Exploring the Synergy between Education for Sustainable Development (ESD) and the Delivery of Quality Education in Finland

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Abstract

"Students understand connection between human well-being, economy and protection of the environment and they have learnt to commit sustainable way of life and they have learnt to estimate in practice means to aim an eco-effective welfare society, they have skills to solve problems also in new situations."

Our report describes ESD and Quality Education in Finland. We wanted to build a common understanding of the study subject. We created an interpretation frame of quality education and ESD based on structure – process- outcomes –orientation and quality education literature in Finland. We analyzed our data (answers to study questions) by this frame. In our conclusion we present the results of our study.

In Espoo 24th July 2014.

Anna Maaria Nuutinen and Päivi Immonen

1 Introduction and background

The link between quality and sustainable development is as yet an under-researched area of educational development. And yet most commentators suggest that 'there can be few more pressing and critical goals for the future of human kind than to ensure steady improvement in the quality of life for this and future generations in a way that *respects* our common heritage – the planet on which we live.' (UNESCO, 2008, 9)

According to Unicef (2000, 3) children have a right to an education, a quality education. Quality Education definition allows for an understanding of education as a complex system embedded in a political, cultural and economic context. Quality education includes:

- *Learners who are healthy, well-nourished and ready to participate and learn, and supported in learning by their families and communities;*
- *Environments that are healthy, safe, protective and gender-sensitive, and provide adequate resources and facilities;*
- *Content that is reflected in relevant curricula and materials for the acquisition of basic skills, especially in the areas of literacy, numeracy and skills for life, and knowledge in such areas as gender, health, nutrition, HIV/AIDS prevention and peace.*
- *Processes through which trained teachers use child-centred teaching approaches in well-managed classrooms and schools and skilful assessment to facilitate learning and reduce disparities.*
- *Outcomes that encompass knowledge, skills and attitudes, and are linked to national goals for education and positive participation in society.*

According to prof. Charles Hopkins many schools and school systems that have embedded the concepts of Education for Sustainable Development (ESD) throughout their policies, practice and curricula have reported an overall improvement across a number of indicators. Many talk of improvements in student academic achievement but they also mention improvements in other areas such as attendance, student intellectual engagement, and student/teacher relationship. At the same time, some school systems are reluctant to engage the embedding of ESD fearing that this may dilute or interfere with their focus on current programs aimed at improving test scores.

This initial research phase explores the relationship between the systemic embedding of ESD and the pursuit of quality in primary and secondary education in an attempt to better understand the potential of constructive synergy in merging these two goals.

Led by prof. Hopkins, the UNESCO Chair on ESD at York University at Toronto, Canada and the secretariat Rosalyn McKeown, institutions including ministries of education and universities from approximately ten countries in Asia, Europe, and North America will explore the relationship between ESD and quality education. Most of the research will be qualitative in nature; however, quantitative data such as test scores and university entrance successes exist in some countries (especially China) and will be included wherever possible. A wide range of research methodologies, thematic areas of investigation, and indicators may emerge. This wider picture of the value of ESD as perceived by schools (students, teachers, administrators and others such as parents and employers) will prove immensely useful in furthering ESD.

2 Basic education in Finland

2.1 Purpose and quality guidelines of basic education in Finland

In common quality is the fact that the educational organization is responsible for its purpose and operating tasks and education meets its expectations. The purpose, tasks, objectives and quality guidelines of Education in Finland are based on Basic Education Act 628/1998 are described in following table (Table 1).

Table 1 Purpose, tasks, quality, guidelines and evaluation of Education in Finland

Basic Education Act 628/1998 **The purpose, tasks and objectives**	**Amendments up to 1136/2010** **Quality, guidelines and evaluation of Education**
Section 2 **Objectives of education** (Basic Education Act 628/1998) 1 The purpose of education referred to in this Act is to support pupils' growth into humanity and into ethically responsible membership of society and to provide them with knowledge and skills needed in life. Furthermore, the aim of pre-primary education, as part of early childhood education, is to improve children's capacity for learning. 2 Education shall promote civilisation and equality in society and pupils' prerequisites for participating in education and otherwise developing themselves during their lives. 3 The aim of education shall further be to secure adequate equity in education throughout the country.	**Section 21** **Educational evaluation** (Amendment 32/2003) The purpose of the evaluation of education is to assure that the purpose of this Act is carried out, to support educational development and to improve conditions for learning. An education provider shall evaluate the education it provides and its impact and take part in external evaluations of its operations. For the purpose of external evaluation, there shall be an Education Evaluation Council attached to the Ministry of Education as an independent expert body. The National Board of Education shall undertake monitoring evaluations of national subject-specific learning outcomes specified in the allocation of lesson hours and the core curriculum referred to in Section 14. The Ministry of Education shall devise an evaluation plan on external evaluations of education and monitoring evaluations of learning outcomes. Provisions concerning the remit, composition and operational organization of the Education Evaluation Council, the preparation and implementation of the matters addressed by the Council and the content of the evaluation plan shall be enacted by Government Decree. (Amendment 970/2009) The salient findings of evaluation shall be published. Further provisions concerning evaluation and its development shall be enacted by Government Decree. **Section 48a, Aims and guidelines** 1. The purpose of before- and after-school activities is to support the school's and the home's educational work and the development of the child's emotional life and ethical growth. In addition, before- and after-school activities shall promote children's welfare and equality in society and prevent exclusion and promote inclusion. 2. The before- and after-school activities shall offer children varied opportunities to participate in guided and refreshing activities and to enable them to rest in calm surroundings under the supervision of a competent person suitable for the task. 3. The National Board of Education shall determine the aims and

	central content of before- and after-school activities referred to in this Act (guidelines for before- and after-school activities). The National Board shall prepare the guidelines in cooperation with the National Research and Development Centre for Welfare and Health. **Section 48c, Evaluation** The purpose of before- and after-school activities is to secure the achievement of the aims determined in **Section 48d, Right to a safe activity environment and to school benefits** A child participating in before- and after-school activities has a right to a safe activity environment. A child participating in before- and after-school activities must be offered a snack. The care due to an accident which takes place in before- and after-school activities shall be free of charge for the child. **Section 48e, Personnel** The before- and after-school activities shall have a sufficient number of staff in relation to the form of arrangement. The qualifications required of instructors in the before- and after-school activities shall be enacted by government Decree.

2.2 Education on Sustainable Development (ESD) in Basic education

The Finnish Government included the promotion of sustainable development in its development plan for education and research in 2003. This development plan is a key steering tool for the Ministry of Education. The promotion of sustainable development has also been incorporated into the national core curricula in basic education and in general and vocational upper secondary education. It is also addressed in the annual performance agreements concluded by universities of applied sciences and universities with the Ministry of Education.

Strategies for Education of Sustainable Development

- Sustainable development in education; Implementation of Baltic 21E programme and Finnish strategy for decade of Education for Sustainable Development 2005-2014.
- Towards Sustainable Development in Higher Education – Reflections, Publications of the Ministry of Education 2007:6

The Ministry of the Environment appointed a Sub-committee for Education to The Finnish National Commission on Sustainable Development (FNBE 2006) in May 2004. The vision of education and training for sustainable development is one of citizens committed to a sustainable way of life, citizens whose knowledge, skills, and motivation for sustainable development are furthered by relevant education integrated in all education and training. Education and training for sustainable development aspire to develop the knowledge, skills, readiness and vision necessary to assume a sustainable way of life, as well as to build a future with citizens cognizant of the basic preconditions of sustainable development. The sub-committee first began its work by charting out the roles various people have in the education and training of sustainable development before launching the preparation of the strategy. Both international and national processes have been taken into consideration in drawing up the strategy. The strategy is targeted at all those with decision making

power in education and training covering all levels of decision-making and all fields of administration. (FNBE 2006)

- Strategy for education and Training for Sustainable development and Implementation Plan 2006-2014. (National Commission on Sustainable Development, Sub-committee for Education, 2006)

In order to feel in control of our lives, take responsibility, have a sense of community and a future orientation, we must be able to see the structure of society and have insight into the needs of the various participants and what responsibilities and roles each one has in decision-making. It is important to become familiar with various living and working environments, to learn how services and leisure time activities are produced and how decision-making and administration work. It is important to learn of the state of the natural environment and learn to see the local community as a whole. Furthermore, it is important to see how our local community is connected to and dependent on other regions and the state and functioning of the whole world. A realistic sense of human well-being, the working of democracy, the stability of the economy and the state of the environment in our local community create a good basis on which to assess and envisage future plans with an eye on their ecological, economic, cultural and social sustainability. (FNBE 2006, 25)

The knowledge and use of various means to participate and influence public affairs is essential to the development of democracy and the building of a sustainable future. Learning to participate begins with understanding the impact of our actions, participating in the planning of our work community and in implementing the plans. It continues as civic activity and involvement in various affairs in the different phases of life. All children and young people need to gain experience of taking responsibility and dealing with common concerns within their community and in the community outside school. It is important to learn to see the impact of small, local actions, even on a worldwide scale. Participating in national and international projects supports the growth of world citizenship. It gives insight into global environmental and development matters and the needs and opportunities to distribute welfare more fairly. (FNBE 2006, 26)

Whole work community plans and writes together a program of action for sustainable development. The preparation of the program starts with surveying the current situation, on the basis of which development action decisions will be made. Development actions will deal with management, teaching and daily practices. It is important for learning that teaching as well as the operational culture support growth towards a sustainable way of life and the learning of sustainable consumption habits. Preparing a program of action requires persistent work, multi vocational cooperation and the definition of responsibility areas. (FNBE 2006, 27)

2.3 ESD in Curriculum structures in Finland

National Core Curriculum for Basic Education (FNBE 2004) includes the purpose, values, objectives, contents, themes and evaluation of education. The local curriculum is drawn up on the basis of the national core curriculum. Working approaches are described in core curriculum but Finnish teachers have a high degree of autonomy to choose methods. ESD is one of the seven cross-curricular themes in Core Curriculum for Basic Education. The main focus in the implementation of this cross-curricular theme should be on practical exercises and the creation of personal experiences of participation and influence. In addition to the school's own active efforts, a study environment of this kind may be developed in cooperation with other bodies operating in society, including various

organizations and businesses. This means that the ideas of cross-curricular themes should be included in school's operational culture and implemented in the various subject.

The cross-curricular themes (FNBE 2004, 36 - 41) are:

- *Growth as a person*
- *Cultural identity and internationalism*
- *Media skills and communication*
- *Participatory citizenship and entrepreneurship*
- *Responsibility for environment, well-being, and sustainable future*
- *Safety and traffic*
- *Technology and the individual*

Responsibility for the environment, well-being and a sustainable future as a cross-curricular theme requires the schools to teach "future-oriented thinking and the building of the future upon ecologically, economically, socially and culturally sustainable premises". It is the objective of basic education to educate environmentally conscious citizens who are committed to sustainability. (FNBE 2004, 39-40)

Objectives

The primary school pupils will:

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

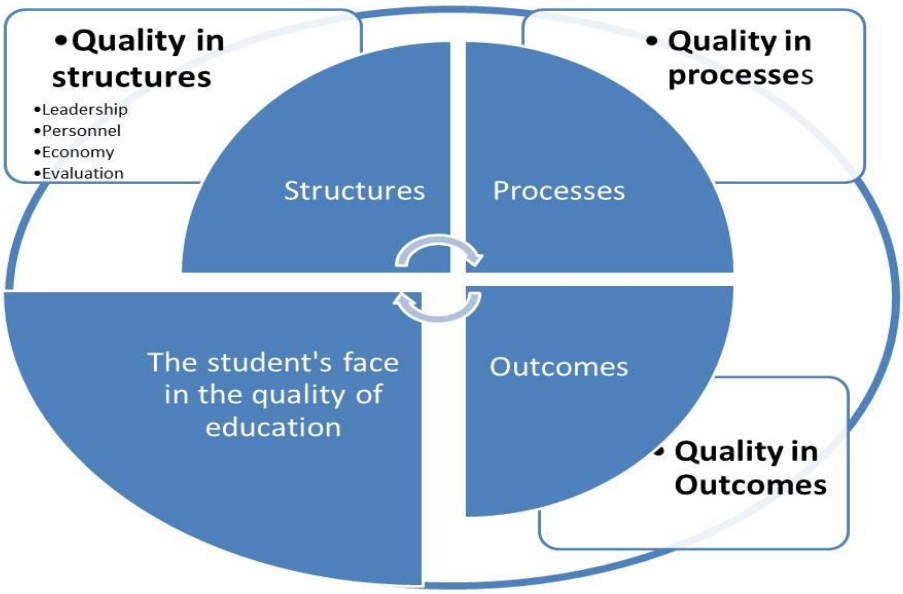
Core contents for primary school:

- ecologically, economically, culturally, and socially SD in one's own school and living environment
- individual and community responsibility for the well-being of people and the condition of the living environment
- environmental values and sustainable way of life
- eco-efficacy in production, society, and everyday ways of acting; product life-cycles
- consumer behavior, management of one's own household, and the consumer's means of influence
- the hoped-for future and choices and actions it calls for

3 Quality of Education and High quality learning in Finland

3.1 Quality of Education

Based on Ministry of Education and Finnish National Board of Education 2012 quality of education can be evaluated by structure factors, process factors and outcomes of education (Picture 1).



Picture 1 Quality frame of Education Quality (based on OKM 2012, 28)

The structure factors

1. **Leadership /management:** Education provider is responsible for the implementation of education and training. Management and planning are formed locally in the management, operation, or ordinance on the basis of national legislation and standards. Management is arranged with good governance in accordance with the practices.

2. **Personnel:** Teaching and other staff that fulfills the eligibility regulations and is responsible for the operation of each of the school's needs, quality education and the development of an important resource. Personnel form the basic principals, teachers, kindergarten teachers, and guidance counselors, school psychologists, and school social workers, school assistants, youth workers and other learning support services and student welfare services workers.

3. **Economy:** Education is the law, curriculum, training, and evaluation of different cognitive control in addition to the financing of education systems. The state and the municipalities are responsible for the cost of training. The operating costs of the basic education granted the state.

4. **Evaluation:** The aim of the education evaluation system is to collect and analyze data for education policy-making and for a basis for education developing. Evaluation is for improving pupils' possibilities to learn and for developing teachers' work and school practices.

Primary education evaluation system consists of national learning outcomes in follow-up assessments, or other external assessments, education providers, and school self-evaluation and evaluation of the ethical principles. The evaluation system forms the basis for self-assessment, which is supported by other assessment systems.

Other structure factors based on the Act 628/1998 and Amendments up to 1136/2010:

- Structure of learning environment
- Before - and after-school activities, school clubs
- Safe learning environment (physical, emotional)

The process factors / methods and contents

- The implementation of the curriculum
- Education and training schemes
- Learning, growth and well-being
- Home-school co-operation

Outcomes / Quality education experienced by the students

- Education promises the growth into humanity and into ethically responsible membership of society
- Education promises to provide leaners with knowledge and skills needed in their life.
- Early childhood education improves children's capacity for learning.
- Education promises to promote civilization and equality in society.
- Everybody is getting prerequisites for participating in education and otherwise developing themselves during their lives.
- Education is adequate equity throughout the country.

Finland took part to international SEED-project (SEED 2005). The aim of the project was to create quality criteria for ESD schools and educational authorities engaged in Education for Sustainable Development (ESD). The proposal (Table 2) was to be used as a starting point for reflections, debates and further development regarding future work on ESD among educational officials, teachers, headmasters, parents and students.

Table 2 Quality criteria frame in the area of SEED- project

Quality criteria regarding the quality of teaching and learning processes	**Quality criteria regarding school policy and organization**	**Quality criteria regarding the school's external relations**
1. Area of teaching – learning approach *2. Area of visible outcomes a school and in local community* *3. Area of perspectives for the future* *4. Area of a 'culture of complexity'* *5. Area of critical thinking and the language of possibility* *6. Area of value clarification and development* *7. Area of action-based perspective* *8. Area of participation* *9. Area of subject matter*	*10. Area of school policy and planning* *11. Area of school climate* *12. Area of school management* *13. Area of reflection and evaluation of ESD initiatives at school level*	*14. Area of community cooperation* *15. Area of networking and partnerships*

All the criteria were specified in details. For example the quality criteria in the *Area of the teaching – learning approach* of SEED- project (2005) are following:

- *The teachers listen to and value the concerns, experiences, ideas and expectations of the studens. and their plans are flexible and open to changes.*
- *The teachers encourage cooperative learning and experimental learning.*
- *The teaching takes into account the value of practical activities by linking them students' concept development and theory construction.*
- *The teachers facilitate students' participation and provide contexts for development of students' own learning, ideas and perspectives.*
- *The teachers search for ways to evaluate and assess students' achievement consistent with the above mentioned criteria*

3.2 High quality learning conceptual frame

According to Åhlberg (2005, 2006) education on sustainable development (ESD) has a real connection between school and society. Based on Åhlberg (1997) and Åhlberg and Ahoranta (2002) *high quality learning* is not only repetition of earlier learning. An essential aspect of high quality learning is creative, innovative, proactive, future constructive learning. New ways of thinking and acting are created and learned. Meta learning (metacognitive learning) is learning about one's own learning, thinking and acting. Learning how to learn is an important part of met learning. Learning about own best learning styles and learning to be a more self-directed learner are important aspects of met learning. According Immonen (2009) the conceptual frame of high quality learning is described in table 3.

Table 3 Conceptual framework of High quality learning of ESD

	ESD and High Quality Learning (Immonen 2009, applying Åhlberg 2005)
Ontology	Ontological starting point is the critical scientific realism. The universe of its components will be the real system. The human perception is based on the humanistic psychology of perception. Man is active and self-regulated participant.
Epistemology	The constructivist conception of knowledge: human knowledge is partial, preliminary and ongoing improvement. The central focus is a partnership-based knowledge generation and creation.
Interest of knowledge	Emancipatory knowledge interest: the implementation of self-reflection and the search for a mature humanity. The purpose is to guide the self-reflection. There is a common interest, as well as mission-critical information sciences and philosophy.
Learning concept	Critical scientific realism, pragmatic orientation: Meaningful learning, deep learning, and meta-learning. Individual and social learning is the construction of knowledge, both individually and collectively.
Aims of learnig	The objective is an improved way of thinking and operating the construction of new, creative new way of learning, better foresight and proactive learning by designing learning. The goal is healing and empowering by individual and community problem solving, promoting the construction of shared knowledge, networking.
Aksiology Values	The starting point is the following: 1) The values of the data is built by the people, 2) the main value of life, the human good life, including, without good environment cannot be a good life and a good environment has an instrumental value to humans, 3) All values of local context as well as the rights of the obligations and we have a right to good, the beautiful, safe and healthy environment, but we also have an obligation to defend, maintain and, where necessary, improve it. Values of sustainable development: towards justice, wisdom, efficiency, goodness, and beauty; all of it, which corresponds to an optimal real human needs.
Methodology	Methodology is focused on the specific ways — the methods — that we can use to try to understand our world.

4 Interpretation frame of the study

The interpretation frame (Table 4) is created based on theoretical frame of study and literature. It includes structure factors, process factors and outcomes factors of quality education based on Basic Education Act 628/1998, Amendments up to 1136/2010, National Core Curriculum for Basic Education (2004) and earlier studies of ESD in Finland.

Table 4 Interpretation frame of Quality Education Factors

Quality	Factors	ESD	Quality Education
Quality in Structures **(Structure factors)**	Leadership Management		*Teaching and education organizer has defined the vision, the value basis and the strategy to achieve them.* *Education provider has the structures and procedures to support the education and the school management and good governance.* *The action strategies and plans concerning education and school have been drawn up. The management and staff are committed to implementation and effects of actions are monitored systematically.* *The school board shall establish appropriate conditions for teaching and learning in a partnership with teachers, students and guardians.* *The school has supportive practices for initiative and continuous development.* *Education provider has clear objectives for education and training development* *The focus of management is on pedagogical leadership, which is interactive and participative* (OKM – Ministry of Education and Culture - 2012)
	Curriculum	*Core ESD – theme contents for primary school:* • *ecologically, economically, culturally, and socially SD in one's own school and living environment* • *individual and community responsibility for the well-being of people and the condition of the living environment* • *environmental values and sustainable way of life* • *eco-efficacy in production, society, and everyday ways of acting; product life-cycles* • *consumer behavior, management of one's own household, and the consumer's means of influence* • *the hoped-for future and choices and actions it calls for* National Core Curriculum for Basic Education (2004).	
	Learners, Pupils, students Families		*Learners who are healthy, well-nourished and ready to participate and learn* (Unisef 2000) *…and supported in learning by their families and communities* (Unicef 2000)
	Personnel, teachers and their competence		*Section 48e, Personnel* *The before- and after-school activities shall have a sufficient number of staff in relation to the form of arrangement. The qualifications required of instructors in the before- and after-school activities*

			shall be enacted by government Decree. (Basic Education Act 628/1998, Amendments up to 1136)
			The Education department personnel structure, the number and expertise of each school responsible for operational needs *For future needs is prepared with real-time human resources plan.* *Permanent positions will be filled* *The teaching staff is available to enjoy at least the school health care and social services and welfare services according to the recommendations of Ministry of Health Care* *For staff will be organized orientation training as well as opportunities for active maintenance and development of own skills.* *Human resource development is planned and there exists an effective monitoring system* *Well-being of employee is a target for continuous monitoring and development.* *Co-operation between different professional groups is smooth.* *The level of skills of the teaching staff is assessed regularly.* *The teaching staff opportunities to participate in pedagogical skills are ensured by complementary systematic training or other knowledge -building activities.* *(*OKM 2012)
	Economy, Procurement		*Basic financial resources aimed at teaching guarantee a teaching and tutoring according to the Act and the curriculum to every student and every school day.* *The availability of resources is allocated to the training objectives set out in an optimal amount of resources and adequate training in the amount of services and service the structure and organization of enforcement.* *Operating and financial plans based on the best possible conditions for the teaching and educational work.* *Sustainable development will be monitored throughout the economy systematically.* (OKM 2012)
	Evaluation		*The aim of the education evaluation system is to collect and analyze data for education policy-making and for a basis for education developing. Evaluation is for improving pupils' possibilities to learn and for developing teachers' work and school practices.* *Primary education evaluation system consists of national learning outcomes in follow-up assessments, or other external assessments, education providers, and school self-evaluation and evaluation of the ethical principles. The evaluation system forms the basis for self-assessment, which is supported by other assessment systems. (*OKM 2012),
	Learning environment (physical, emotional)	*Society as the learning environment* (FNBE 2006).	*Environments that are healthy, safe, protective and gender-sensitive, and provide adequate resources and facilities;(*Unicef 2000)
			*The safety of the learning environment (physical, emotional (*OKM 2012)
		Interconnectivity between education and society (Åhlberg 2005, 2006)	
		Sustainable environment (recycling and waste, water and energy etc.)	

	Activities after school School morning and afternoon School clubs Activity after schooldays		*Section 48d, Right to a safe activity environment and to school benefits* *A child participating in before- and after-school activities has a right to a safe activity environment. A child participating in before- and after-school activities must be offered a snack. The care due to an accident which takes place in before- and after-school activities shall be free of charge for the child.* (Basic Education Act 628/1998, Amendments up to 1136)
Quality in Processes ***(Process factors)***	Implementation of Curriculum and Education and training schemes	*Sustainable development action plan / program* (FNBE 2006).	*Content that is reflected in relevant curricula and materials for the acquisition of basic skills, especially in the areas of literacy, numeracy and skills for life, and knowledge in such areas as gender, health, nutrition, HIV/AIDS prevention and peace*.(Unicef 2000)
	Objectivity	*Objectives(ESD themes)* *The primary school pupils will:* • *understand the prerequisites for human well-being, the necessity of environmental protection, the relationship between these two* • *learn to observe changes taking place in the environment and in human well-being, to clarify the causes and consequences and to act for the living environment understand the prerequisites for human well-being, the necessity of environmental protection, the relationship and the enhancement of well-being* • *learn to evaluate the impacts of the consumption and daily practices, and will adopt the actions required for sustainable development* • *learn to promote well-being in their own communities and understand the threats and potential for, well-being at global level* • *understand that through choices, individuals construct both their own futures and our common future; the pupils will learn to act constructively for a sustainable future* National Core Curriculum for Basic Education (2004).	*Section 2, Objectives of education* • *The purpose of education referred to in this Act is to support pupils' growth into humanity and into ethically responsible membership of society and to provide them with knowledge and skills needed in life. Furthermore, the aim of pre-primary education, as part of early childhood education, is to improve children's capacity for learning.* • *Education shall promote civilisation and equality in society and pupils' prerequisites for participating in education and otherwise developing themselves during their lives.* • *The aim of education shall further be to secure adequate equity in education throughout the country.* (Basic Education Act 628/1998, Amendments up to 1136)
	Interconnectivity between education and educational policy	*Physical / technical changes in the school and in the local community, relevant for ESD, are seen as an opportunity for teaching and learning and are used for participation and democratic decision making.* *The changes obtained and the outcomes reached at school and in the local community are nurtured and maintained*.(SEED 2005)	*Outcomes that encompass knowledge, skills and attitudes, and are linked to national goals for education and positive participation in society* (Unicef 2000)
	Learner centered	*The teachers listen to and value the concerns, experiences, ideas and expectations of the students and their plans are flexible and open to changes.* *The teachers encourage cooperative learning and experimental learning.* *The teaching takes into account the value of practical activities by linking them students' concept development and theory construction.*	

		The teachers facilitate students' participation and provide contexts for development of students' own learning, ideas and perspectives. *The teachers search for ways to evaluate and assess students' achievement consistent with the above mentioned criteria* (SEED, 2005)	
	Proactivity, innovation	*…creative, innovative, proactive, future constructive learning.(*Åhlberg 2005)	
	Future orientation	*Students work with visions and scenarios, seeking alternative ways of development and changes for the future and establishing criteria for choice.* *Students get involved in comparing short term and long term effects of decisions and alternatives.* *Students seek relations between the past, the present and the future, in order to get a historical understanding of the issue concerned.* *Students work with planning as a way to reduce future risks and to accept uncertainty.* (SEED 2005)	
	Culture of complexity orientation	*Students work on constructing their understanding of the problem, looking for different interests and different points of view, before trying to find a solution.* *Teaching in all subjects is based on seeking out relationships, multiple influences and interactions.* *Students have the opportunity to appreciate and confront diversity biological, social, cultural – and to look at this as 'opportunities' for broadening options for change.* *Students are encouraged to listen to their emotions and to use themes a way to reach deeper understanding of problems and situations.* *Students and teachers accept uncertainty as part of the daily life and prepare themselves "to expect the unexpected and to deal with it", being aware of the importance of the precautionary principle. (*SEED 2009)	
Outcomes	Interconnectivity between education and society – social learning	*Participatory and active citizenship*. (FNBE 2006).	*Outcomes that encompass knowledge, skills and attitudes, and are linked to national goals for education and positive participation in society (*Unicef 2000)
	Meaningful learning	*Learning can be meaningful in two senses: Firstly meaningful learning meets real needs of the learning person or organization. Secondly learning is meaningful when what is learnt is connected and built upon what has been learned earlier. Meaningful learning often means increasing hierarchy in conceptual and propositional structures.* (Åhlberg & Ahoranta 2002)	
	Deep learning	*Learning may be deep in two senses: Firstly all knowledge, dispositions and competence have grounds, foundations, underpinnings, justifications. So learning becomes deep, when foundations, grounds, underpinnings, justifications of what is learnt is sought after and learnt. Secondly deep knowledge, dispositions, competence is tested, examined, scrutinized, and learning becomes deeper by testing, examining, scrutinizing constructed*	

		knowledge, dispositions and competence. (Åhlberg & Ahoranta 2002)	
	Proactive problem solving learning	*In high quality learning one is not satisfied just to repeat what has been done earlier. The world and life are full of real problems. Real needs of individuals and societies ought to be optimally met. So high quality learning is creative proactive problem solving learning.* (Åhlberg & Ahoranta 2002)	
	Metacognitive learning, met learning	*High quality learning increases person's and organization's abilities to monitor and promote one's own learning. This is called metacognitive learning or metalearning.* (Åhlberg & Ahoranta 2002)	
Quality education experienced by the students	Basic Education Act 628/1998 • Education promises the growth into humanity and into ethically responsible membership of society • Education promises to provide leaners with knowledge and skills needed in their life. • Early childhood education improves children's capacity for learning. • Education promises to promote civilization and equality in society. • Everybody is getting prerequisites for participating in education and otherwise developing themselves during their lives. • Education is adequate equity throughout the country.		

5 The Aim of the Study

The aim of the study is to explore the Relationships between Education for Sustainable Development (ESD) and the Delivery of Quality Education in Finland. Study questions are following:

1. How can ESD update and improve educational **purposes and outcomes**? This question pertains to traditional perceptions of quality and better outcomes. Can ESD improve test scores and/or achieve other desired outcomes (e.g., improved student attendance and problem solving skills)?

2. How can ESD help to improve and enrich school **curriculum development**? This question pertains to the relevance of current curricular content as well as student intellectual engagement with the content.

3. How can ESD guide students to have the **knowledge, skills and values** to care for and solve the sustainable development issues that will arise in their lifetime? This question pertains to educating for an uncertain future as well as deal with the complexity of future challenges to global sustainability.

4. How can ESD help strengthen the **partnerships** between schools and other stakeholders, including the surrounding community? This question pertains to the usefulness of the school to its local community and vice versa

5. How can ESD promote **innovation in the teaching-learning conceptual framework**? This question pertains to improving our understanding of how teachers learn to teach throughout their careers and how to engage learners to master the curricula.

6 Methodology, data and data analysis

The study based on qualitative approach. Data was collected by questionnaire by discretionary selection of ESD specialists in Finland (appendix 1). Questions were sent to 10 ESD specialists in Finland but only four of them take part to study. The data have analyzed by Interpretation frame of ESD in quality education created based on literature review. The data analysis method was an abductive content analysis based on abductive reasoning.

Questions were analyzed by the factors (structure, process, result) of quality frame.

- Questions concerning structures in Quality in Education (Questions 2,4 and5)
- Questions concerning processes in Quality in Education (Question 3)
- Questions concerning outcomes in Quality in Education (Question 1)

7 Findings and conclusion

7.1 Findings

The data was analyzed by abductive content analysis and classified according to interpretation frame (table 6-8). In table number 6 there are the factors concerning structures in ESD and quality education and there are the answers to study questions 2, 4 and 5. In table number 7 there are the factors concerning process in ESD and quality education and in table number 8 there are the factors concerning outcomes in ESD and quality education.

Table 6 Factors concerning structures in ESD and Quality in Education

Factors concerning structures in Quality in Education		**Synergy between Education for Sustainable Development (ESD) and the Delivery of Quality Education**
How can ESD help to improve and enrich school curriculum development? (Question 2)	Values School culture, ESD programs Leadership, management • Evaluation system, • Economic Curriculum Personnel Learners, pupils, students Families partnership Working community Natural environment	• ESD challenges to debate about values, teaching methods and school culture. • Ideas of sustainability education should be included in school's action culture. • It is important that in schools there exists structures that the programs can be implemented. When the structures are part of the school's operational culture, the operation will not be just the idea • It requires true commitment and support for leadership, purposeful organization of work, the commitment and in-service training of the entire work community, co-operative planning between subjects, improvements to the working culture, organizing co-operation with non-school bodies and planning and implementation of process evaluation. • At the school level, headmaster needs ESD indicators for school's management and implementation of ecological sustainability activities and cooperation within and outside the school positively enhanced students' self-efficacy. • A whole-school approach to ESD calls for sustainable development to be integrated throughout the formal sector curriculum in a holistic manner. • ESD challenges to plan school curriculum together with the entire working community. • ESD requires to bring contents from different subjects together and to form the wholeness and to make an agreement how to deal with phenomena together. • It is necessary to include the surrounding society and natural environment in school curriculum. • It is importance that students and their parents can bring contents to school curriculum and participate in planning how these issues are going to handle • Cross-curricular themes are needed. ESD pertains e.g. to the cross-curricular theme "Responsibility for the environment, well-being and sustainable future" in National Core Curriculum for Basic Education (2004) and in "Sustainable development" in the National Core Curriculum for upper secondary schools (2003). • The focus on ESD can be used in the school as learning opportunities to teach the core subject areas, often with practical implications for students' daily life and the local community. • Teaching and school's action culture were able to enhance students' self-efficacy beliefs in eco-sustainability behaviors indicating how ESD should be developed at school.

How can ESD promote innovation in the teaching-learning conceptual framework? (Question 5)	Personnel and teachers and their competence Understanding of ESD • Ontology • Epistemology • Values • Methods Understanding of ESD methods: • Meaningful learning • Metacognitive learning • Deep learning • Life Long Learning • Proactive problem solving learning • Future orientation	Life Long Learning is needed. The know-how of teachers, trainers and educators is fundamental in assuming a sustainable way of life. Discussion of the basic questions of sustainable development must be included in both the basic and in-service training of educators. Reinforcement of knowledge and pedagogic skills is necessary. Diverse skills in participation, participatory education, empowerment, teaching responsibility and commitment and the ability to work in multi vocational groups are needed The operation must be a goal-oriented and shows the practical operations in everyday life, in which students are active participants in rather than passive recipients. The focus of ESD is that the students investigate and try to solve problems and make decisions. ESD supports • the ability to think about systems (both natural and social systems) • the ability to think critically • the ability to work cooperatively with other people • the capacity to use various processes: knowing, inquiring, acting, judging, imagining, connecting, valuing, questioning and choosing Solving problems with students, working in networks, changing new teaching methods with other teachers, working with other experts in local community to gain common aims increase everyone`s skills. Real experiences of successfully expanding the learning environment to the world outside the school walls are important. • Teachers learn by participating in process for sustainable future. • Learning by doing thinks together is an effective way also among the teachers. • Life Long Learning • Teachers design school activities together with the students
How can ESD help strengthen the partnerships between schools and other stakeholders, including the surrounding community? (Question 4)	Environment/ Society affairs / Working life Networking Society as an Learning environment Authentic Projects Democracy Global approach Sustainable future	ESD helps student to network together with surrounding society and environment. Partners are needed for the enlargement of learning environment. Authentic opportunities for research, planning and participation in public affairs dealing with concrete matters are needed. • In ESD school can organize more visits outside the school, and many kind of sustainability-related projects, which combine both students, teachers, and the stakeholders of the surrounding community. School would work more in close relationship with the surrounding community. • ESD must be locally relevant. In this way, schools are no more institutions separated from the real world, proposing abstract general knowledge, but become institutions active in the society, recognized as relevant stakeholders in the development of the community. • Participation in national and international projects supports the growth into global citizenship and provides insight into global environmental and development questions. • The knowledge and utilization of different methods of influence and participation are essential in development of democracy and in building a sustainable future.

Table 7 Factors concerning Processes in ESD and Quality Education

Factors concerning Processes in Quality Education		**Synergy between Education for Sustainable Development (ESD) and the Delivery of Quality Education**
How can ESD guide students to have the knowledge, skills and values to care for and solve the sustainable development issues that will arise in their lifetime? (Question 3)	Interconnectivity between education and educational policy	A quality education system is the best coach for sustainable development. Investment in a training policy based on the quality of training and the principles of life-long learning ensures an increase in the abilities of humanity.
	Implementation of Curriculum and Education and training schemes /program	There is no universal model for ESD. The aims of ESD should be set according to the conditions of one`s own culture and local social, economic and environmental conditions. (ESD must be locally relevant, ESD programs)
	Objectivity	A first step is to use the features and problems of the community as resources for fieldwork and active learning. A further step is to propose the school as an important voice for the planning of local sustainable development, and another step is to offer the school's facilities and competencies for community studies and action in the direction of sustainability. In this process the schools become "core social centres" with open doors, sources of expertise, sharing responsibilities with others community bodies.
	Learner- centered	Participative methods: Student Parliament, student as environmental agents
	Implementation of ESD methods: • Meaningful learning • Metacognitive learning, met learning • Deep learning • Life Long Learning • Proactive problem solving learning	If students understand connection between human well-being, economy and protection of the environment and they have learnt to commit sustainable way of life and they have learnt to estimate in practice means to aim an eco-effective welfare society, they have skills to solve problems also in new situations. The important skill is to learn to find out people, networks and organizations, who want to solve the same problems. Working together improves the readiness and motivation to participate and influence decision-making as a citizen and member of the work community and other communities. Participated ESD will develop active, creative and critical citizens who are good at overcoming problems and conflicts in co-operation, and able to combine theoretical knowledge with practical innovations and ideas. ESD calls for practical actions and decision-making. Schools cannot only speak about the future but must act for the future.
	Proactivity, Innovation Creative mind Future orientation Culture of complexity orientation Global orientation	ESD provides students the experiences, in which they can consider problems and questions of all sustainability dimensions (ecological, economic, social and cultural) both locally - and globally. Interdisciplinary aspects are important. Inquiry-based and interactive teaching methods had positive effects on students' self-efficacy as well. In learning process there must be the presence of a genuine, enthusiasm and respect for others

Table 8 Factors concerning Outcomes in ESD Quality Education

Factors concerning Outcomes in Quality Education		**Synergy between Education for Sustainable Development (ESD) and the Delivery of Quality Education**
Outcomes How can ESD update and improve educational purposes and outcomes? (Question 1)	Interconnectivity between education and society **Competence** *…to support pupils' growth into humanity and into ethically responsible membership of society and to provide them with knowledge and skills needed in life.* **Humanity** sustainable values sustainable living sustainable citizen • compassionate • caring • respectful • self esteem • self-efficacy • creative , critical, innovative mind • problem solving Wisdom, awareness, understanding , action Interconnectivity in time - over -generation	ESD updates and improves general purposes and outcomes in the education. • *Students understand connection between human well-being, economy and protection of the environment and they have learnt to commit sustainable way of life and they have learnt to estimate in practice means to aim an eco-effective welfare society, they have skills to solve problems also in new situations.* Students learn find out people, networks and organizations, who want to solve the same problems. Working together improve the readiness and motivation to participate and influence decision-making as a citizen and member of the work community and other communities • ESD supports sustainable living for all levels: individuals, communities, nations and the world. • ESD adopts the new pattern will require a significant change in the attitudes and practices of many people. • ESD is a vital part of all efforts to imagine and create new relations among people and to foster greater respect for the needs of the environment. • ESD has a positive influence on learning and possibilities to take part to school affairs • ESD calls for a wide knowledge base of how society, trade and industry and the natural environment work, how decisions are made and what opportunities a citizen has to influence decision-making. • ESD helps to perceive the world as a whole with limited natural resources, where we need to learn to save resources and distribute them fairly, equally and equitably. It teaches to understand a human beings place among other species. • ESD can enhance the students' self-esteem • ESD helps to understand interdependences and interactions. • ESD improves information acquisition, attendance, problem solving skills, communications, critical and innovative thinking, an ability to reconcile different interests and handle conflicts, readiness to co-operate and to take responsibility.

7.2 Conclusions

Synergy between ESD and quality education concerning education structures were described. It was found that school's operational culture needs debate about values, methods and school culture. Importance of management and evaluation were identified. School leaders should have ESD indicators for planning and assessing activities in school. Cross-curricular themes are needed. ESD competence of personnel must be included basic education and in-service training. Student's active role is very important in ESD. The focus of ESD is that the students investigate and try to solve problems and make decisions. ESD supports the ability to think about systems (both natural and social systems), the ability to think critically, the ability to work cooperatively with other people, the capacity to use various processes: knowing, inquiring, acting, judging, imagining, connecting, valuing, questioning and choosing. These are important competence of sustainable future. ESD helps student to network together with surrounding society and environment. Partners are needed for the enlargement of learning environment. Authentic opportunities for research, planning and participation in public affairs dealing with concrete matters are needed.

Synergy between ESD and quality education concerning learning process was teacher oriented. Student centered active role was not well known. The aims of ESD should be set according to the conditions of one`s own culture and local social, economic and environmental conditions. (ESD must be locally relevant, ESD programs). It is understandable because conditions around a world are different and the meaning and value of education differs each other. It was well known that working together, participating, critical and creative mind and activity are important. But these aspects were quite teacher oriented and managed. Investment in a training policy based on the quality of training and the principles of life-long learning ensures an increase in the abilities of humanity.

Synergy between ESD and quality education concerning learning outcomes were known but humanity and ethical aspects as an outcomes of education has not been in discussion in Finland.

ESD calls for a wide knowledge base of how society, trade and industry and the natural environment work, how decisions are made and what opportunities a citizen has to influence decision-making. ESD helps to perceive the world as a whole with limited natural resources, where we need to learn to save resources and distribute them fairly, equally and equitably. It teaches to understand a human beings place among other species. ESD helps to understand interdependences and interactions. ESD improves information acquisition, attendance, problem solving skills, communications, critical and innovative thinking, an ability to reconcile different interests and handle conflicts, readiness to co-operate and to take responsibility.

8 Discussion

The work with our interpretation of the frame helped to understand the multiple nature of quality of education and ESD. Unfortunately, the material and the analysis were only based on four expert's answers. We see our investigation as a pilot rather than case for the whole picture of the synergy of Finnish quality education and education for sustainable development. I could be useful to develop an interpretation frame by larger sample.

The most interesting topic in our study was the purpose of education. According to the Act (Basic Education Act 628/1998, Amendments up to 1136) education supports pupils' growth into humanity. Humanity as learning outcomes was difficult to determine in this study because human perception behind education culture was lacking in official documents.

ESD can improve the curriculum development in many ways. ESD supports an open pedagogy and integrated learning contents. This means the whole of society as a learning environment where students are important owners of their own learning process. Their interest and experiences are valuable and directs the process. The learning process is competence based and flexible. Competence assessment is individual, qualitative and transparent. Learners are self-directed decision-maker in their actions.

The Finnish National Board of Education has started to prepare the new national core curriculum for basic and pre-primary education. The new curriculum will be based on the Decree on national objectives and distribution of teaching hours in basic education (422/2012), issued by the Government in June 2012. The renewed core curriculum will be completed by the end of 2014. New local curricula that are based on this core curriculum should be prepared by the beginning of school year 2016–2017. The objectives of the renewal include:

- building on the current strengths of basic education and pre-primary education and developing them in relation to changing needs
- defining educational values and principles so that they are based on supporting the versatile growth of pupils, strengthening their identities and utilizing interactive methods that promote sustainable development
- defining objectives based on future needs of competences, strengthening the cooperation between different subjects
- strengthening the preconditions for learning in a versatile and interactive environment
- structuring educational content in order to focus on the essential
- supporting local pedagogic development
- encouraging education providers to combine curricular work with strategic development
- creating a flexible web-based curriculum tool for schools and education providers

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(1) **How can ESD update and improve educational purposes and outcomes?**

In a large scale Finnish study (Uitto, Lavonen, Juuti, Byman and Meisalo, 2011) has been found that grade nine students interest in environmental issues and attitude to environmental responsible actions strongly correlated, indicating that for instance in science education there are many possibilities how ESD could improve educational purposes and outcome. It was also suggested when sustainability issues are concerned in the framework of STEM, boys would become more interested in sustainability issues, and girls issues related to science education. Thus, the viewpoint of citizenship science would be important both for science and sustainability education, combining these two areas.

Sustainable education will support sustainable living for all levels: individuals, communities, nations and the world. To adopt the new pattern will require a significant change in the attitudes and practices of many people. ESD is a vital part of all efforts to imagine and create new relations among people and to foster greater respect for the needs of the environment. Sustainable development will develop our daily life and communities in directions that benefit most people now and in the future and at the same time minimize our negative environmental impact.

Building the future on ecologically, economically and culturally sustainable grounds necessitates the ability to perceive and understand things in their entirety. ESD calls for a wide knowledge base of how society, trade and industry and the natural environment work, how decisions are made and what opportunities a citizen has to influence decision-making. ESD helps to perceive the world as a whole with limited natural resources, where we need to learn to save resources and distribute them fairly, equally and equitably. It teaches to understand a human beings place among other species. ESD helps to understand interdependences and interactions. Its goal is to enhance readiness to detect changes in the environment, society and human well-being as well as to identify their causes and consequences in both our immediate environment and at the global level. It teaches to understand responsibilities. ESD improves information acquisition, attendance, problem solving skills, communications, critical and innovative thinking, an ability to reconcile different interests and handle conflicts, readiness to co-operate and to take responsibility. So ESD updates and improves general purposes and outcomes in the education. A quality education system is the best coach for sustainable development. Investment in a training policy based on the quality of training and the principles of life-long learning ensures an increase in the abilities of humanity.

The program has a positive impact on learning. By engaging the students in the school activities (Student Parliament, environmental agents) their impact on the potential and commitment to school work increases. Pupils' social and ecological well-being as part of the awareness is growing. The starting point is a safe and comfortable learning environment. The program has the advantage of practical everyday things that can be implemented to bring visible and collectively.

Appedix

(2) How can ESD help to improve and enrich school curriculum development?

In Finland ESD pertains e.g. to the cross-curricular theme "Responsibility for the environment, well-being and sustainable future" in National Core Curriculum for Basic Education (2004) and in "Sustainable development" in the National Core Curriculum for upper secondary schools (2003). This means that the ideas of sustainability education should be included in school's action culture, is all school subjects etc. In the large-scale follow-up assessment of cross-curricular themes Uitto (2012) found that the knowledge of Finnish grade nine students on ecological sustainability issues was satisfactory when compared to the assessment scale used in the Board of Education. It was also found that students' sustainability-related values, attitudes, knowledge and self-reported behaviour out-side the school correlated with each other. In their large-scale survey Uitto, Boeve-de Pauw and Saloranta (2014a) found that although Finnish grade nine students personal factors were the most important to explain their self-efficacy beliefs in eco-sustainability actions, school levels factors were also important. The multilevel model of Uitto, Boeve-de Pauw and Saloranta (2014a), showed that at the individual level pro-environmental values, sustainability school experiences, interest in and knowledge of environmental issues explained most of the variation in students' self-efficacy beliefs. At the school level, headmasters' indicators for school's management and implementation of ecological sustainability activities and cooperation within and outside the school positively enhanced students' self-efficacy. Subject teachers' inquiry-based and interactive teaching methods had positive effects on students' self-efficacy as well. Thus, teaching and school's action culture were able to enhance students' self-efficacy beliefs in eco-sustainability behaviours, indicating how ESD should be developed at school. Uitto, Boeve-de Pauw and Saloranta (2014b) also found that school experiences, perceived as the grade nine students, are essential in influencing students' out-of school eco-sustainability behaviours. All of these results indicate that ESD really matters at school.

A whole-school approach to ESD calls for sustainable development to be integrated throughout the formal sector curriculum in a holistic manner. The focus on ESD can be used in the school as learning opportunities to teach the core subject areas, often with practical implications for students' daily life and the local community. At the same time this approach can enhance the students' self-esteem.

It is a big challenge for an entire school to embark on the sustainable learning process. It requires true commitment and support for leadership, purposeful organization of work, the commitment and in-service training of the entire work community, co-operative planning between subjects, improvements to the working culture, organizing co-operation with non-school bodies and planning and implementation of process evaluation. It is important for learning that teaching as well as the operational culture support growth towards a sustainable way of life and the learning of sustainable consumption habits. .
ESD challenges to plan school curriculum together with the entire working community. It challenges to debate about values, teaching methods and school culture. ESD requires to bring contents from different subjects together and to form the wholeness and to make an agreement how to deal with phenomena together. Multidisciplinary and multi vocational work practices place new demands on learning materials. Partners are needed for the enlargement of learning environment. It is necessary to include the surrounding society and natural environment in school curriculum. A realistic sense of human well-being, the working of democracy, stability of the economy and the state on the environment in local community create a good basis on which to assess and envisage future plans with an eye on their ecological, economic, cultural and sustainability. It is importance that students and their parents can bring contents to school curriculum and participate in planning how these issues are going to handle. It is also important that students can take responsibilities for developing daily practices more sustainable.

It is important that in schools there exists structures that the programs can be implemented. When the structures are part of the school's operational culture, the operation will not be just the idea. The operation

must be a goal-oriented and shows the practical operations in everyday life, in which students are active participants in rather than passive recipients.

Appendix 1 (3/5)

(3) **How can ESD guide students to have the knowledge, skills and values to care for and solve the sustainable development issues that will arise in their lifetime**?

Many studies suggest that in school education, it is important to provide students the experiences, in which they can consider problems and questions of all sustainability dimensions (ecological, economic, social and cultural) both locally - and globally. Interdiciplinary aspects are important. According to Uitto, Boeve-de Pauw and Saloranta (2014a,b) most suitable working methods are interactive, such as group discussions, visits outside the school, as well as inquiry-based or problem-based learning. They also found that agency experiences as well as self-efficacy are important and that ESD is included as "whole school approach" and emphasized in school curriculum and its implementation. It is important to take students age into account, and provide examples and activities in which students find that they are able to enhance the school and their surroundings. It is important to practice discussions and problem-solving and try to construct solutions to sustainability problems.

Participated ESD will develop active, creative and critical citizens who are good at overcoming problems and conflicts in co-operation, and able to combine theoretical knowledge with practical innovations and ideas. ESD calls for practical actions and decision-making. Schools cannot only speak about the future but must act for the future.

There is no universal model for ESD. The aims of ESD should be set according to the conditions of one`s own culture and local social, economic and environmental conditions. However it is just important to take into consideration the global dimension and also to be able to perceive the field of global responsibility in its entirety. If students understand connection between human well-being, economy and protection of the environment and they have learnt to commit sustainable way of life and they have learnt to estimate in practice means to aim an eco-effective welfare society, they have skills to solve problems also in new situations. The important skill is to learn to find out people, networks and organizations, who want to solve the same problems. Working together improve the readiness and motivation to participate and influence decision-making as a citizen and member of the work community and other communities.

The students learn the skills of the future: for example, their own choices, the cause-effect relationships, solidarity, interpersonal skills, decision-making, sense of community. The goal is, if you focus on these things through the program from an early age, the values will change everyday life into action and will remain through life and move outside the school. Also families participate in activities.

(4) **How can ESD help strengthen the partnerships between schools and other stakeholders, including the surrounding community?**

In ESD school can organize more visits outside the school, and many kind of sustainability-related projects, which combine both students, teachers, and the stakeholders of the surrounding community. School would work more in close relationship with the surrounding community.

ESD must be locally relevant. In this way, schools are no more institutions separated from the real world, proposing abstract general knowledge, but become institutions active in the society, recognized as relevant stakeholders in the development of the community. A first step is to use the features and problems of the community as resources for fieldwork and active learning. A further step is to propose the school as an important voice for the planning of local sustainable development, and another step is to offer the school's facilities and competencies for community studies and action in the direction of sustainability. In this process the schools become "core social centres" with open doors, sources of expertise, sharing responsibilities with others community bodies.

The knowledge and utilization of different methods of influence and participation are essential in development of democracy and in building a sustainable future. Learning to participate begins with understanding the effects of one`s own way of working, participation in the planning and implementation of those plans in one`s own working community and it continues as civic activity and influences the different stages and tasks in life. All children and young people should gain experience in shouldering responsibility handling communal matters in both their own community and the school-external community. It is important to understand the effect of small, local actions even on a word-wide scale. Participation in national and international projects supports the growth into global citizenship and provides insight into global environmental and development questions. Creating contacts and planning forms of partnership with local participants takes time and many forms of enquiry and settlements. Starting a partnership is easier when all the partners are aware of the meaning, goals and benefits of the partnership. Contact persons are needed and more use must be made of opportunities offered by information and communications technology. Also authentic opportunities for research, planning and participation in public affairs dealing with concrete matters are needed. Real experiences of successfully expanding the learning environment to the world outside the school walls are important.

It helps and encourages networking with the local area and the surrounding society. For example cleaning up the environment; reduce food waste; visit a nursing home; tolerance.

(5) How can ESD promote innovation in the teaching-learning conceptual framework?

In Finland it is important to take ESD more effectively into account in teacher education. For teachers in-service training in ESD is important. In the school for instance subject teachers needs training how to co-operate in ESD. At the moment, Finnish subject teachers are very differently oriented to teach sustainability issues (Uitto and Saloranta, 2012). For instance, biology and geography teachers considered ecological sustainability more often than other teachers, while language teachers were active in the education of cultural sustainability. In general, the subject explains the differences among the teachers. Awareness of one's strengths and limitations is important for subject teachers in order to develop their actions, teaching and co-operation in ESD at school.

The focus of ESD should be that the students investigate and try to solve problems and take decisions. Very important is

- *the ability to think about systems (both natural and social systems)*
- *the ability to think critically*
- *the ability to work cooperatively with other people*
- *the capacity to use various processes: knowing, inquiring, acting, judging, imagining, connecting, valuing, questioning and choosing*

The know-how of teachers, trainers and educators is fundamental in assuming a sustainable way of life. Discussion of the basic questions of sustainable development must be included in both the basic and in-service training of educators. Reinforcement of knowledge and pedagogic skills is necessary. Diverse skills in participation, participatory education, empowerment, teaching responsibility and commitment and the ability to work in multi vocational groups are needed. Solving problems with students, working in networks, changing new teaching methods with other teachers, working with other experts in local community to gain common aims increase everyone`s skills. Teachers learn by participating in process for sustainable future. Learning by doing thinks together is an effective way also among the teachers.

Teachers' Lifelong learning, enthusiasm for their work increase, the designing together with the students. Adults and children can get closer to each other, a genuine appreciation of each other's presence and shared objectives and actions through the increase and, consequently, working together as part of a culture. Teachers seek further training and access to the new research, the school will organize workshops, invite external experts for the school.