer classroom is urgently needed. The representative sample of high school teachers demonstrates that upper secondary education in Kosovo is far from fulfilling the set goals of ESD (as outlined in Kabashi-Hima, 2011), although a competency-based approach may find support from dedicated teachers. Unless education policies give high priority to supporting teachers in fulfilling modern EE or ESD, the country's ambitious educational goals will not be reached.

5 Design and evaluation of a new toolkit for environmental education in high schools in Kosovo

Abstract

Renewing textbooks, providing schools with new technologies, and upgrading teachers professional knowledge and skills are seen as necessary conditions for substantive educational reforms in Kosovo. Due to a lack of suitable textbooks, a new toolkit for environmental education (EE) in high schools in Kosovo was designed. The toolkit included teaching approaches suitable for education for sustainable development (ESD) and covered a wide range of locally-relevant environmental topics such as air, water and soil pollution, waste management, energy saving and the conservation of biodiversity. The toolkit was put into practice during a one-day inservice workshop with nine biology teachers (upper secondary level). At the end of the workshop and one year later, the feasibility of the toolkit was evaluated. Teachers' were rather satisfied with the workshop and stated that they had learned something new. Moreover, they liked the new toolkit and thought it practicable for use in school. However, they pointed out that without support of their head teacher they would not use it in school. One year later, study participants still liked the toolkit. However, only two teachers were still using it rather frequently. They were the only ones who reported to have support from head teachers and colleagues.

5.1 Introduction

Renewing textbooks, providing schools with new technologies, and upgrading teachers' professional knowledge and skills are seen as necessary conditions for substantive educational reforms in countries of the Balkan (Sahlberg & Boce, 2010). Due to a lack of suitable textbooks for environmental education (Hyseni & Lindemann-Matthies, 2011; see chapter 3) new teaching material has to be designed. At present, university literature is *the* major source of environmental information for high school teachers in Kosovo. Especially a book by Dervish Rozhaja is frequently used. Unfortunately, this book has only one edition that dates back to 1984, and thus presents outdated environmental data. Moreover, university literature in general was found to be too complicated for high school pupils to understand (see chapter 4).

As environmental destruction is one of Kosovo's most pressing issues, a strong focus on environmental issues and environmental protection should be envisaged in schools (Kabashi-Hima, 2011). Moreover, training courses on EE and ESD for teachers, but also school principles and administrators are urgently needed (UNESCO, 2009). It has already been pointed out that new teaching material for environmental education (EE) in ways of education for sustainable development (ESD) should relate to the specific characteristics and circumstances of the region, and should be tailored to the present and future needs of local people (UNDP, 2007). This is especially important as the management of the education system in Kosovo is already heavily subject to influence and interference (some would say occupation) by international organizations designed as responsible for education (Bassler, 2005). However, such a top-down approach might not be suitable for teachers in Kosovo. New teaching materials that focus on people's everyday life perception of, for instance, polluted air and garbage piles in Kosovo might be more promising for meaningful EE / ESD in the country (Lindemann-Matthies & Hyseni, 2009). Moreover, teachers should be involved in the development process of new teaching materials. At present, teachers in Kosovo have little say in shaping the educational agenda. They were found to be rather positive about reform, but were being expected to implement new curricula without being given the relevant textbooks or without having the time (European Training Foundation, 2008).

A first aim of this study was to develop a toolkit for use in high schools in Kosovo. The toolkit was meant to include teaching approaches suitable for ESD and to cover a wide range of environmental topics relevant for the country such as air, water and soil pollution, waste management, energy saving and the conservation of biodiversity (Lindemann-Matthies & Hyseni, 2009; see chapter 4). A second aim of this study was to put the toolkit into practice during a one-day inservice education workshop for high school teachers and to investigate for how feasible teachers considered the toolkit to be. A third aim was to involve teachers in the implementation process of the new teaching material by asking them a year later about their experiences with the material, about occurring problems and ways to encounter them.

5.2 Methods

5.2.1 Preparation of the toolkit

The toolkit was designed by M. Hyseni Spahiu (original version in Albanian in appendix VI). Locally relevant topics such as air and water pollution, waste management, energy saving, and the diversity of plants and animals were included. For each topic examples were presented and it was proposed how teachers could teach these topics, taking into account obstacles they might face. It was also ensured that the toolkit reflected the general aims and objectives of the national curriculum (The New Kosovo Curriculum Framework, 2001). The following criteria were taken into account when designing the toolkit:

- (1) High school teachers in Kosovo were found to be rather unfamiliar with ESD (see chapter 4). Although the toolkit was meant to include a range of teaching approaches suitable for ESD, the term 'education for sustainable development' was thus avoided and 'environmental education' used instead.
- (2) The toolkit should cover a wide range of locally-relevant topics. Such topics are, for instance, air, water and soil pollution, waste management, energy saving and the conservation of biodiversity (see Lindemann-Matthies & Hyseni, 2009; see chapter 4). Moreover, as environmental destruction is one of Kosovo's most pressing issues, the new strategy for sustainable development explicitly demands a strong focus on environmental issues and environmental protection when integrating ESD in schools (Kabashi-Hima, 2011).
- (3) The toolkit should be easy to read and understand.
- (4) Exercises of the toolkit should be easily applicable during normal lesson hours (45 minutes) and should be suitable for large classes. They should not rely on material that might be missing in schools in Kosovo such as lab equipment, PCs and data projectors (see chapter 4).
- (5) Exercises of the toolkit should actively involve pupils both inside and outside the classroom and school.
- (6) The toolkit should reflect the general aims and objectives of the national curriculum.

5.2.2 The one-day inservice teacher workshop

In spring 2012, ten high school teachers (all teaching biology) were selected for this study. They were selected from a pool of teachers who had already declared an interest to participate in further studies when filling in the questionnaire (see chapter 4). Selection criteria were a special interest in EE, different years of professional experience, and different location of their schools. The chosen teachers were contacted by phone and asked if they were still willing to participate in a workshop and a subsequent observation study. Nine teachers (five men) agreed to do so. They were between 26 and 49 years old (mean age = 43), and had between two and 26 years of teaching experience (mean experience = 17 years). They were from three different regions of Kosovo (each three from Prishtina, Peja and Prizren).

Teachers were informed about the place, date and time of the one-day workshop and asked to confirm their participation. Shortly before the workshop, they received a reminder by phone. The workshop took place on 9th of June 2012 at the University of Prishtina, starting at 9 am in the morning and ending at 16 pm in the afternoon. It was carried out by M. Hyseni Spahiu. At the beginning of the workshop, all participants received the toolkit. With the help of power point slides, its contents were presented step by step. At the end of the workshop all teachers were informed about the posttest.

After each activity (overall, the toolkit included 19 different ones), it was discussed with the high school teachers. The discussion focused especially on how best to implement it into the classroom and on the feasibility of the different approaches. All comments of the participants were recorded and later content-analysed.

The following questions were critically discussed:

- (1) Can each activity be carried out within a normal 45-minute lesson and, if not, how can it be modified to make this work?
- (2) Will there be enough support from head teachers and colleagues to use the new toolkit in schools?
- (3) Can each activity be carried out with a large numbers of pupils in class and, if not, how can it be modified to make this work?

- (4) Will the proposed material for measurements etc. be available and, if not, how can the activity be modified?

5.2.3 Experiences with the toolkit a year later

All teachers were contacted again almost a year later (May 2013) and asked about their experiences with the toolkit in between. Teachers in Prishtina were visited in person, while the other teachers were contacted by phone. This way, it was hoped to gain more in-depth information than a written questionnaire would have allowed. The following questions were addressed:

- (1) How often had teachers in the meantime used the toolkit? If they had not used it, why not?
- (2) Was there support from head teachers and colleagues to use the new toolkit in school?
- (3) Did teachers encounter difficulties with certain activities?
- (4) Did they modify certain activities and, if so, how?
- (5) Which activities did they like most and which ones did they like least?

5.3 Results

5.3.1 The toolkit

According to the results of the questionnaire investigation (see chapter 4), high school teachers in Kosovo are especially familiar with various kinds of pollution, and also place high priority on the dissemination of knowledge about the effects of pollutants on human health. It was thus assumed that they might also be curious and willing to teach different aspects of, for instance, pollution by using student-centered approaches. The final toolkit included overall six different environmental topics, of which four dealt with air, water and soil pollution as well as waste management. The other two topics dealt with energy saving and biodiversity, i.e. two topics high school teachers were found to be less knowledgeable about (see chapter 4).

Each topic included different activities which focused on the dissemination of practical skills. These skills are thought to enable pupils to continue learning after leaving school, to live sustainable lives and to manage and interact with the local environment. Typical skills comprise the ability to communicate effectively, to think about systems, to move from awareness to action, to work cooperatively with other people, to use processes such as knowing, inquiring, acting, judging, imagining, connecting, valuing and choosing, to develop an aesthetic response to the environment, to prepare materials for recycling, to grow, harvest and act otherwise in the local community (McKeown, 2002, p. 20). Overall, 23 different activities were described (overview in Table 5.1). Most of these activities could be carried out during normal 45-minute lesson hours. The chosen activities were place-based, included scientific and non-scientific approaches and especially aimed to foster pupils' action competence (see chapter 3).

Air pollution and other aspects

Kosovo is a country rich with lignite, and one of the most polluted countries in Europe, because its production and energy exploitation is based on fossil fuels up to 95% (Kabashi et al., 2012). The dust emissions from power plants near Prishtina, for instance, are 74-times higher than European environmental standards would allow (UNDP, 2010). Air pollution in Kosovo also originates from cars that are run with low quality gasoline and often do not have catalytic converters (Frese et al., 2004). Key pollutants associated with the energy and transport sectors are sulphur dioxide and nitrogen oxides. The burning of fossil fuels is causing an enhanced greenhouse effect, acid deposition and photo-chemical smog (Kabashi et al., 2012). Moreover, fly ash and bottom ash emitted from Kosovo thermopower plants negatively affect human health in the surrounding industrial areas (Zeneli et al., 2011). The toolkit offers four different activities related to air pollution, i.e. (1) pencil-and-paper-questionnaires, (2) carbon emission calculations, (3) pH measurements, (4) direct observations of exhaust fumes from vehicles in the street, (5) soil acidity tests, and (6) essay writing for the 'Earth Day' (see appendix VI and Table 5.1).

Activity 1 asks pupils to work in teams and to develop small written questionnaires about air pollution (or other environmental issues), to go out and let people fill-in these

questionnaires, to analyse the data and to present and critically discuss the results in class. It is a hands-on and place-based activity that especially wants to promote feelings of responsibility and citizenship (UNESCO, 2012). Activity 2 wants to visualize carbon sequestration and to raise or increase pupils' awareness. It asks pupils to draw a table and to calculate carbon emissions when walking, cycling or driving to school and other places. Activity 3 is inspired by the 'WATCH Acid Drops Projects' (more information in Thomson, 1987). It encourages pupils in an easy and enjoyable way to collect rain water at home, to measure its pH with simple indicator strips, to analyse the data, and to present and discuss the results in class. Activity 4 asks pupils to go out and monitor the degree of exhaust fumes from different vehicles with the help of a spread sheet. In addition, activity 5 encourages pupils to test with the help of vinegar and baking soda the acidity or alkalinity of soil. Activities 3 to 5 provide pupils with monitoring and analytic skills which are an essential part of quality ESD (McKeown, 2002). Activity 6 focuses on citizenship behaviour. Here, pupils are invited to write essays about environmental issues shortly before an environmental event such as the 'Earth Day'. Pupils are motivated to submit their essays to a local journal or to publish in their school newspaper.

Water pollution

Drinking water resources in Kosovo are dwindling and access to safe drinking water is among the lowest in Europe (REC, 2000). The main watercourses in Kosovo get contaminated with organic waste as there is no working sewage or wastewater treatment facility, and rivers are used as sinks for industries (Frese et al., 2004). The toolkit offers four different activities related to water pollution, i.e. (1) writing letters to environmental stakeholders, (2) poster exhibitions, (3) water conservation in school, and (4) field trips (see appendix VI and Table 5.1).

To enable young people to engage in public affairs, and to become active and responsible citizens is a major aim of education reform in Kosovo (Kosovar Stability Initiative, 2010; Kosovo Curriculum Framework, 2010). Activity 1 asks teachers to provide an input about environmental stakeholders in Kosovo and to explain their responsibilities and activities. Pupils are then invited to write a letter to the 'Kosovo

Environmental Protection Agency (KEPA)' addressing questions about water quality and management. Activities 2 and 3 are also designed to promote action competence as well as feelings of steward- and citizenship. Activity 2 wants pupils to create posters on the importance of clean water, to frame them and to install them at the nearest river or lake. Activity 3 involves pupils in decision-making processes that affect their own learning environment. Groups of pupils should investigate leaking taps and flushes in school and to come up with practical suggestions on how to conserve water. Activity 4 includes a field trip with the Hydrometrological Institute of Kosovo (HMIK) to observe how experts monitor water quality. Seeking co-operation with different kinds of stakeholders is seen as an important quality indicator for ESD (Breiting et al., 2005).

Waste

Another important issue in Kosovo is household garbage that is not correctly disposed of (KBA, 2003). The issue of waste is approached with six different activities, i.e. (1) art exhibitions, (2) waste behaviour investigations, (3) waste separation, (4) waste counts, (5) garbage container investigations, (6) recycling of waste.

Activity 1 asks pupils to collect every-day waste, to produce a piece of art out of it, and to display it at an exhibition either in school or the local community. This activity especially draws on imagination, aesthetic appreciation and creativity with the aim that pupils become sensitive to the aesthetic dimension of the natural world, develop imaginative ways of thinking, express themselves and participate in creative activities (McKeown, 2002). Activity 2 wants pupils to browse the internet on waste prevention and management, to design leaflets on appropriate waste behaviour and to distribute them in school. Before and after the distribution, waste behaviour in school is observed and recorded. All data are presented and discussed in class. Activity 3 asks pupils to create small containers from cardboard for waste separation, to strategically place them in school and to observe whether they are actually used. Activities 2 and 3 use whole school approaches and foster capacities needed for meaningful participation and co-operation. Moreover, the presentation of data in class enhances skills such as listening, expressing points of view, taking responsibility and showing solidarity which are all important components of ESD (Breiting et al., 2005). In activity 4, pupils are provided

with the per capita amount of daily waste in Kosovo, and asked to calculate the amount of waste in their family, city and the country. Teachers are encouraged to talk about waste treatment in class. Activity 5 asks pupils to empty a garbage container, to separate the waste, to weight it and to analyse the data. Activity 6 gives instructions on how to create bird feeders by using one-litre plastic bottles. Pupils are then asked to fill the feeders with seeds and to install them somewhere on the school ground. This activity again aims to foster imagination, expression and aesthetic appreciation, but also care for nature (McKeown, 2002).

Energy consumption and energy saving

Pupils are not only encouraged to recycle materials, but also to conserve energy (two different activities). In the one activity, pupils are asked to list all energy consuming articles at home, to find out how much energy they use and to calculate the daily amount of energy consumption. In the other activity (which could also be used for water saving), teachers explain the importance of energy saving and look up the monthly electricity bill of their school. Pupils look up the bill from home. At the first day of a month, both in school and at home small energy saving steps are undertaken, e.g. all lights are turned off when leaving a room, all electronic devices are switched off when not in use, light bulbs are changed into energy efficient ones. Afterwards, pupils compare the electricity bills before and after the intervention and discuss the results in class. Both hands-on activities promote feelings of responsibility and citizenship and foster pupils' action competence.

Plants and animals

One major environmental problem in Kosovo is the loss of biodiversity (Mehmeti et al., 2009). However, the public was found to be rather unaware of this issue (Lindemann-Matthies & Hyseni, 2009). Moreover, as shown in chapter 4, the loss of biodiversity received hardly any attention in high schools in Kosovo, although teachers wanted their pupils to know indigenous plants and animals. Five activities of the toolkit focus on biodiversity, i.e. (1) nature gallery, (2) planting trees, (3) species observations, (4) environmental games, and (5) compost heap. All require outdoor teaching which is

regarded as an important component of environmental education (e.g. Rowe & Humphries, 2004; Lindemann-Matthies, 2006), and liked by high school teachers in Kosovo (see chapter 4).

Activity 1 asks pupils to place a self-made picture frame around a plant (or, if possible, animal) that they especially value, to identify and observe the object framed, to take a picture of it and to create an exhibition at school. Activities such as the nature gallery were found to be very successful in increasing young people's perception and appreciation of local plants and animals (Lindemann-Matthies, 2005, 2006). In activity 2, pupils plant trees in their school ground, name the trees and take care of them as long as they are at school. Activity 3 asks pupils to find as many different species on their way to school as they can (prize for the winner), to investigate them for a month, to make notes about their observations and to present the results in class. Activity 4 includes an environmental game. A card with the name of a plant or animal is fixed to the head of each player with sellotape. Each player must now guess his own plant or animal by asking the others questions. These questions can only be answered with yes or no. In activity 5, pupils are encouraged to make a compost pile, to care for it and to observe it.

Table 5.1: Overview of activities described in the toolkit.

Activities	Location	Methods / social forms	Aims / Achievements
Pencil-and-paper-questionnaires, essay writing for Earth Day	Classroom, local community	Developing and conducting a questionnaire, writing and publishing an essay, practical work, data analysis, presentation and discussion of results, team work	Place-based and participatory learning, promotion of action competence, citizenship education, critical perception of classmates' presentations, respectful and responsible attitudes to the work of others, constructive communication
PH measurements, monitoring of exhaust fumes, carbon emission calculations, waste and energy consumption counts, soil acidity tests	Classroom, home, local community	Measuring, monitoring, calculating, note taking, data collection, presentation and discussion of results, individual work	Place-based learning, achievement of scientific / analytic skills, critical thinking, critical perception of classmates' presentations, respectful and responsible attitudes to the work of others, constructive communication
Addressing stakeholder (e.g. KEPA) on water pollution, preparing and exhibiting posters about water quality	Classroom, local community	Teacher input, practical work (letter writing, designing posters), poster presentation, team work	Formulating a problem, cooperation with stakeholders, networking, engagement in public affairs, becoming active and responsible citizens, participation in nature conservation activities
Monitoring of water management in school, observation of waste and energy saving behaviour, waste separation, garbage container investigation	Whole school	Measuring, monitoring, data collection, scientific experiments, evaluation of peers, self-evaluation, problem solving activities, internet search, data analysis, presentation and discussion of results, team work	Place-based and participatory learning, promotion of action competence, citizenship education, critical reflection and self-reflection, generating ideas for alternative solutions, involvement in decision-making processes, critical perception of classmates' presentations, respectful and responsible attitudes to the work of others, constructive communication

Activities	Location	Methods / social forms	Aims / Achievements
Joining HMIK on a field trip	Local community	Field trip, observation how an organization operates	Learning from experts, networking and co-operation
Nature gallery, planting trees, making a compost pile, species observations	School, local community	Practical outdoor education, field work, observing, taking notes, taking pictures	Participation in practical nature conservation activities, caring for nature, aesthetic expression
Art exhibition (waste), design of a bird feeder, environmental games	Classroom, school, local community	Practical work, process of imagination, creativity, play, exhibitions	Aesthetic appreciation of the natural world, promotion of creativity, artistic expression, caring for nature

5.3.2 Evaluation of the workshop and toolkit

Overall, teachers were rather satisfied with the one-day workshop and considered it as useful. Typical comments included:

- *“The toolkit and the exercises described are easy to implement in school”* (female biology teacher, 42 years old).
- *“For the first time I have received a toolkit that is really useful”* (male biology teacher, 49 years old).
- *“I have a lot of training in teaching methods and I am also familiar with Green Pack. I consider this toolkit useful”* (male biology teacher, 48 years old).
- *“I think that the toolkit will help me a lot in implementing new teaching methods”* (male biology teachers, 26 year old).
- *“I will do my best to implement the methods presented. Some of them are very practical and easy to implement”* (female biology teacher, 44 years old).

Almost all teachers were sure that they could work with the toolkit during normal lesson hours (45-minute units). However, they were less sure whether they had support from head teachers and colleagues. Typical comments were:

- *“I can only implement the toolkit in school if I have support from our head teacher. Without such support I can do nothing”* (male biology teacher, 26 year old).
- *“I had other training in the past. Unfortunately, I was never able to implement the new methods learnt as I never had any support from my head teacher”* (female biology teacher, 47 years old).
- *“For some of the exercises I will need double lesson time. I fear that some of my colleagues might not want to re-schedule their lessons accordingly”* (female biology teacher, 44 years old).
- *“It would be best to explain the importance of the toolkit first to head teachers”* (female biology teacher, 42 years old).

Only two teachers felt that large class sizes or financial reasons might restrict the implementation of the toolkit. However, both did not come up with a solution. They argued as follows:

- *“The number of pupils in class is too high for some of the exercises”* (male biology teacher, 46 years old).
- *“I cannot force pupils to buy equipment such as indicator strips for measuring rain water pH. I cannot even buy them myself”* (female biology teacher, 45 years old).

One teacher pointed out that pupils themselves might be an obstacle to the implementation of the toolkit:

- *“Pupils are not familiar with this kind of methods which might be an obstacle for the implementation”* (male biology teacher, 45 years old).

5.3.3 Experiences with the toolkit

One year after the workshop, study participants still reported to like the toolkit. However, only two teachers were still using it rather frequently. They were the only ones who reported support from head teachers and colleagues. Moreover, they reported

that everything they needed for the implementation of activities was provided by their head teachers. The other teachers had given up to work with the toolkit, mainly due to a lack of support from head teachers and colleagues. Typical answers included:

- *“As I had no support from our head teacher, I stopped using the toolkit, although I still think that it is a good guide”* (female biology teacher, 47 years old).
- *“I only tried once to implement one of the methods. However, I gave up using the toolkit as I realized that without support from the head teacher and my colleagues it was impossible to do so”* (male biology teacher, 26 years old).
- *“It was not possible to implement the activities as I had no support from others”* (male biology teacher, 45 years old).
- *“I could not use the toolkit as I had no support from our head teacher and also not from the parents”* (male biology teacher, 46 years old).
- *“In order to use the toolkit, we would need more training and also a formal agreement with the head teacher”* (female biology teacher, 42 years old).

Only two teachers stated that the new teaching approaches were too modern or the activities proposed too expensive:

- *“To be honest with you: I have never tried to use the toolkit. I am used to the old way of teaching and it is hard for me to change it”* (female biology teacher, 44 years old).
- *“We do not have the budget to buy tools so I could not work with the material”* (female biology teacher, 47 years old).

Lack of support from head teachers, time limitations, too many pupils in class and a lack of equipment were mentioned as major difficulties to carry out certain activities. Teachers reported that they had to split large classes to carry out certain activities and to teach in two consecutive lesson hours. This was not liked by their colleagues and resulted, among other things, in the above shown feeling of missing support. However, teachers also reported that working with questionnaires could be done with large classes and during normal lesson hours. They had spent one hour on the preparation of

questions, another hour on gathering data in the field, and a third one on analysing and discussing the results.

More problems occurred with the measurements of acid rain. For this activity, teachers had to buy indicator strips, which was costly and not well-received. One (conventional) idea to modify this activity was to invite experts from environmental institutions into class who would then talk about environmental pollution.

Teachers were asked to point out activities they liked most and activities they liked least, and to explain their answers. Although most teachers had not used the toolkit, they still remembered the activities from the workshop and could thus answer the questions. Most often, they preferred questionnaire investigations, the creation of posters which could then be installed at the nearest river or lake as well as waste separation, i.e. time-consuming activities which allow pupils to be rather active (Table 5.2). They liked least an organized field trip, i.e. an activity with a low activity level for the pupils. They also did not favour the monitoring of biodiversity.

Table 5.2: Most and least liked activities from the toolkit in view of nine high school teachers from Kosovo. All activities are described in chapter 5.3.1.

Most liked activities	Responses	Least liked activities	Responses
Questionnaire investigations	6	Field trip with local environmental organization to observe water analysis	7
Poster drawings on clean water	5	Change a light => change the world	4
Waste separation	4	Counting plants and animals	4
Planting trees	1	Artistic exhibition with waste	3
Measuring pH from rain water	1		

5.4 Discussion

The evaluation of the one-day workshop showed that the nine participating high school teachers were rather satisfied with the toolkit and that they had learned something new. To let teachers experience during inservice education programs how ESD can actually be carried out in school may thus be a rewarding task and an important step towards educational reform in Kosovo. One advantage of the toolkit was that it did not dwell on pedagogical content knowledge but on methodological instructions for teachers, and that these instructions were rather flexible. It has already been advised that especially in countries with limited resources and a need for teaching material, new textbooks should be flexible, i.e. include suggestions for adapting activities and materials relevant and appropriate to their specific context or circumstances (Mohammad & Kumari, 2007). They should also include suggestions for alternative methods and approaches as well as suggestions for pupil assessment tasks.

One year after the workshop, study participants still reported to like the toolkit. However, most of them had given up to work with it, mainly due to a lack of support from head teachers and colleagues. Only two teachers continued to use the toolkit as they were receiving the necessary support. These results exemplify the crucial role of head teachers and colleagues as key players for the implementation of novel teaching and learning approaches in school (e.g. Fullan, 2002; Powers, 2004; Van Petegem et al., 2005). Especially head teachers were found to have a major controlling effect on how new teaching content and methods are implemented, and thus have a leading role in educational reform (Fullan, 2002; Powers, 2004). Their attitudes can determine how much emphasis is placed on approaches to ESD within their school's curriculum (Fullan, 2002). In Kosovo, teachers reported during a study on vocational training that they came up against a brick wall when head teachers were not able to follow (European Training Foundation, 2008).

A lack of equipment and too many pupils in class were further obstacles to the implementation of the new teaching material in school. Such obstacles were also mentioned by the representative sample of high school teachers in chapter 4. A lack of financial and material resources and large class sizes were also found to inhibit the development of environmental education elsewhere (Ham & Sewing, 1988). Another

obstacle in the present study was the limited lesson time of 45 minutes. In theory, almost all teachers were sure that they could work with the toolkit during normal lesson hours (45-minute units). However, when actually faced with a 45-minute unit, they encountered time problems, but also unsupportive colleagues who were unwilling to change their lesson plans. This confirms the notion that there is a large gap between recent policy rhetoric (advertising ESD as the dominant principle) and actual practices in schools. Constraints of lack of time, space, and appropriate support from educational leaders are substantial challenges for teachers to deal with (Stevenson, 2007).

Although most teachers stopped using the toolkit, they still remembered its activities and were able to judge them. They especially liked activities that allowed pupils to be rather active, and disliked those with a low activity level. This is a pleasing result as the new curriculum framework for Kosovo requires practically-oriented learning and a focus on teaching and learning that is student-centred (MEST, 2010; Kabashi-Hima, 2011). Unfortunately, study participants did not favour the monitoring of biodiversity. One reason could be that they were rather unfamiliar with this issue and might not want to teach it. A previous study has shown that the public's knowledge in Kosovo about biodiversity, its importance and conservation is very limited (Lindemann-Matthies & Hyseni, 2009). However, biodiversity loss is one of the world's most pressing crises (Vié et al., 2008), and there is growing awareness of how biodiversity supports human livelihoods (MEA, 2005). Biodiversity has thus been recognized as an educational priority within the 'Decade of Education for Sustainable Development 2005-2014' and should be integrated into all levels of education (UNESCO, 2005). Teachers should thus be especially encouraged and qualified in preservice and inservice education to deliver biodiversity education in school (Lindemann-Matthies et al., 2009, 2011).

5.5 Conclusions

In conclusion, the new toolkit and the one-day inservice workshop were both well received by the non-representative sample of nine high school teachers in the present study. Continuous teacher education is a key aspect to obtain greater educational effectiveness. However, teachers are often not trained to make effective use of textbooks and, in consequence, might go back to their schools continuing teaching with

the same gaps and limitations or stop considering textbooks as a useful resource at all (Mohammad & Kumari, 2007). It is thus imperative that inservice education improves teachers' abilities in making effective use of textbooks and toolkits and help them to use these materials in class. The results of the present study suggest that teachers indeed realized the value of the toolkit as an important teaching and learning resource (see also Mohammad & Kumari, 2007). The combined toolkit-workshop-approach may thus be an important first step in integrating ESD in schools in Kosovo and elsewhere.

Another, even more important step, is the involvement of head teachers and colleagues in the implementation process. The present results clearly demonstrate that without the support of internal stakeholders in school, approaches to ESD might not be realized. In addition, the preservice teacher education should not be ignored. Because of its strong multiplier effect (Powers, 2004), preservice teacher education is especially effective in implementing new approaches such as ESD (Käpylä & Wahlström, 2000; Powers, 2004; Van Petegem et al., 2005; Lindemann-Matthies et al., 2009, 2011). Every teacher educator will educate a large number of teacher students, who will become part of the educational community and eventually educate a large number of children, and share ideas with teacher colleagues. It is thus essential to ensure the quality of the teacher preparation system, because it will ultimately contribute to the formation of future citizens (Barker & Elliot, 2000).

6 The effect of a one-day teacher education workshop on ESD teaching content and methods – a case study from Kosovo

“Students got out their exercise books containing notes from earlier class lectures. For 45 minutes, the teacher asked a series of general questions. Following each question, some students would raise their hands to answer. ... Most of the students in the front row had their hands up for every question, leaning towards their teacher with pleading eyes, hoping to be called on. Few in the back half of the classroom ever lifted their hands. The student whom the teacher called upon would stand up and recite the answer rapidly. The information from each student’s answer was all obtained, apparently, by memorizing notes in their exercise book. Nothing was demonstrated, everything was described. ... The contents in the students’ books were virtually identical, a result of students each recording everything that their teacher had written on board during previous classes. ... By the end of the class, very few students in the back half of the class were paying attention. They talked among themselves. Conversations dimmed each time their teacher pleaded for quiet, and then perked up again afterwards. It would have been difficult to hear what was said at the front of the class even if it had been quiet, however. After class, the teacher explained ...That’s how I teach” (Sommers & Buckland, 2004, p. 108).

Abstract

This study investigated the influence of a one-day inservice workshop for high school teachers in Kosovo on their dissemination of environmental topics in ways of education for sustainable development (ESD). Based on observations of nine classes in three different municipalities in Kosovo, it was found that before the workshop teacher talk occupies more than 90% of all lesson time and that pupil-initiated talk constituted less than 10% within a typical 45-minute lesson. However, after the one-day workshop in which the participating teachers were introduced to locally-relevant environmental issues and teaching approaches suitable for ESD, teacher talk significantly decreased and pupil talk significantly increased. Moreover, pupils were found to be engaged in small activities suitable for ESD.

6.1 Introduction

As outlined in chapter 1, education in Kosovo leaves little space for the learner's own interpretations, initiatives, or critical thinking (Sommers & Buckland, 2004; Sahlberg & Boce, 2010). Classroom education is often teacher-centred (as discussed in chapter 4 and exemplified in the citation on the page before), and little emphasis is placed on the understanding of concepts and issues, or the development of critical thinking skills (Pupovci, 2002). Moreover, the education system in Kosovo is characterized by outdated preservice and missing inservice teacher education. However, similar to Albania, ambitious education reforms are intended (Sahlberg & Boce, 2010; Kabashi-Hima, 2011). Renewing textbooks, providing schools with new technologies, and upgrading teachers' professional knowledge and skills are seen as necessary conditions for substantive educational reforms (Sahlberg & Boce, 2010).

Modern teaching approaches should allow a more active role for pupils and multilateral communication to support productive learning in classrooms (Kosovo Curriculum Framework, 2010), and a competency-based instead of content-based approach, developed through practically-oriented learning is envisaged (Beqiri, 2010). Such an approach will have important implications for classroom practices such as the integration of cross-cutting issues, creative problem solving, interactive teaching and learning, and a focus on teaching and learning that is student-centred (MEST, 2010; Kabashi-Hima, 2011). However, as outlined in chapters 4 and 5, there are many obstacles to reform in Kosovo which have to be dealt with. Especially large class sizes and missing preservice and inservice teacher education might impede new approaches in the classroom. At present, conventional presentation-recitation instructional modes are prominent in schools in Kosovo (Sommers & Buckland, 2004) and neighbouring countries such as Albania (Sahlberg & Boce, 2010). Without knowing how teachers teach and how pupils cope with their learning environments, educational policies and attempts to improve schools remain merely good intentions (Sahlberg & Oldroyd, 2010). Moreover, little is known about the impact of inservice teacher education on classroom behaviour of both teachers and their pupils.

Evaluation and monitoring the new approaches is seen as a key strategy for advancing the UN Decade of Education for Sustainable Development (Tilbury, 2007b). Daniela

Tilbury provides a list of quality indicators which might help to evaluate and improve large-scale sustainability education programs. However, there is a lack of research evaluating the outcomes of ESD approaches on a smaller scale, for instance in schools. One study investigated in a controlled pretest/posttest-design the effects of different teaching methods (normal lessons, computer simulations especially designed for the study) on systems thinking in the field of ESD (Rieß & Mischo, 2009). Pupils who received both instructions fared best in the posttest. In a recent Albanian study, more than 300 classes from 34 upper secondary schools were investigated (Sahlberg, 2010; Sahlberg & Boce, 2010). The data suggested that typical secondary school lessons are dominated by teacher talk. In the classes observed, teacher talk occupied more than 70% of all lesson time, while pupil-initiated talk was about 1% of total lesson time (Sahlberg, 2010). Moreover, it constituted less than 30 seconds within a typical 45-minute lesson (Sahlberg & Boce, 2010). The study also confirmed that classrooms provide a poor psychological and social environment to stimulate cooperative learning. However, hardly anything is known about what happens in high school classes in Kosovo.

The purpose of this study was thus to investigate how high school teachers in Kosovo approach environmental education in the classroom before and after a one-day preparatory workshop on new teaching approaches related to ESD. Data were gathered with a systematic observation scheme and processed using Flanders' interaction analysis categories system (Flanders, 1970). Flanders' rule of 'two-thirds' expresses that about two-thirds of a time in a classroom someone is talking, and – in secondary education – the chances are more than 50 percent that the person talking is the teacher. Moreover, when the teacher is talking, two-third of the time he or she will be expressing own opinions or facts (lecturing), giving directions, and criticising pupils (Flanders, 1970).

Main aims of the study were to investigate:

1. whether the introduction of a new toolkit for ESD and a one-day inservice workshop will help to improve high school teachers' knowledge and understanding of EE / ESD,
2. whether the introduction of a new toolkit for ESD and a one-day inservice workshop will help to improve high school teachers' use of methodological approaches suitable for ESD,

3. whether teacher talk will decrease and pupil talk will increase after introducing the toolkit on EE / ESD.

6.2 Methods

6.2.1 Study design and data collection

In spring 2012, ten high school teachers were selected for this study. Selection criteria were professional experience, special interest in EE, and willingness to participate in the workshop and an observation study. All teachers were contacted by phone and asked if they were willing to participate in this part of the investigation. They had already been asked whether they would like to participate in this study during the survey (see chapter 3). Nine high school teachers (five men) finally agreed to participate. They were all teaching biology. Teachers were between 26 and 49 years old (mean age = 43), and had between two and 26 years of teaching experience (mean experience = 17 years). They were from three different regions of Kosovo (each three from Prishtina, Peja, and Prizren).

In a first step, teachers were shown the toolkit (see chapter 5) and asked to select one issue that they would like to teach in class. An observation sheet was prepared and the lesson observed. In a second step, all teachers participated in a one-day workshop in which the topics of the booklet and teaching methods suitable for ESD were introduced to them (see chapter 5). In a third step, all classes were visited again six month after the workshop. In the meantime, all teachers had been contacted several times to check whether they were using the new teaching contents and methods approached in the toolkit and workshop. They were contacted one week before the observation to make an appointment and to remind them about the topic they had chosen in the pretest. In all observation exercises, the observation instrument was identical. This allowed a comparison of the behaviour of pupils and their teachers before and after the workshop. The observation was always done by M. Hyseni Spahiu.

6.2.2 Observation instrument and data analysis

The observation instrument was based on the Flanders Interaction Analysis Categories (FIAC; Flanders, 1970). The FIAC is commonly used to analyse teacher-pupil and pupil-pupil interactions (Wragg, 1999). It is an easy to use tool that can help to distinguish one instructional method from another. The original instrument comprises of seven categories applicable to teacher talk and two to pupil talk. The FIAC procedure requires observers to make regular and systematic notes on verbal interaction in the classroom.

Teacher talk (indirect influence):

1. Accepts feeling: accepts and clarifies the feelings of the pupils in a non-threatening manner. Feelings may be positive or negative. Predicting and recalling feelings are included.
2. Praises or encourages: praises or encourages pupil action or behaviour. Jokes that release tension, not at the expense of another individual, nodding head or saying 'uh huh?' or 'go on' are included.
3. Accepts or uses ideas of pupil: clarifying, building, or developing ideas or suggestions by a pupil.
4. Asks questions: Asking a question about content or procedure with the intent that a pupil may answer.

Teacher talk (direct influence):

5. Lectures: giving facts or opinions about content or procedures; expressing own ideas; asking rhetorical questions.
6. Gives directions: Giving directions, commands, or orders with which a pupil is expected to comply.
7. Criticizes or justifies authority: Making statements intended to change pupil behaviour from unacceptable to acceptable pattern; bawling out someone; stating why the teacher is doing what he/she is doing; extreme self-reference.

Pupil talk:

1. Pupil talk – responses: Talk by pupils in response to teacher. Teacher initiates the contact or solicits pupil statement.
2. Pupil talk - initiation: talk by pupils which they initiate. If 'calling on' pupil is only to indicate who may talk next, observer must decide whether pupil wanted to talk. If he did, use this category.

During the lessons, an observation sheet was filled in (Figure 6.1). It was recorded to which degree teachers displayed knowledge and understanding of EE / ESD, dominated the classroom, allowed pupils to be active or worked theoretically. It was also recorded to which degree teachers used new teaching methods suitable for ESD.

<i>Name of school:</i>		<i>Class:</i>		
<i>Name of the teacher:</i>		<i>Length of lesson:</i>		
<i>Date of observation:</i>		<i>Number of pupils in class:</i>		
Overall way of teaching	Strong	Medium	Weak	
1. Teacher's knowledge and understanding of EE /ESD				
2. Teacher dominates the classroom by standing in front				
3. Teacher is active				
4. Pupils are active				
5. Teacher works theoretically				
6. Teacher uses new methods like debates, group work				
Further observations:				

Figure 6.1: Example of an observation sheet.

It was also roughly recorded how many minutes per lesson hour the teacher was talking, and how many minutes the pupils were talking. In addition, it was observed which teaching approaches were used. A list of possible approaches was compiled in advance, including lectures, demonstrations, reading exercises, question-answer-phases, discussions, debates, experiments, practical work, project work, group work, independent work, homework; others. It was hypothesised that a teacher-centered knowledge dissemination would be reflected in approaches such as lectures, demonstrations or question-answer-phases, whereas a learner-centered teaching focusing on the development of competencies would be reflected in, for instance, debates, independent or group work, practical exercises, presentations. During the observations, the respective approaches were ticked or, if not on the list, added. However, due to capacity restrictions (just one observer) it was not possible to record the exact duration of the different approaches used.

Data were analysed by comparing the observations from pretest and posttest. Chi-square-tests were used to test whether sex, location of school and teaching experience (≤ 15 years, > 15 years) influenced teaching behaviour. All analyses were carried out with SPSS for Windows 12.0.1.

6.3 Results

Knowledge dissemination

In the pretest, teachers showed only a moderate understanding of knowledge dissemination in ways suitable for ESD (Table 6.1). They delivered information in a mere scientific way (see chapter 3). None of the teachers observed provided locally-relevant information, expressed own ideas or discussed critical questions. However, most teachers had prepared their lectures for the observation event fairly well, resulting in a medium score in Table 6.1.

A lesson was typically carried out as follows:

- The teacher provided information e.g. about waste which was taken out of a book with no relation to the situation in Kosovo.
- The information provided was not related to the daily-life of the pupils.

- Teachers provided information in a highly theoretical way, i.e. by lecturing far off the understanding of their pupils.

In the posttest, however, teachers strongly improved their way of teaching with regard to ESD. They provided additional information on environmental issues in a more creative way (see Table 6.1). A lesson was typically carried out in the following way:

- The teacher had chosen a topic from the toolkit and provided information e.g. about waste enriched with data from reports from environmental protection organisations.
- The information provided was related to the daily-life of their pupils.
- Teachers provided the information in a more practical way by including pupils in the presentation.

Table 6.1: Dissemination of environmental content knowledge suitable for EE / ESD by high school teachers (n = 9) in Kosovo before and after an inservice workshop. Teachers were observed in their classroom during one lesson hour directly before (observation 1) and six month after the workshop (observation 2), and their knowledge dissemination judged on three-step scales with 1 = weak, 2 = medium, 3 = strong.

No	Location of school	Sex	Teaching experience (years)	Knowledge dissemination in ways of ESD		
				Observation 1 (score)	Observation 2 (score)	Difference (score)
1	Prishtina	Male	22	2	3	1
2	Prishtina	Female	12	2	3	1
3	Prishtina	Female	14	2	2	0
4	Prizren	Female	18	2	3	1
5	Prizren	Male	26	2	3	1
6	Prizren	Male	2	2	3	1
7	Peja	Male	21	2	3	1
8	Peja	Male	20	1	2	1
9	Peja	Female	22	1	3	2

None of the socio-demographic variables tested influenced teachers' way of knowledge dissemination.

Teacher dominance and teacher talk

Before the workshop, classroom interactions were highly dominated by teacher talk. Teachers were standing in front of the class during lesson hours (none of the teachers observed were sitting), lecturing to pupils. They were providing their pupils with mere facts and did in no case express own ideas. Combining the observed lesson hours, teachers talked about 90% of the time, i.e. 40 out of 45-minutes. Pupils talked only when addressed by their teacher; about 5 out of 45 minutes. Thus, teachers gave the directions and expected pupils to comply.

Before the workshop, indirect influences of the teacher were only visible when they were addressing their pupils in a question-answer-manner. Otherwise, they did not encourage pupils to express feelings (and pupils did not do so) or to develop own ideas or suggestions.

After the workshop, pupils were much more active in class. Combining the observed lesson hours, pupils were active approximately 88% of the time. Teachers were only dominating the classroom at the beginning of a lesson when they provided general information about the topic and at the end when they drew some conclusions. Almost all pupils in a class were active.

After the workshop, changes in teachers' indirect behaviour (see FIAC; Flanders, 1970) could not be observed. Teachers did not praise or encourage the actions or behaviour of their pupils, and were generally not the persons for jokes. They also did not further build on the ideas of their pupils.

Degree of pupil activity

Before the workshop, pupils were rather passive and, with one exception, teachers rather active (Table 6.2). Pupils hardly ever posed questions to their teacher or to another pupil. Teachers initiated the contact. It was even more uncommon that a pupil

made suggestions, proposed new ideas or initiated a debate. On average, 5.5 pupils per class were usually active during a lesson. However, this changed after the workshop. Pupils were much more active afterwards, while in most classes teachers reduced their prominence, but were still rather active (see Table 6.2).

Table 6.2: Activity level of pupils (n = 336) and their teachers (n = 9) in high schools in Kosovo before and after an inservice workshop on ESD. Pupils and their teachers were observed in the classroom during one lesson hour each and their activity level judged on three-step scales with 1 = weak, 2 = medium, 3 = strong.

No	Activity level (scores)					
	Pupils before	Pupils after	Pupils difference	Teacher before	Teacher after	Teacher difference
1	1	3	2	3	1	-2
2	1	3	2	3	2	-1
3	2	2	0	2	1	-1
4	2	3	1	3	1	-2
5	1	3	2	3	2	-1
6	1	3	2	3	2	-1
7	1	3	2	3	2	-1
8	1	3	2	3	3	0
9	1	3	2	3	2	-1

Degree of theoretical work and use of teaching approaches suitable for ESD

With one exception, teachers used an entirely theoretical approach before the workshop (Table 6.3a). Only few teachers used approaches suitable for ESD (Table 6.3b). However, this changed after the workshop. Teachers worked much less theoretical and were strong on the use of approaches suitable for ESD.

Table 6.3: Degree of (a) theoretical approaches and (b) approaches suitable for ESD used by high school teachers (n = 9) in Kosovo before and after an inservice workshop on ESD. Teachers were observed in the classroom during one lesson hour each and their approaches judged on three-step scales with 1 = weak, 2 = medium, 3 = strong.

No	(a) Theoretical approach (scores)			(b) ESD approaches used (scores)		
	Teacher before	Teacher after	Teacher difference	Teacher before	Teacher after	Teacher difference
1	3	1	-2	1	2	1
2	3	2	-1	1	2	1
3	1	3	2	2	3	1
4	3	1	-2	2	3	1
5	3	1	-2	1	3	2
6	3	1	-2	1	3	2
7	3	1	-2	2	3	1
8	3	2	-1	1	2	1
9	3	2	-1	1	2	1

Teaching approaches and interaction patterns

Before the workshop, classroom observations indicated that pupils were only rarely provided with opportunities to take initiative or to be in charge of their own learning process. Most of the teachers worked rather theoretical (see Table 6.3a) and none used approaches such as debates, independent or group work, and pupil presentations. After the workshop, however, different teaching approaches were apparent. In some classes, pupils developed questionnaires and asked people in the street to fill them in (Table 6.4). Moreover, some pupils wrote letters to environmental stakeholders. Their commitment depended on the topic. In some classes, pupils were asked to do some homework, i.e. to collect waste for an artistic exhibition, to measure the acidity of rain water or to create a poster. Most of the time, teachers were observers, giving help to pupils when it was needed.

Table 6.4: Teaching approaches suitable for EE / ESD by high school teachers (n = 9) in Kosovo before and after an inservice workshop. Teachers were observed in their classroom during one lesson hour directly before (observation 1) and six month after the workshop (observation 2), and their approaches recorded. F = female, M = male

No	Location of school	Sex	Teaching experiences (years)	Teaching approaches used	
				Before the workshop	After the workshop
1	Prishtina	M	22	Lecture on air pollution	Introduction and questionnaire investigation*
2	Prishtina	F	12	Lecture on water pollution	Introduction and poster drawing on clean water*
3	Prishtina	F	14	Lecture on air pollution; use of flipcharts and group debate	Introduction and monitor the degree of exhaust fumes from different vehicles with the help of a spread sheet*
4	Prizren	F	18	Lecture on waste and debate in groups	Introduction and waste separation*
5	Prizren	M	26	Lecture on waste	Introduction and garbage container investigation*
6	Prizren	M	2	Lecture on water pollution	Introduction and poster drawing on clean water*
7	Peja	M	21	Lecture on water pollution; power point presentation	Introduction and letter writing to KEPA*
8	Peja	M	20	Lecture on plants and animals	Introduction and planting trees*
9	Peja	F	22	Lecture on water pollution	Introduction and questionnaire investigation*

*Methods are described in detail in chapter 5.3.1 and Table 5.1

6.4 Discussion

The present results show that the introduction and training of new teaching methods during inservice workshops may help to improve EE / ESD in high schools in Kosovo. Before such training, classroom observations indicated that high school pupils, at least in the nine classes observed, were only rarely provided with opportunities to take initiative or to be in charge of their own learning process. Most of the teachers had only poor knowledge and understanding of EE / ESD, and worked theoretically without practical demonstrations or practical exercises for the pupils. None of the teachers used teaching approaches suitable for ESD or provided opportunities for pupils to carry out independent or group work. Most obvious was the dominance of the teacher with his or her upright position in front of the class and the high amount of teacher talk. That teachers were nevertheless well prepared to give their 'lectures' could be explained by the so-called John-Henry-effect, i.e. an increase in the teaching efforts of lecturers if they believe themselves to be in competition with other presentations (Phipps & Merisotis, 1999).

More than 40 years ago, studies by Ned Flanders and his colleagues in the United States came to the results that about two-thirds of the time spent in a classroom someone was talking and that the chances were two out of three that this was the teacher (Flanders, 1970). Recent findings from an Albanian study demonstrated that teaching in the first grade of secondary schools is still strongly dominated by teacher talk, that classroom interactions between teacher and pupils hardly take place, and that less than 5% of pupil talk is initiated by themselves (Sahlberg & Boce, 2010). Similar results were found in the present study. During the first observation period, pupils hardly ever talked during lessons and, if so, only responded to questions asked by their teacher. It was also extremely unusual that pupils themselves posed learning-related questions to teachers or to other pupils. Despite recent educational reform discussions (see Kosovo Curriculum Framework, 2010), the results clearly demonstrate that even at the upper secondary level, school education in Kosovo is still characterized by teacher-centred classroom instructions and a lack of activity from the site of the pupils (see chapter 4). Recent interviews with 15 to 24 year old pupils came to similar results. Here, pupils reported their teachers' behaviour as overly authoritative and strict (Kosovar Stability Initiative, 2010). However, classroom situations can change.

After participation in the workshop, teachers were far less dominant in the classroom and pupils much more engaged. Not only few but almost all pupils in a class were active and contributed to the learning process. These are pleasing results as student-centered learning is envisaged in the new curriculum framework of Kosovo (Kosovo Curriculum Framework, 2010). The results also show that, even without reducing class size, positive changes can be observed if teachers are provided with approaches suitable for ESD. The crucial point, however, is that these approaches have to be trained, e.g. in preservice or inservice teacher education. Without practical instructions, i.e. just by providing teachers with new textbooks or other educational material, they will most likely continue with frontal instructions and pupils will continue to memorize the material (Pupovci, 2002; Sommers & Buckland, 2004). Practical instructions were found to increase preservice teacher pupils' confidence in approaching sustainability issues in school (Lindemann-Matthies et al., 2009).

Participation in the workshop changed teaching approaches. All high school teachers observed used at least one new approach suitable for ESD in their lesson. They encouraged pupils, for instance, to work independently or in groups and also to make presentations. This demonstrates the need for new teaching methods that place pupils at the centre of the teaching-learning-process (Sahlberg & Boce, 2010) and a strong need for reform in the current preservice and inservice teacher education in Kosovo (Pupovci, 2002; Breca & Anderson, 2010; chapter 4). However, due to the small number of lesson hours and teachers observed, caution should be exercised in generalizing the results of this study. However, results from the observation before the workshop resemble findings from other studies in the region (Sahlberg & Boce, 2010) and might just reflect reality.

6.5 Conclusions

The integration of ESD into all levels of education is a key priority in Kosovo's environmental action plan (Kabashi-Hima, 2011). A competency-based approach is envisaged (Beqiri, 2010) which will have important implications for classroom practices such as creative problem solving, interactive teaching and learning, and a focus on teaching and learning that is student-centred (MEST, 2010; Kabashi-Hima, 2011). The

new Kosovo Curriculum Framework explicitly mentions that the focus of teaching should be on the learner and not on the teacher (Demjaha, 2010).

Results of this study clearly demonstrate that without special training, high school teachers in Kosovo at present will not support the set national education strategies by their teaching. One important strategy to move away from the dominance of the 'classic way of teaching' (see chapter 4) is the provision of evidence-based teaching methods accessible to teachers and school principals, and high-quality feedback to teachers to help them improve their instructional practices (Sahlberg & Boce, 2010). Moreover, textbooks on ESD are urgently needed. At present, only few environmental topics are integrated in textbooks in Kosovo. They are mainly approached from a natural science point of view (see chapter 3). Almost completely lacking are inquiry-based, process-oriented, participatory, and action-oriented learning approaches (Hyseni & Lindemann-Matthies, 2011). However, in order to fulfil the high expectations of Kosovo's new strategy for sustainable education (Kabashi-Hima, 2011), new textbooks have to be written and older ones, if possible, be revised (Boshtrakaj, 2010; see chapter 5). One way to meaningful educational reforms include that gaps between curricular frameworks and textbooks are bridged (Mohammad & Kumari, 2007).

7 General discussion

In this chapter, the main findings of the previous chapters will be discussed in a larger context to provide an overview of environmental educational developments in Kosovo. The different aspects as outlined in chapters 3-6 will be further investigated. In the next chapter (chapter 8), future directions for the achievement of education for sustainable development in Kosovo will be presented.

The integration of ESD into all levels of education is one of the keys to educational reform, envisioning a competency-based approach developed through practically-oriented learning (Beqiri, 2010). The competency-based approach will have important implications for classroom practices such as the integration of cross-cutting issues, creative problem solving, interactive teaching and learning, and a focus on teaching and learning that is student-centred (MEST, 2010; Kabashi-Hima, 2011). However, studies indicate that there is a large gap between recent policy rhetoric (advertising ESD as the dominant principle) and actual practices in schools (see discussion in Stevenson, 2007; UNESCO, 2009). This could also be seen in chapter 3 and 4. At present, environmental topics are only included in few textbooks in Kosovo, most of them related to biology teaching (see chapter 3), pointing to a strong need for more up-to-date, suitable literature for EE / ESD.

The textbook analysis also showed that almost all environmental topics are currently approached from a natural science point of view, and that pupils are hardly made aware of the more social or ethical aspects of ESD. However, subjects such as 'man and nature', 'social education' and 'civic education' would provide excellent opportunities for ESD, as they comprise scientific inquiry, ecological awareness-raising as well as process-oriented, participatory and action-oriented learning approaches.

Chapter 4 illustrates that high school teachers in Kosovo are rather unfamiliar with ESD, but that nearly all of them include environmental issues into their teaching. However, EE has to be realized during normal teaching hours, which strongly limits teachers' possibilities. Some interviewees had already discussed the problem of a too tight curriculum with experts from the ministry of education, however to no avail.

High school teachers in Kosovo prioritize issues that are place-based, up to date, and linked to the experiences of their pupils, but neglect global issues such as climate

change and the loss of biodiversity. Both issues can serve as prototypes of sustainability issues as they are characterized by a strong interrelationship between ecological, social and economic aspects and uncertainty about the routes that should be followed to find solutions (Sleurs, 2008; Lindemann-Matthies et al., 2011). One reason for teachers' rather narrow focus on environmental issues could be the lack of suitable literature. University books that are at least 20 years old do not include issues such as global warming or the loss of biodiversity, and research articles or information provided by international agencies online might often reach only those teachers who are able to understand English well.

High school teachers in Kosovo rarely leave the classroom for outdoor education, most likely due to high numbers of pupils in class and timetable problems. Field work was especially restricted by timetable obligations, but also by a lack of lab facilities in school. Without structural changes, teachers might not shift to approaches other than teacher-centred ones. Alternative approaches which settle around the critical reflection of values, attitudes and solutions to environmental problems or include aspects of inquiry-based teaching are currently rare in high schools in Kosovo. Renewing textbooks, providing schools with new technologies, and upgrading teachers' professional knowledge and skills are necessary conditions for substantive educational reforms in countries of the Balkan (Sahlberg & Boce, 2010). As seen in chapter 4, the adoption of international education standards, curricula, and innovations does not correspond with reality. Unless education policies give high priority to supporting teachers in fulfilling modern EE or ESD, the country's ambitious educational goals will not be reached.

As demonstrated in chapters 5 and 6, a preparatory course on ESD can change teachers' way of acting in the classroom. Teachers' were rather satisfied with the workshop and liked the toolkit for ESD. However, they made also clear that without support from credible leaders from within their institutions, e.g. head teachers, new ways of education might not be implemented in schools. This is in line with the results from previous studies. Novel teaching and learning approaches such as ESD need engagement from credible leaders within the institutions to support the innovation from within and to set up realistic goals (Fullan, 2002; Powers, 2004; Van Petegem et al., 2005). Internal

stakeholders can be teacher educators, teachers in schools, parents, the community and the school environment.

Both the one-day inservice workshop and the new toolkit had a strong positive effect on the performance of teachers and pupils in the classroom. Teachers improved their knowledge and understanding of environmental education as well as their teaching skills. Instead of lecturing in the typical teacher-centred way (see chapter 4), they started to use teaching methods such as debates, resulting in much more active pupils during lesson hours. Even without reducing teaching obstacles such as large class sizes and a lack of equipment, positive changes were observed. This demonstrates the success of approaches that place pupils in the centre of the teaching process (Sahlberg & Boce, 2010). All teachers observed used at least one new approach suitable for ESD during their lessons. However, one year later most teachers had stopped using the toolkit because of a lack of support from their institutions. As discussed above, this clearly demonstrates that without the support of internal stakeholders in school, approaches to ESD might not be realized. In a British study, the profile of ESD had risen in schools with a staff member who was enthusiastic about the task and responsible to co-ordinate the work throughout the implementation phase (OFSTED, 2003, 2008).

Nevertheless, the combined toolkit-workshop-approach was successful and demonstrates the importance of the inservice teacher education. Finding a place for EE or ESD in inservice teacher education programs might be difficult as the instruction comprises not only the natural sciences, but also social, political, and economic concepts. Thus, environmental education content and methods are usually included within the context of science or social studies methods courses in preservice curricula (Plevyak, 2001). Understanding the perspective of the Faculty of Education at the University of Prishtina which is responsible for preservice teacher education in Kosovo is thus one important step in the effort to understand how best to infuse aspects of ESD into the educational system (Breca & Anderson, 2010). At present, there are rather conflicting interests involved, and it can only be hoped that good preservice education programs will be created in the near future which are locally developed and adjusted to local needs and experiences, thereby creating greater possibilities for further development (Breca & Anderson, 2010).

8 Future directions for the achievement of ESD in Kosovo

Education in Kosovo is under reform (Pupovci, 2002; Sommers & Buckland, 2004; Breca & Anderson, 2010; Kabashi-Hima, 2011). The revised 'Kosovo Curriculum Framework' should be the future foundation for the development of subject curricula and syllabi (Kosovo Curriculum Framework, 2010). It explicitly mentions environmental education as a cross-curricular theme that should be approached in ways of education for sustainable development. Based on the overall findings of the present research project, several recommendations can be made that may guide the successful integration of EE / ESD into the education system of Kosovo.

- **Renewing textbooks:** There is a strong need for textbooks related to EE which will enable pupils to develop the necessary key competencies envisaged for ESD. New textbooks and other teaching material should be competency- instead of content-based and should tackle up-to-date environmental issues. They are urgently needed for all stages of education.
- **Combining pedagogical content knowledge with methodological instructions in teaching material:** This was one advantage of the toolkit as it did not only contain pedagogical content knowledge but also methodological instructions for teachers. It has already been advised that especially in countries with limited resources and a need for teaching material, new textbooks should be flexible, i.e. include suggestions for adapting activities and materials relevant and appropriate to their specific context or circumstances (Mohammad & Kumari, 2007). They should also include suggestions for alternative methods and approaches as well as suggestions for pupil assessment tasks.
- **Integrating EE / ESD into all levels of education:** At present, EE / ESD are mainly integrated in the optional upper secondary education. However, environmental awareness rising should start at the primary school level as children are at a suitable age range for awareness development. An early integration of EE / ESD is especially effective in 'young' societies such as Kosovo, where almost one fourth of the population are attending one level of formal education in any given year (Kosovo Curriculum Framework, 2010).

- **Starting locally:** Syllabi and teaching material should be relevant and place-based, and also linked to the experiences of pupils. Air, water and soil pollution as well as garbage dumping are excellent examples and, as seen in chapter 4, preferred by teachers. However, other issues such as the loss of biodiversity or global warming, i.e. prototypes of sustainability issues, should also be included.
- **Reducing teacher-talk:** The education system in Kosovo has been characterized as teacher-centred and frontal, partly due to large class sizes. However, there is little evidence that reducing class-size in itself would lead to less teacher talk and more active pupils. Without providing teachers with skills suitable for ESD, they will most likely continue to lecture and pupils will continue to memorize the material. The one-day workshop was successful in this regard. After introducing teachers to approaches suitable for EE / ESD, teacher talk significantly decreased and pupil talk significantly increased.
- **Providing teachers with new skills:** Teachers should be especially encouraged in preservice and inservice education and with the help of new teaching material to use approaches aiming at capacity-building and thus to understand learning as process-oriented, participatory and action-oriented. However, mere encouragement might not be enough.
- **Providing teachers with experience how ESD can actually be carried out:** This was a strong success factor in both workshop evaluation and observation study (chapter 5 and 6). The provision of direct, practical experiences with material that can be used in school is a rewarding task and an important step towards educational reform in Kosovo. It should be noted that teachers are often not trained to make effective use of new teaching material and might continue teaching with the same gaps and limitations as before. It is thus imperative that preservice and inservice education train teachers in making effective use of teaching material and help them to use it in class. Then, teachers might make more use of student-centered, project-based pedagogies.
- **Involving head teachers:** Novel teaching and learning approaches such as ESD need engagement from credible leaders within the institutions to support the innovation from within (Van Petegem et al., 2005). The crucial role of head teachers

was frequently pointed out by the present study sample. Head teachers should thus be incorporated in the implementation process of new teaching material and approaches, and training courses on EE and ESD for school principals and administrators should be offered.

- **Enabling teachers to conduct outdoor education and field work:** Outdoor education and field work are important components of EE / ESD, and the present study sample felt rather positive about it. However, restricting factors such as large class sizes, timetable obligations, and missing lab facilities have to be dealt with. One way to counter the first two obstacles could be a wider use of school grounds as a teaching source, and to design them accordingly. Multiple examples for quality education on school grounds exist (e.g. Feinsinger et al., 1997; Malone & Tranter, 2003; Rowe & Humphries, 2004; Bateson, 2009). Advantages of using school grounds for EE / ESD are that working 'nearby' saves valuable teaching time and money, and provides a safe environment for large classes. However, teachers have to be encouraged in preservice or inservice education to do so as they are often unaware about the potential of nearby nature. Helping teachers to become confident in using out-of-classroom settings as a place for learning should be an important task for teacher education already at the primary-school level (Barker et al., 2002; Lindemann-Matthies et al., 2009, 2011), and is regarded as an important starting point for education for sustainable development (Bögeholz, 2006). Moreover, collaborations with partners from outside school such as botanical or zoological gardens should be envisaged.
- **More time for EE / ESD:** At present, the curriculum is rather tight. Few lesson hours are assigned for EE in 45-minute units. The Kosovo Curriculum Framework (2010) sees EE and ESD as cross-cutting issues, but does not clarify how this will work in practice. Studies indicate that educators might be reluctant towards cross-curricular teaching (Summers et al., 2000; Powers, 2004; Van Petegem et al., 2005). They might not want to venture into uncertain fields and go beyond their lesson plans. This is sensible, because secure knowledge and understanding of a topic is an important pre-requisite for effective teaching (Summers et al., 2000).

- **Enough time for the implementation process of EE / ESD:** A successful integration of EE / ESD into the education system of Kosovo needs time. Although speedy results might be expected, a change of routines and behaviours in the education sector might be slow – or in the words of a deputy minister (European Training Foundation, 2008, p. 43): “Education is not like buying a car: you have the cash, you choose your car and you drive away. School change does not work like this!”

9 Summary

This thesis is concerned with the current situation and future developments of environmental education in Kosovo. Ecological problems in Kosovo have accumulated over decades as a consequence of the uncontrolled use of natural resources, a growing industrial production with a high level of pollution, and a lack of appropriate policies, laws, and institutions which could treat the problems. Air, water and soil pollution, waste problems and a severe loss of biodiversity are the main environmental threats. The integration of education for sustainable development (ESD) into all levels of education is one of the key priorities in Kosovo's environmental action plan. However, at present it is not even known how environmental education (EE) is integrated in the country's educational system.

In a first step, all official textbooks and the national curriculum of Kosovo were thus scrutinized to identify how many and which environmental topics were included, in which subjects and grades they were taught, and which teaching approaches were used. In a second step, a written questionnaire was sent to a representative sample of biology, geography, chemistry and civic education teachers (overall 244 persons) to investigate the integration of EE in high schools (optional upper secondary education) in Kosovo. In a third step, in-depth interviews with 18 of these high school teachers were carried out to extend and deepen the discussion of their responses in the questionnaire. In a fourth step, a toolkit on EE / ESD was developed and introduced to nine high school teachers during a one-day inservice workshop. In a fifth step, structured observations were used to investigate the impact of the workshop on high school teachers' performance in the classroom.

Only 15 out of 130 books, most of them for biology teaching, included environmental topics. Environmental topics were most prominent in textbooks for grade 8, 10 and 12, whereas they were almost lacking at the primary-school level. Most environmental teaching units provided pupils with mere environmental / ecological information (91%). The other units aimed to raise pupils' awareness of environmental values, critically reflected links between the natural, social and cultural environment, and demonstrated the importance of a healthy environment for human health, quality of life and

sustainable development. They were most prominent in books for civic education. However, no environmental unit promoted pupils' action competence.

High school teachers were found to focus on various kinds of pollution and hazards of pollutants. Teachers' choice of topics was highly relevant, place-based and linked to the experiences of pupils, but excluded sustainability issues such as the loss of biodiversity. EE was approached in three ways. The first approach critically reflected links between the natural, social and cultural environment, while the second approach was characterized by knowledge submission of environmental facts. The third approach aimed at capacity-building and, in the sense of ESD, understood learning as process-oriented, participatory and action-oriented. However, this approach was rather uncommon, most likely due to insufficient teacher preparation, classes that were too large (up to 50 pupils), and lack of little time (just one hour per week for EE). These constraints also restricted outdoor activities. Nevertheless, in view of the interviewees ideal EE would mean outdoor education, field work and other place-based, capacity-building practical experiences, and the development of critical thinking skills.

Teachers were rather satisfied with the one-day inservice workshop and stated that they had learned something new. Moreover, they liked the new toolkit and thought it practicable for use in school. However, one year later it was obvious that without support from head teachers and colleagues the toolkit was not used in schools. The study found that before the workshop teacher talk accounted for more than 90% of all lesson time and pupil-initiated talk constituted less than 10% within a typical 45-minute lesson. After the workshop, teacher talk significantly decreased and pupil talk significantly increased. Moreover, pupils were found to be engaged in small activities suitable for ESD.

In conclusion, there is a strong need for new textbooks on EE / ESD in Kosovo. However, without providing teachers with skills suitable for ESD, they will most likely continue to lecture and pupils will continue to only memorize the material. Moreover, novel teaching and learning approaches need engagement from credible leaders within the institutions. Especially head teachers should thus be incorporated in the implementation of new teaching material and approaches, and training courses on EE and ESD for school principles, administrators, and of course teachers, should be offered.

10 Zusammenfassung

Die vorliegende Arbeit beschäftigt sich mit dem derzeitigen Stand und zukünftiger Entwicklungen der Umweltbildung in der Republik Kosovo. Im Kosovo haben sich über Jahrzehnte ökologische Probleme als Folge eines unkontrollierten Ressourcenverbrauches, einer wachsenden umweltschädigenden Industrie sowie des Fehlens umweltpolitischer Maßnahmen, Gesetze und Institutionen akkumuliert. Luft-, Wasser- und Bodenverschmutzung, Müll und ein gravierender Verlust an biologischer Vielfalt sind derzeit die größten Umweltprobleme. Der Umweltplan der Regierung sieht deshalb den Einbezug einer 'Bildung für nachhaltige Entwicklung' (BNE) in alle Stufen des Bildungssystems als dringliche Aufgabe vor. Es ist allerdings kaum bekannt, was derzeit bereits im Bereich der Umweltbildung in Schulen im Kosovo getan wird.

In einem ersten Schritt wurden deshalb alle eingeführten Schulbücher und das nationale Curriculum daraufhin untersucht, welche und wie viele Umweltthemen sie enthalten, in welchen Fächern und Klassenstufen und auf welche Art und Weise sie unterrichtet werden sollen. In einem zweiten Schritt wurde eine repräsentative Stichprobe von Lehrkräften der gymnasialen Oberstufe (insgesamt 244 Personen) schriftlich befragt, um den Einbezug umweltrelevanter Themen in dieser Stufe zu untersuchen. In einem dritten Schritt wurden 18 dieser Lehrpersonen interviewt, um vertiefte und erweiterte Auskünfte zu bestimmten Aspekten des Fragebogens zu erhalten. In einem vierten Schritt wurde eine Unterrichtshilfe, die Umweltthemen von lokaler Bedeutung sowie Methoden der BNE beinhaltete, konzipiert, in einer eintägigen Fortbildungsveranstaltung mit neun ausgewählten Lehrkräften der gymnasialen Oberstufe durchgesprochen und im Anschluss daran evaluiert. In einem fünften Schritt wurde mit Hilfe strukturierter Beobachtungen der Einfluss der Fortbildungsveranstaltung auf das Verhalten der neun Lehrkräfte im Unterricht untersucht.

Umweltthemen wurden nur in 15 der insgesamt 130 untersuchten Schulbücher behandelt. Am häufigsten waren sie in Biologiebüchern für die 8., 10. und 12. Klassenstufe vertreten. In Grundschulbüchern kamen sie eher selten vor. Rund 91% der umweltrelevanten Unterrichtseinheiten lieferten reine Sachinformationen. Die anderen hatten zum Ziel, das Bewußtsein der Schülerinnen und Schüler für den Wert der Umwelt zu schärfen, Beziehungen zwischen der natürlichen, sozialen und kulturellen

Umwelt kritisch zu hinterfragen und die Bedeutung einer gesunden Umwelt für die menschliche Gesundheit, Lebensqualität und eine nachhaltige Entwicklung zu verdeutlichen. Sie waren vor allem in Büchern für das Fach 'Bürgerkunde' vertreten. In keinem der Schulbücher ging es um die Förderung von Handlungsfähigkeiten und -fertigkeiten.

Lehrkräfte der gymnasialen Oberstufe behandelten im Unterricht vor allem die Umweltverschmutzung und ihre Folgen. Ihre Themenwahl war relevant und an den Erfahrungen der Schülerinnen und Schüler ausgerichtet. BNE-Themen wie der Verlust an biologischer Vielfalt wurden dagegen kaum angesprochen. Drei verschiedene Ansätze lagen der Vermittlung von Umweltthemen zugrunde. Der erste Ansatz reflektierte kritisch die Beziehungen zwischen der natürlichen, sozialen und kulturellen Umwelt, der zweite vermittelte reines Umweltwissen und der dritte Kompetenzen, d.h. verstand Lernen ganz im Sinne der BNE als partizipativ sowie prozess- und handlungsorientiert. Dieser Ansatz war selten, was an einer unzureichenden Aus- und Weiterbildung, zu großen Klassen (bis zu 50 Schülerinnen und Schüler) und zu wenig Zeit (nur eine Stunde pro Woche für Umweltbildung) liegen könnte. Zu große Klassen und Zeitmangel schränkten auch den außerschulischen Umweltunterricht ein, obwohl aus Sicht der interviewten Lehrpersonen gerade dieser Unterricht sowie Feldarbeit und andere ortsbezogene, praktische Erfahrungen gepaart mit der Entwicklung kritischen Denkvermögens Bestandteil einer idealen Umweltbildung sein sollten.

Die Lehrkräfte waren mit der eintägigen Weiterbildungsveranstaltung zufrieden und gaben an, etwas Neues gelernt zu haben. Zudem hielten sie die Unterrichtshilfe für gut und praktikabel. Dennoch wurde sie nach einem Jahr nur noch von Lehrkräften verwendet, die sich durch Rektorate und im Kollegium unterstützt fühlten. Die Beobachtungen zeigten, dass Lehrkräfte vor dem Workshop etwa 90% der Unterrichtszeit selbst redeten. Nach dem Workshop sank ihr Redeanteil deutlich ab und derjenige der Schülerinnen und Schüler stieg an. Zudem waren diese in kleinere, BNE geeignete Unterrichtsaktivitäten involviert. Die Ergebnisse zeigen neben einem Bedarf an neuen Unterrichtsmaterialien für Umweltbildung und BNE, dass eine gezielte Weiterbildung Lehrkräfte dazu befähigen kann, von einem lehrer- zu einem schülerorientierten Unterricht im Sinne einer BNE zu wechseln. Dies gelingt vor allem dann, wenn sich Lehrpersonen im Kollegium und durch die Schulleitung unterstützt fühlen. Diese sollte deshalb in Implementierungsprozesse von Maßnahmen zur BNE involviert sein.

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Appendix I: List of official textbooks including environmental topics

No	Title	Authors	Year	Publisher	Place of publication
1	Biologjia 8	East Hoxha, Behxhet Musftafa East Dauti, Ragip Rrustemi	2005	Libiri Shkollor	Prishtine
2	Biologjia 10	Ismet Bajraktari, Ahmet Berisha, Fetah Halili, Haqif Qerimi	2004	Libiri Shkollor	Prishtine
3	Biologjia 11	Ismet Bajraktari, Haqif Qerimi, Fetah Halili, Agim Gashi	2004	Libiri Shkollor	Prishtine
4	Biologjia 12	Ismet Bajraktari, Ahmet Berisha, Fetah Halili, Agim Gashi	2005	Libiri Shkollor	Prishtine
5	Kimia 7	Muhamet Bicaj, Selim Jusufi, Ramiz Hoti,	2006	Libiri Shkollor	Prishtine
6	Kimia 8	Salih Gashi, Fetah Podovorica, Rexhep Kastrati	2006	Libiri Shkollor	Prishtine
7	Edukata qytetare 3	Erlehta Mato, Bajram Shatri	2005	Libiri Shkollor	Prishtine
8	Edukata qytetare 4	Erlehta Mato, Bajram Shatri	2006	Libiri Shkollor	Prishtine
9	Edukata qytetare 9	Deme Hoti, Naser Zabeli	2009	Libiri Shkollor	Prishtine
10	Gjeografia 6	Riza Cavolli	2004	Libiri Shkollor	Prishtine
11	Gjeografia 10	Riza Cavolli	2005	Libiri Shkollor	Prishtine
12	Gjeografia 11	Riza Cavolli	2005	Libiri Shkollor	Prishtine
13	Njeriu dhe natyra 4	Rasim Bejtullahu, Muhamet Bicaj, Ragip Rrustemi	2006	Libiri Shkollor	Prishtine
14	Njeriu dhe natyra 5	Rasim Bejtullahu, Muhamet Bicaj, Ragip Rrustemi	2007	Libiri Shkollor	Prishtine
15	Edukata shoqerore 4	Erlehta Mato, Nikoleta Mita, Kozmo Grillo	2001	Libiri Shkollor	Prishtine

Appendix II: Questionnaire for high school teachers (English translation)

1. Have you ever heard about environmental education? (yes, no). If yes, where?
2. Have you ever heard about education for sustainable development? (yes, no). If yes, where?
3. How prepared do you feel to teach environmental education? (insufficiently, rather insufficiently, neither/nor, rather sufficiently, sufficiently)
4. Do you need more knowledge to teach environmental education? (yes, no)
5. Where do you receive your knowledge from when teaching environmental education? (mass media, school or other books, internet, teacher education, other sources). Specify in more detail the sources you use.
6. Which topics do you teach in environmental education?
7. Which obstacles do you encounter when teaching environmental education?
8. Which needs do you have to teach environmental education effectively?
9. How much teaching time do you dedicate to environmental education? (<20%, 21-40%, 41-60%, 61-80%, >80%)
10. How much of your teaching time in environmental education do you dedicate to the followings aspects? (<20%, 21-40%, 41-60%, 61-80%, >80%)

Q1: I submit knowledge about the environment to my students.

Q2: My students gather knowledge about the environment.

Q3: I am active.

Q4: My students are active.

Q5: My students work theoretically.

Q6: The teaching takes place in school.

Q7: The teaching takes place outside.

Q8: When working theoretically, my students choose the teaching material.

Q9: When working practically, my students carry out scientific investigations.

Q10: When working practically, my students conduct interviews outside.

Q11: I teach environmental education as a disciplinary subject.

Q12: I teach environmental education as an interdisciplinary subject.

Q13: I select topics for environmental education.

Q14: My students select topics for environmental education.

Q15: We analyze students' environmental behaviour.

Q16: We analyze stakeholders' environmental behaviour.

Q17: I choose topics from books.

Q18: I choose up-to-date topics from press.

Q19: We speak about national topics.

Q20: We speak about international topics.

Q21: We work on general environmental problems.

- Q22: We work on everyday situations such as washing, shopping.
- Q23: We analyze how many environmental problems exist.
- Q24: We analyze how different groups of society react to environmental problems.
- Q25: We work on the origin of environmental problems.
- Q26: We work on consequences of environmental change for humans / the environment.
- Q27: We discuss pro and cons of technical solutions to environmental problems.
- Q28: We link values in society to the origin of environmental problems.
- Q29: We link people's lack of initiative to the origin of environmental problems.
- Q30: We talk about wrong economic incentives in society.
- Q31: We discuss technical solutions as a mean to resolve environmental problems.
- Q32: We discuss our own attitudes towards nature when talking about resolutions.
- Q33: I spend time on national (compared to international) topics.

11. Tick your priorities in environmental education (more than one answer possible):

- (a) Students should learn how to behave environmentally friendly.
- (b) Students should recognize that environmental problem-solving might be a conflicting issue.
- (c) Students should be able to analyse how environmentally friendly their actions are.

12. State your priority (1: low priority, 4: high priority) on the following aspects of environmental education:

- Q1: Saving energy and water should be natural for my students.
- Q2: Students should know indigenous plants and animals.
- Q3: I analyse political decisions with my students.
- Q4: Students should recognize that people have conflicting ideas about the use of nature.
- Q5: Students should learn how environmental problems can be solved.
- Q6: Students should critically reflect their own consumer behaviour.
- Q7: Students should learn that environmental solutions might not be liked by public.
- Q8: I want to raise environmentally friendly behaviour in my students.
- Q9: Environmental education should take place outside as often as possible.
- Q10: Students should learn in simple ways how to behave environmentally friendly.
- Q11: I demonstrate that environmental problems start in everyday life.
- Q12: I demonstrate that environmental issues can be discussed differently.
- Q13: Students should learn how dangerous certain substances are for humans.
- Q14: Students should recognize that their attitudes are influenced by values.

- Q15: I do practical observations with my students.
 - Q16: I show students how landscapes have changed over time.
 - Q17: I want my students to act environmentally friendly.
 - Q18: I want my students to have positive experiences.
 - Q19: Students should recognize that different uses of nature can lead to environmental problems.
 - Q20: Students should learn how modern teaching can solve environmental problems.
 - Q21: I want to change my school.
 - Q22: Students should learn to develop solutions to environmental problems.
 - Q23: Students should learn how environmentally friendly different products are.
 - Q24: Students should discuss openly their ideas.
 - Q25: Students should understand that nature functions in cycles.
 - Q26: Students should learn that environmentally-friendly behaviour implies a careful use of resources.
13. Socio-demographic variable: age, sex, teaching experience (years), subject taught in school (biology, geography, chemistry, citizen education, man and nature), subject specialization at university, participation in in-service teacher education in the past three years (workshops, seminars) and, if so, which ones.

Appendix III: Questionnaire for high school teachers (original version)

1. A keni dëgjuar ndonjëherë për edukimin mjedisor?

Po Jo

Nëse Po, ku keni dëgjuar për te? _____

2. A keni dëgjuar ndonjëherë për edukimin për zhvillim të qëndrueshëm?

Po Jo

Nëse Po, ku keni dëgjuar për te? _____

3. A ndjeheni mjaft të përgatitur për të shpjeguar edukim mjedisor?

I pa përgatitur Pak i përgatitur Pak a shumë i përgatitur

I përgatitur Shumë i përgatitur

4. A e mendoni se keni nevojë për më shumë njohuri për shpjegimin e edukimit mjedisor?

Po Jo

5. Ku i keni marr njohuritë për shpjegimin e edukimit mjedisor:

Media

Librat (shkollore ose tjerë)

Interneti

Edukimi

Tjera:

Te lutem a mundesh ta specifikosh burim e njohurive tuaja

6. Cilat tema i shpjegoni ne edukim mjedisor?

7. Cilat janë pengesat qe mund te hasen gjate shpjegimit te edukimit mjedisor?

8. Cilat janë nevojat ne mënyre qe te keni edukim mjedisor me efektiv?

9. Sa ore mesimore nga e gjithë mesimdhenja juaj i kushton edukimit mjedisor?:

<20% 21-40% 41-60% 61-80% >80%

10. Sa kohe nga oret tuaja mesimore ne edukim mjedisor i dedikon aspekteve ne vazhdim?
Te lutem karakterizoje shpjegimin e edukimit mjedisor

	<20%	21-40%	41-60%	61-80%	>80%
Unë si mësimdhënës jap njohuri për edukimin mjedisor	<input type="checkbox"/>				
Nxënësit e mi fitojnë njohuri vete	<input type="checkbox"/>				
Unë si mësimdhënës jam aktiv	<input type="checkbox"/>				
Studentët e mi janë aktiv	<input type="checkbox"/>				
Në edukim mjedisor nxënësit punojnë ne teori	<input type="checkbox"/>				
Mësimdhënia ime është brenda shkollës	<input type="checkbox"/>				
Mësimdhënia ime është jashtë shkolle	<input type="checkbox"/>				
Nëse punon ne mënyre teorike: nxënësit e tu a e zgjedhin vetë materialin e mësimimit?	<input type="checkbox"/>				
Nëse nxënësit e tu bëjnë pune praktike: a kryejnë kërkime shkencore ?	<input type="checkbox"/>				
Nëse nxënësit e tu bëjnë pune praktike:a mbikëqyrin intervista?	<input type="checkbox"/>				
Unë si mësimdhënës i kushtoj rendësi te madhe qe temat e edukimit mjedisor te jene disiplinare	<input type="checkbox"/>				
Unë si mësimdhënës i kushtoj rendësi te madhe qe temat e edukimit mjedisor te jene interdisiplinare	<input type="checkbox"/>				
Unë i zgjedhi temat për edukim mjedisor	<input type="checkbox"/>				

Nxënësit e mi i zgjedhin vet temat për edukim mjedisor	<input type="checkbox"/>				
Gjate edukimit mjedisor unë e analizoj sjelljen mjedisore te nxënësve	<input type="checkbox"/>				
Gjate edukimit mjedisor unë e analizoj sjelljen mjedisore te aktereve	<input type="checkbox"/>				
Gjate edukimit mjedisor tema i zgjedh nga librat	<input type="checkbox"/>				
Gjate edukimit mjedisor tema i zgjedh nga shtypi	<input type="checkbox"/>				
Gjate edukimit mjedisor ne flasim për tema kombëtare	<input type="checkbox"/>				
Gjate edukimit mjedisor ne flasim për tema ndërkombëtare	<input type="checkbox"/>				
Gjate edukimit mjedisor ne punojmë ne probleme gjenerale te mjedisit	<input type="checkbox"/>				
Gjate edukimit mjedisor ne punojmë ne situata konkrete te përditshme (p.sh. shopping, larje)	<input type="checkbox"/>				
Në edukim mjedisor unë e analizoj sa lloje te temave mjedisore ekzistojnë	<input type="checkbox"/>				
Gjate edukimit mjedisor unë e analizoj sa lloje te grupeve shoqërore reagojnë ne këto gjera.	<input type="checkbox"/>				
Gjate edukimit mjedisor unë e analizoj origjinën e problemeve mjedisore	<input type="checkbox"/>				
Gjate edukimit mjedisor unë i analizoj pasojat për njerëzit ne mjedisin e tyre	<input type="checkbox"/>				
Kur flasim për origjinën e problemeve mjedisore ne flasim për plusin dhe minusin e zgjedhjeve teknike	<input type="checkbox"/>				
Kur flasim për origjinën e problemeve mjedisore ne flasim për vlerat dhe qëndrimet e shoqërisë tone	<input type="checkbox"/>				
Kur flasim për origjinën e problemeve mjedisore ne flasim për mungese te iniciative për ndryshim	<input type="checkbox"/>				
Kur flasim për origjinën e problemeve mjedisore ne flasim nxitje te gabuar ekonomike ne shoqëri	<input type="checkbox"/>				
Nëse flasim për zgjedhjen e problemeve mjedisore ne flasim për zgjidhjet teknike	<input type="checkbox"/>				
Nëse flasim për zgjedhje te problemeve teknike ne flasim për qëndrimin tone ne raport me natyrën	<input type="checkbox"/>				
Nëse ke 100% për tema kombëtare dhe ndërkombëtare, sa do ti kushtojë rendësi temave kombëtare?	<input type="checkbox"/>				

11. Qëllimet kryesore të njësive të mia mësimore të edukimit mjedisor janë (me shumë se një përgjegjësi është e lejuar):

- a. Dëshiroj që nxënësit të mësojnë se si të sillen në mënyrë miqësore me mjedisin
- b. Dëshiroj që nxënësit e mirë të dinë se zgjedhja e problemeve mjedisore mund të jetë konfliktuale
- c. Dëshiroj që nxënësit të shohin se sa janë miqësorë sjelljet e tyre ndaj mjedisit

12. Cilat janë prioritetet e edukimit mjedisor? 1: pa prioritet, 2: me prioritet të ulët; 3: me prioritet; 4: me prioritet të lartë

Kursimi i energjisë dhe ujit duhet të jetë e zakonshme për nxënësit	1	2	3	4
Nxënësit duhet të kenë njohuri për bimë dhe shtazët e vendit të tyre	1	2	3	4
Do të dëshiroja të analizoj vendimet politike me nxënësit e mi	1	2	3	4
Nxënësit duhet të kenë parasysh që një problem i madh është se njerëzit kanë ide të ndryshme në shfrytëzimin e natyrës	1	2	3	4
Nxënësit duhet të mësojnë ide konkrete qysh mund të zgjedhën problemet mjedisore	1	2	3	4
Nxënësit duhet të reflektojnë në mënyrë kritike në sjelljen e tyre si konsumues	1	2	3	4
Nxënësit duhet të mësojnë të dallojnë se çështjet mjedisore mund që të mos pëlqehen nga publiku	1	2	3	4
Nxënësit duhet të marrin një qëndrim të sillen në mënyrë shoqërore me mjedisin	1	2	3	4
Edukimi mjedisor duhet të zërë vend jashtë shkollës sa më shpesh që është e mundur	1	2	3	4
Nxënësit duhet të mësojnë rrugë (mënyra) të thjeshta se si të sillen në mënyrë shoqërore me mjedisin	1	2	3	4
Mësimdhënësit demonstron që problemet mjedisore fillojnë në jetë e përditshme	1	2	3	4
Unë si mësimdhënësi ju tregoj nxënësve se qëllimet e edukimit mjedisor mund të jenë konfliktuale	1	2	3	4
Nxënësit duhet të mësojnë se si substancat e rrezikshme ndikojnë në jetën të tyre	1	2	3	4
Nxënësit duhet të dinë se qëndrimet e tyre ndikohen nga vlerat	1	2	3	4

Unë si mësimdhënës do të beje vrojtime praktike me nxënësit e mi	1	2	3	4
Unë ju paraqes nxënësve se si kanë ndryshuar peizazhet gjate kohës	1	2	3	4
Unë dëshiroj qe nxënësit e mi te veprojnë ne mënyre shoqërore me mjedisin	1	2	3	4
Unë dëshiroj qe nxënësit te kenë eksperiencë	1	2	3	4
Nxënësit duhet ta din se shfrytëzimet e ndryshme te natyre mund te qojnë deri problemet e ndryshme mjedisore	1	2	3	4
Nxënësit duhet te mësojnë se mësimdhënia moderne mund te zgjedh problemet mjedisore	1	2	3	4
Unë dëshiroj ta ndryshoj shkollën time.	1	2	3	4
Nxënësit duhet te mësojnë qe te zhvillojnë zgjidhje për problemet mjedisore	1	2	3	4
Nxënësit duhet te mesojne se sa shoqërore me mjedisin janë produktet e ndryshme	1	2	3	4
Nxënësit duhet ti diskutojnë ne mënyre te hapur idetë e tyre	1	2	3	4
Nxënësit duhet ta kuptojnë se natyra funksionon ne cikel	1	2	3	4
Nxënësit duhet ta kuptojnë se te jene shoqëror me mjedisin dmth te jene te kujdesshme me shfrytëzimin e materialit	1	2	3	4

13. Të dhënat demografike

13.1. Mosha _____

13.2. Gjinia Mashkull Femër

13.3. Përvoja e punës _____

13.4. Cilën lende e mbanë?

1. Biologji

2. Gjeografi

3. Kimi

4. Edukatë qytetare

13.5. Cili është specializimi juaj ne universitet?

13.6. Në tri vitet e fundit a keni marr pjese ne ndonjë workshop ose seminar për mësimdhënës?
Nëse Po, te lutem cek.

13.7. Ne te ardhmen planifikoj te beje një intervistë te detajuar me mësimdhënës, a je i gatshme te marrësh pjese?

Po

Jo

Nëse Po, a mund te i shkruash informatat kontaktuese _____

Appendix IV: Interview agenda (English translation)

- (1) How do you choose your topics about EE?
- (2) What kind of literature do you use?
- (3) How much time do you spend on EE? Why so much? Why so few hours? Do you need more time? If yes, why is your time restricted? Can you work together with a colleague?
- (4) How should good EE be done from your point of view? Give an example. Do you have role models? Teacher education models?
- (5) Do you get information about good EE? Why not? If yes, where from?
- (6) Which kind of methods do you use when teaching EE?
- (7) Did you participate in any teaching training? If yes, which one? Was it informative? If not, what could be improved? If yes, why did you like it?
- (8) Do you need more training? If yes, why? If no, why?
- (9) Do you carry out outdoor teaching? If no, why not? What are the obstacles? If yes, what are you doing? Do your pupils enjoy it? How are you doing it? Describe in detail one of your outdoor teaching programs.
- (10) If you go outside, where are you going to? What is your favorite location for EE? Why use school ground / why not?
- (11) Do you carry out field work? Where? Why not? Do you have support from your colleagues? Do you have support from the head of school?
- (12) Have you heard the term 'Education for Sustainable Development'? Where? If yes, what does it mean? What distinguishes ESD from EE in your point of view? How would you teach it?
- (13) How would your ideal lesson look like? Describe it in detail. Why is it not possible? What do you need?

Appendix V: Interview agenda (original version)

- (1) Si i zgjedhni temat per EM?
- (2) Cfare literature perdorni?
- (3) Sa kohe (ore) shpenzon per EM? Pse kaq shum? Pse kaq pak? A ju duhet me shum ore? Nese po, pse eshte koha juaj e limituar? A mund te punoni se bashku me nje koleg tuajin?
- (4) Sipas jush si duhet te jete nje EM i mire? Jep nje shembull. A keni modele te roleve?
- (5) A merr informata rreth EM te mire? Pse jo? Nese po , ku?
- (6) Cfare metodash perdor per EM?
- (7) A ke marr pjese ne ndonje trajnim per professor? Nese po cilin? A ishte informative? Nese jo, cka mundet te permiresohet? Nese po, pse ju ka pelqy?
- (8) A keni nevojte per trajnime te tjera? Nese po, pse? Nese jo, pse?
- (9) A e realizon oren e mesimit jashte? Nese jo, pse jo? Cilat jane pengesat? Nese po, cka bene? A ju pelqen nxenesve? Si e realizon ate? Detalizo nje nga oret e mbajtura jashte?
- (10) Nese del jashte, ku shkon? Cili eshte vendi yt me i favorshem per EM? Pse e perdor oborrin e shkolles/pse jo?
- (11) A realizon pune praktike? Ku? Pse jo? A keni prekraheje prej kolegeve? A keni perkrahejn nga drejtori?
- (12) A keni ndegjuar ndonjehere per termin “ Edukimi per Zhvillim te qendrueshem” Ku? Nese po, cka do te thot? Cka e dallon EZHQ nga EM sipas jush? Si do ta spjegoje ti?
- (13) Si do te dukej (ishte) ora jote ideale e mesimit (biologji, ed. Qytetare)? Pershkruaje ne detaje. Pse nuk eshte e mundur te mbahet keshtu? Cka ju duhet?

Appendix VI: Toolkit

**METODA TË REJA TË MËSIMDHËNIES
PËR EDUKIM MJEDISOR**

(PUNË PRAKTIKE DHE SHEMBUJ)

Mimoza Hyseni Spahiu

Prishtinë, 2012

Autori

Mimoza Hyseni-Spahu

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Kjo broshure me shembuj dhe pune praktike u dedikohet te gjithe mesimdhenesve qe ligjerojne edukimin mjedisor ne shkollet fillore dhe te mesme ne Kosove.

HYRJE

Pse është e nevojshme kjo broshurë?

Edukimi për mbrojtjen e mjedisin është shumë i rëndësishëm. Në Kosovë, njohuritë e publikut për temat mjedisore janë mjaftë të kufizuara. Aktualisht ka pak tema mjedisore të përfshira në libra dhe kurrikula shkollore. Vetëm një numër i vogël i librave shkollorë të nivelit fillorë përmbajnë tema mjedisore. Kjo është për të të ardhur keq, pasi që temat mjedisore janë shumë të nevojshme të përfshihen në të gjitha nivelet e sistemit arsimor. Duke u bazuar në rezultatet e një studimi të bërë, me pyetësorë dhe me intervista, del si nevojë e menjëhershme dhe shume e rëndësishme që mësuesit të kenë një broshurë mbi metodat e reja të mësimdhënies së edukimit mjedisor. Pra, nevoja për edukim mjedisor është shumë e madhe si në shkolla dhe gjetiu.

Kjo broshurë u dedikohet të gjithë mësimdhënësve që një mënyrë apo tjetër janë duke ligjëruar lëndën e edukimit mjedisor në Kosovë.

Në këtë broshurë janë prezantuar disa shembuj se si mund të zbatohet edukimi mjedisor. Temat të cilat janë të përfshira në këtë broshurë janë: Ndotja e ajrit, Ndotja e ujit, Mbeturinat, Kursimi i energjisë, Bimët dhe Kafshët. Për secilën nga këto tema, janë paraqitur shembuj që lehtësojnë punën e mësimdhënësve për zhvillimin e lëndës së edukimit mjedisor. Objektivi kryesor i kësaj broshure është që në kushte të kufizuara dhe me numër të madh të studentëve të fillohet mësimi i edukimit mjedisor në Kosovë.

Anketimi: kush e ndotë ajrin?

Mjetet e domosdoshme: letër dhe laps

Ju si mësimdhënës duhet ta përpiloni një anketë temë ndotjen e ajrit. Pyetjet duhet të jenë të lidhura ngushtë me temën mësimore. Para se t'i dërgoni nxënësit që ta realizojnë anketën udhëzoni se si t'i zgjedhin dhe pyesin kalimtarët e rastit. Së pari duhet të kërkojë nga ata që të jenë të sjellshëm, t'i lusin njerëzit që të marrin pjesë në anketën e tyre; së dyti ata duhet të ua lexojnë qartë pyetjet, dhe në fund t'i falënderojnë ata për pjesëmarrje. Në orën tjetër ju së bashku me nxënësit duhet t'i analizoni të dhënat nga anketa dhe t'i diskutoni rezultatet. E njëjta metodë mund të realizohet edhe me tema tjera.

Kalkulimi i sasisë së karbonit të emituar

Mjetet e domosdoshme: letër dhe laps

Kërko nga nxënësit që të vizatojnë një tabelë të ngjashme me tabelën e mëposhtme dhe të kalkulojnë totalin e karbonit të emituar për distancën nga shtëpia e tyre deri në shkollë, për lloje të ndryshme të transportit.

Lloji i transportit	Sasia e karbonit të emituar për	Distanca e udhëtimit	Sasia totale e karbonit
1. Ecje	3 gm	X_____ km	=
2. Çikëlim	3 gm	X_____ km	=
3. Veture (diesel)	210 gm	X_____ km	=
4. Veture (Benzin)	225 gm	X_____ km	=
5. Autobus	515 gm	X_____ km	=
6. Tren	50 gm	X_____ km	=

Matja e pH nga uji i shiut

Mjetet e domosdoshme: pH metër dhe gota

Nxënësit duhet ta vendosin një gotë në ballkon në mënyrë që kur të bie shi të mbushet. Pastaj nxënësve u jepet nga një pH- metër nga letra dhe kërkohet nga ata që kur të mbushet gota pH-metri të vendoset në gotë dhe të matet pH-ja. Në orën e ardhshme diskutojeni pH dhe sqaroje se çka do të thotë për mjedisin kur pH-ja është acidike e çka kur është bazike. Në fund gjejeni se cilët nga nxënësit banojnë në zona më të ndotura.

Ndotja nga automjetet

Mjetet e domosdoshme: letër dhe laps

Mësimdhënësi mund t'i ndajë nxënësit në grupe nga 5 ose 6 veta. Nga secili grup kërkohet të vëzhgojnë emisionet e tymit, nga gypi i tymit, nga ndonjëri lloj i automjeteve p.sh. veturë, autobus, kombi etj. Pastaj brenda 30 minutave të shkruajnë numrin e automjeteve për secilën kategori. Nxënësit duhet të gjejnë një vend të sigurt prej nga mund t'i shikojnë dhe numërojnë automjetet në rrugë. Në fund, kërkohet nga ata që ta krijojnë një tabelë si ajo më poshtë dhe të kalkulojnë përqindjen e automjeteve ndotëse për secilën kategori.

Lloji i automjetit _____

Automjete që emitojnë me pak tym		Automjete që emitojnë sasi mesatare të tymit		Automjete që emitojnë tyme të zi	
Numri	Perqindja	Numri	Perqindja	Numri	Perqindja

E drejta e informimit për gjendjen e mjedisit

Mjetet e domosdoshme: letër, zarfe dhe pulla postare

Brenda 5 minutave shpjegoju nxënësve se kush janë aktorët kryesor në mbrojtje të mjedisit. Fol për Agjencionin për Mbrojtjen e Mjedisit (ose ndonjë aktor tjetër). Trego përgjegjësit dhe aktivitetet e aktorëve për mbrojtjen e mjedisit, në secilin nga sektorët mjedisor. Pastaj kërko nga nxënësit që të shkruajnë nga një letër për këtë agjenci në lidhje me ndotjen e ujit, çka ata janë të interesuar të dinë për gjendjen e lumenjve dhe liqeneve në Kosovë. Kjo metodë mund të përdoret për tema dhe aktorë tjerë.

Punimi i pllakatit

Mjetet e domosdoshme: Hamer, lapsa me ngjyrë dhe shkopinj të drurit

Për këtë aktivitet kërko nga nxënësit që t'i sjellin disa hamera, lapsa me ngjyra dhe disa shkopinj druri. Në hamera nxënësit duhet t'i shkruajnë disa slogane pse duhet t'i mbrojmë lumenjtë dhe liqenet, si dhe për rëndësinë e ujit të pastër dhe mbrojtjen e botës së gjallë që jeton në lumenj dhe liqene. Pastaj së bashku me nxënësit vizitoni lumin apo liqenin më të afërt dhe vendosni këto pllakate përgjatë tij. Kjo mund të realizohet edhe për tema të tjera gjithashtu.

Kursimi i ujit

Mjetet e domosdoshme: Hamer, shkurës, letër dhe laps

Ndani nxënësit në tri grupe dhe jepu atyre nga një detyrë të veçantë. Grupi i parë duhet të mbledhë informacione lidhur me çezmat që lihen duke rrjedhur ujin nga pakujdesia e nxënësve. Grupi i dytë duhet ta masë sasinë e ujit që derdhet nga çezmat që rrjedhin për 10 minuta. Grupi i tretë duhet të japë sugjerime për të përmirësuar shprehitë e nxënësve.

në mënyrë që ta parandalojnë humbjen e ujit. Në orën tjetër mund të kërkoni nga nxënësit që të bëjnë një prezantim. Gjithashtu këtu mund të aplikohet edhe një tjetër shembull. Kërkohet nga nxënësit që të marrin nga një kovë me veti dhe brushat për pastrimin e dhëmbëve. Gjysma e nxënësve gjatë pastrimit të dhëmbëve e lënë ujin duke rrjedhur e gjysma e tjetër e ndalin ujin kur nuk ju duhet. Në fund të bëhet krahasimi me ujin e shpenzuar nga të dyja grupet.

Organizimi i punës praktike me një institucion mjedisor (IHMK)

Mjetet e domosdoshme: transporti deri te lumi me i afërt në regjion

Instituti Hidrometeorologjik i Kosovës e monitoron kualitetin e ujit të lumenjve. Ata e kanë kalendarin e tyre dhe afërsisht një here në muaj e vizitojnë një lum ose liqen. Gjatë këtij monitorimi ata i marrin mostrat për disa nga analizat si: pH-ja, sasia e O₂, parametrat hidrologjik etj, të cilat i realizojnë aty. Ju mund të kontaktoni me IHMK-në dhe ta aranzhoni që në njërën nga orët tuaja të dilni se bashku në terren dhe t'i bëni këto lloje të analizave.

Ekspozitë artistike me mbeturina

Mjetet e domosdoshme: qese, ngjitës dhe dorëza

Kërko nga nxënësit që çdo ditë t'i mbledhin mbeturinat në shkollë. Shpjegoju atyre që së bashku në shkollë do të organizoni një ekspozitë nga mbeturinat (në qendër të qytetit nëse është e mundur). Tregoju atyre se çka mund të krijojnë nga mbeturinat,. Në mënyrë që të përjashtohet mundësia e krijimit të njëjtit objekt dy herë përpiluje një listë. Në fund të organizohet një ekspozitë me punimet e tyre të krijuara nga mbeturinat.

Hulumtimi i sjelljes së nxënësve për mbeturina

Mjetet e domosdoshme: Pc, printer, letër dhe ngjitës

Organizo nxënësit në grupe që të përgatisin fletëpalosje për menaxhimin e mbeturinave. Fletëpalosjet duhet të përmbajnë këshilla se si njerëzit duhet t'i menaxhojnë mbeturinat. Në të njëjtën kohë kërko nga ata që të hulumtojnë sjelljet e nxënësve, se ku ata i hedhin mbeturinat, në vende të gabuara ose në kopshte. Pastaj të bëhet shpërndarja e fletëpalosjeve në shkollë. Pas një jave kërko nga nxënësit që përsëri të hulumtojnë sjelljen e nxënësve dhe kërko nga ata që të mbajnë shënime se sa nga ata e kanë ndryshuar sjelljen e tyre. Këto rezultate pasqyroj në shkollë.

Riciklimi

Mjetet e domosdoshme: karton, letër dhe laps

Nxënësit do t'i krijojnë disa kontejner të vegjël nga kartoni. Ata së paku duhet t'i bëjnë katër, një për qelq, një për plastikë, një për letër dhe një për mbeturina tjera. Në secilën nga ato duhet të vendoset mbishkrimi se për cilin lloj të mbeturinave është. Këta kontejner duhet të vendosen në pjesët më të frekuentuara të shkollës dhe të përcjellët sjellja e nxënësve.

Sasia e mbeturinave

Mjetet e domosdoshme: asnjë

Nxënësve jepu informata rreth sasisë ditore të mbeturinave të prodhuara për person në Kosovë. Kjo sasi është 2.1 kg . Pastaj kërko nga ata që të gjejnë numrin e popullatës në qytetin e tyre dhe për tërë Kosovën (nëse ata nuk mund ta gjejnë ndihmoj). Kërko nga ata që të përlllogarisin sasinë e mbeturinave të prodhuara në Kosovë, në qytetin dhe

familjen e tyre. Pastaj diskuto me ata se ku shkojnë këto mbeturina dhe a trajtohen në vendin tonë.

Llojet e mbeturinave

Mjetet e domosdoshme: dorëza, mbeturina dhe peshore

Ndaj nxënësit në grupe me nga 5 ose 6 veta dhe shkoni të kontejneri me i afërt. Kërko nga nxënësit ta derdhin tërë sasinë e mbeturinave që gjendet në të. Pastaj shpjegoju se si duhet t'i ndajnë mbeturinat dhe çfarë lloje të mbeturinave kemi. Pasi t'i kenë ndarë mbeturinat (me dorëza) ata duhet t'i peshoni në mënyrë që ta dimë se sa kg ka nga secila kategori. Bëni disa përlllogaritje dhe gjeni përqindjen e secilës kategori. Këto mbeturina mund të përdoren për riciklim.

Riciklimi për zogjët

Mjetet e domosdoshme: shishe plastike, thikë, çekan, gozhda, dara, laps, vizore, tel të hollë dhe varëse rrobash

Juve do të ju duhet një shishe 1 litërshe e plastikës, një shkop i vogël druri dhe një thumb për ta mbajtur ushqimin. Shponi dy ose tri vrima në mes të shishes. Vrimat duhet të jenë midis 5-10 cm të gjera në varësi të llojit të zogjve që ju doni t'i tërhiqni. Pastaj bëni vrima të vogla poshtë vrimave të ushqimit për shkopinjtë e drurit. Merrni çdo shkop dhe futeni atë në vrimë të vogël sa për një degë. Pjesën e brendshme të shishes mbusheni me ushqim dhe qëndroni aty afër për të vrojtuar se si afrohen zogjtë.

Kompostimi

Mjetet e domosdoshme: enë, ujë dhe diçka për përzierje

Në shkollë gjeni një vend ku mund të vendosni gjethe, bime dhe mbeturina nga ushqimi. Kërko nga studentët t'i bëjnë disa lajmërime rreth kompostimit, çfarë lloje të mbeturinave mund të hedhen aty dhe përfitimet nga kompostimi. Këto lajmërime të shpërndahen në vendet ku mund të lexohen nga nxënësit. Pastaj cakto 2 nxënës çdo javë të kujdesen për të duke e ujitur dhe duke e përzier. Pas disa muajve mbeturinat do të kompostohen dhe plehu i tyre mund të përdoret në kopshte.

Metoda të reja të mësimdhënies për edukim mjedisor: Punëtori– T'i shfrytëzojmë rrobat e vjetra për prodhimin e qeseve të tekstit

Mjetet e domosdoshme: rroba të vjetra, gërshërë, penj për qepje dhe gjilpëra

Kërko nga nxënësit që të sjellin me vete disa rroba të vjetra dhe mjetet e nevojshme për qepje. Në fillim ju si mësimdhënës shpjegojuni në pika të shkurtra rëndësinë e riciklimit dhe në të njëjtën kohë rëndësinë dhe mënyrën e uljes së prodhimit të mbeturinave. Njëra nga mënyrat është edhe kjo ku nxënësit nga rrobat e vjetra duhet të prodhojnë qese të tekstit të cilat do t'i përdorin gjatë blerjeve. Në këtë mënyrë shmangiet edhe blerja e qeseve të plastikës.

Kompostimi

Mjetet e domosdoshme: kontejner, dhe, ujë, uthull, filxhan dhe sodë buke

Kërko nga nxënësit që t'i sjellin mjetet e nevojshme për këtë temë. Dheun ta sjellin nga kopshtet e tyre. Në fillim hedhet disa dhe në kontejner, pastaj i shtohet gjysmë filxhani uthull. Nëse në dhe dalin flluska atëherë dheu është me bazë alkaline. Nëse nuk ka reagim, bëje një mostër të freskët të dheut në një enë të dytë. Shto një gjysmë filxhani ujit dhe përzije. Pastaj, shtoni një gjysmë filxhani sodë buke. Nëse në dhe dalin flluska atëherë dheu është shumë acidik. Në fund rezultatet i diskutoni me nxënësit.

Shtresat e tokës

Mjetet e domosdoshme: Letër dhe laps,

Vizitoni një lokacion ku verëhet ndikimi i erozionit. Kerkoni nga nxenesit te mbajne shenime për dallimet që vërehen ne shtresat e tokes. Po ashtu te identifkojne disa nga gjallesat qe jetojne ne toke. Le ë indetifikohet shtresa e frytshme e tokës, aty ku janë shumica e gjallesave. Nëse keni fotoaparart kërkonj nga ata që ti bëjnë disa foto. Në fund diskutoni me nxënësit rreth kësaj teme.

Foto kornizë dhe ekspozita

Mjetet e domosdoshme: fotoaparart, letër dhe kapëse

Merrni 4 fleta A4, bëni në formë të rrumbullakët dhe ngjitni së bashku në forme katrori. Pastaj dilni jashtë në natyrë dhe bëni foto kornizë me bimë të bukura dhe kafshë (nëse është e mundur). Printoni këto fotografi dhe tentoni që së bashku me nxënësit që t'i gjeni emrat e tyre. Pastaj me këto fotografi ju mund të organizoni një ekspozitë në shkollë. Nxënësit në grupe duhet të marrin më shumë njohuri për një bimë ose kafshë në

mënyrë që të ju shpjegojnë edhe të tjerëve.

Mbjellja e fidanëve në oborr të shkollës

Mjetet e domosdoshme: fidanë dhe lopata

Çdo nxënës duhet të mbjell një fidan në oborr të shkollës. Vetë nxënësit le të vendosin për vendin e përshtatshëm. Pastaj kërko nga ata që t'i emërojnë fidanët e tyre dhe të kujdesen për to deri sa ata janë në atë shkollë. Kur ata do të largohen nga ajo shkollë le të gjejnë nga një nxënës tjetër që do të vazhdojë të kujdeset për fidanin.

Numërimi i bimëve dhe kafshëve

Mjetet e domosdoshme: letër, laps dhe fotoaparati

Përgjatë një muaji, nxënësit duhet të shohin sa lloje të ndryshme të bimëve dhe kafshëve mund t'i gjejnë gjatë rrugës nga shkolla në shtëpi. Kërko nga ata që t'ua shkruajnë emrat nëse ua dinë dhe t'i përshkruajnë se si duken ato. Nëse kanë fotoaparati t'i fotografojnë secilën nga ato. Pas një muaji nxënësit duhet t'i prezantojnë rezultatet e tyre në klasë. Nxënësi që ka grumbulluar numrin më të madh të llojeve shpërblehet me një dhuratë të vogël.

Enigma

Mjetet e domosdoshme: letër dhe laps

Ndaj nxënësit në grupe prej 4 ose 5 vetave. Kërko nga ata që në një copë letër të shkruajnë emrin e një bime ose kafshe dhe pastaj përziej mirë ato. Pastaj secili nga nxënësit duhet ta zgjedhë një letër dhe pa e parë atë duhet ta vendosë në ballë në mënyrë që nxënësit tjerë ta shohin. Ai ose ajo ka të drejtë t'i bëjë 10 pyetje në mënyrë që ta gjejë

se çka fshihet në letër. Nëse ai (ajo) nuk mund ta gjejë atëherë nxënësit e tjerë do ta ndihmojnë ose edhe mund t'i tregojnë. Në fund për të gjitha llojet që janë shkruar të diskutohet se ku jetojnë, me çka ushqehen etj.

Konsumi i energjisë

Mjete e domosdoshme: leter, laps,

Kërkoni nga nxënësit që të bëjnë një listë me pajisjet elektrike që ata kanë në shtëpi. Pyeti ata se sa vat ka çdo pajisje elektrike. Pastaj jepu atyre një tabelë me disa prej pajisjeve dhe energjinë e nevojshme për to. Shih tabelën më poshtë. Kërko nga nxënësit të gjejnë numrin e çdo pajisje që ata kanë në shtëpi dhe numrin e orëve të përdorimit të tyre në ditë. Gjithashtu ata duhet të gjejnë shkallën e energjisë elektrike për njësi (nga fatura). Në fund nxënësit me ndihmën e tabelës bëjnë llogaritjen e energjisë së shpenzuar.

Nr.	Pajisja	Konsumi i energjise
1.	Poç 60 vat	1 njësi në 16 orë
2.	Drite ne forme gypi	1 njësi në 25 orë
3.	Televizioni	1 njësi në 6.5 orë
4.	Ventilatori 48 vat	1 njësi në 16 orë
5.	Kondicioneri	2.5 njësi në 1 orë
6.	Nehese e dhomes	1 njësi në 1 orë
7.	Ngrohes uji	2 njësi në 1 orë
8.	Mulli elektrik	1 njësi në 5 orë
9.	Uji	1 njësi në 1 orë

Ndërroje një dritë => ndërroje botën

Mjetet e domosdoshme: poqa eficient

Shpjegoju nxënësve rëndësinë e kursimit të energjisë. Pastaj kërko nga ata, që në fillim të muajit, të fillojnë me disa hapa të vegjël për kursimin e energjisë. Ata duhet t'i ndalin të gjitha dritat e dhomave në shtëpi ose në shkollë aty ku nuk qëndron askush, pastaj t'i ndalin kompjuterët dhe televizorët kur nuk është duke i përdorur askush. Në të njëjtën kohë ata duhet t'i zëvendësojnë poqët me poqa eficient. Në fund të muajit nxënësit duhet t'i krahasojnë faturat e energjisë elektrike me muajt e mëparshëm dhe pastaj ta diskutoni së bashku. Kjo metodë mund të përdoret edhe për kursimin e ujit.

Zhvillimi i qëndrueshëm

Mjetet e domosdoshme: letra me thënje për zhvillimin e qëndrueshëm, laps dhe letër,

Ndajë nxënësit në 3 grupe. Kërko nga secili grup që të zgjedh një fletë me një thënie nga grumbulli i fletave. Anëtarët e grupit duhet ta lexojnë thënjen për zhvillim të qëndrueshm dhe të mendojnë për një mënyrë se si principet e zhvillimit të qëndrueshëm mund të implementohen në komunitet dhe në familje. Pasi të përfundojnë diskutimet në mes të grupeve kërko nga lideri i grupit që ti lexojë me zë të lartë principet e zhvillimit të qëndrueshëm. Në fund të hapet diskutimi rreth këtyre principeve.

Ese: Si mund të ndihmojnë fëmijët në mbrojtjen e mjedisit?

Mjetet e domosdoshme: poqa eficient

Shpjegoju nxënësve rëndësinë e kursimit të energjisë. Pastaj kërko nga ata, që në fillim të muajit, të fillojnë me disa hapa të vegjël për kursimin e energjisë. Ata duhet t'i

ndalin të gjitha dritat e dhomave në shtëpi ose në shkollë aty ku nuk qëndron askush, pastaj t'i ndalin kompjuterët dhe televizorët kur nuk është duke i përdorur askush. Në të njëjtën kohë ata duhet t'i zëvendësojnë poqët me poqa eficient. Në fund të muajit nxënësit duhet t'i krahasojnë faturat e energjisë elektrike me muajt e mëparshëm dhe pastaj ta diskutoni së bashku. Kjo metodë mund të përdoret edhe për kursimin e ujit.

Shprehu: Si do të ndryshonit në mjedisin tuaj?

Mjetet e domosdoshme: letër dhe laps

Ndaj nxenesit në grupe nga 5 ose 6 dhe secili grup të jete një institucion perkates për mbrojtjen e mjedisit p.sh. një grup të jete ministria, një grup të jete shoqëria cilive etj. Cakto një temë për të cilët do të debatohet se cka mund të bëjnë secili në këto grupe me përgjegjësit e veta për ta ndryshuar gjendjen e mjedisit ku ne jetojmë. Në fillim grupet të diskutojnë në mes veti dhe pasatë të fillojë debate në mes të grupeve. Ndajë kohën e barabart në mes të grupeve.