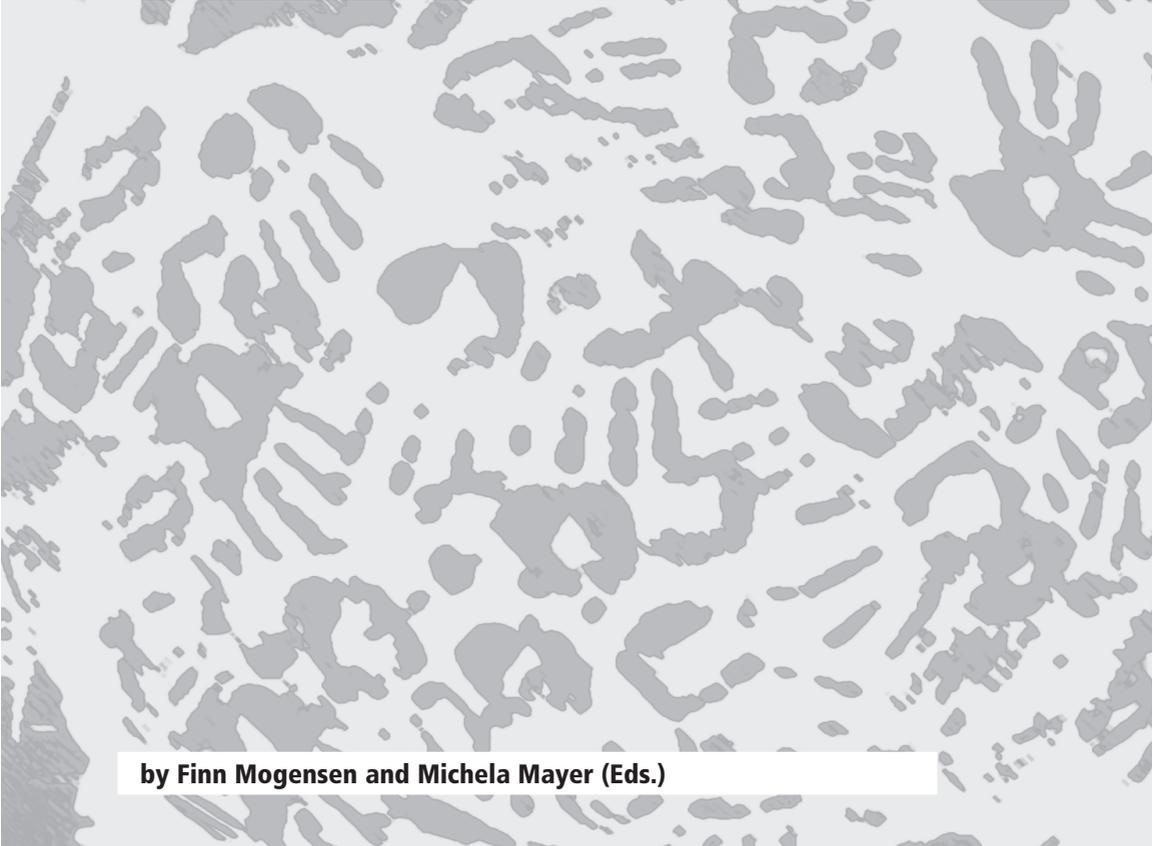


A Comparative Study
on ECO-school
development processes
in 13 countries

ECO-schools: *trends and divergences*



by Finn Mogensen and Michela Mayer (Eds.)

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Introduction

By Finn Mogensen & Michela Mayer **5**

Section 1 – A comparative study

- 1. Perspectives on Environmental Education - a critical framework**
By Finn Mogensen & Michela Mayer **10**
 - 2. Evaluation in Environmental Education and the use of quality criteria**
By Michela Mayer & Finn Mogensen **26**
 - 3. The State of the art on Environmental Education – an international review**
By Attila Varga **42**
 - 4. Trends and divergences in the national reports - a comparative analysis**
By Finn Mogensen & Michela Mayer **52**
 - 5. A quest for 'scenarios' in the eco-schools programmes – a comparative analysis**
By Michela Mayer & Finn Mogensen **69**
 - 6. Scenarios and Quality Criteria: tools for driving schools toward ESD**
By Michela Mayer & Finn Mogensen **88**
- References** **98**

Section 2 – National reports on eco-schools initiatives.

- Australia** *By Syd Smith* **102**
- Austria** *By Gunther Pfaffenwimmer* **117**
- Belgium – Flemish Community** *By Willy Sleurs* **139**
- Denmark** *By Finn Mogensen & Søren Breiting* **155**
- Finland** *By Lea Houtsonen* **177**
- Germany** *By Rainar Mathar* **200**
- Greece** *By Evgenia Flogaitis, Georgia Liarakou and Maria Daskolia* **212**
- Hungary** *By Nikolett Széplaki and Attila Varga* **233**
- Italy** *By Michela Mayer* **254**
- Korea** *By Sun-Kiung Lee* **277**
- Norway** *By Astrid Sandås* **293**
- Spain – Catalonia** *By Mercè Guilera, Rosa Tarín, Rosa Pujol and Mariona Espinet* **310**
- Sweden** *By Evalotta Nyander* **328**

Annex

- Guidelines for national reports (Annex 1)** **351**
- Questionnaire on The State of the Art of EE (Annex2)** **355**
- Notes on the editors/authors** **359**

Introduction

Aim and context

This publication is a comparative research study based on information collected from 13 country reports on implicit and explicit criteria guiding Eco-schools' development processes in whole school plans, inspired by Environmental Education values and principles. By analysing trends and divergences in the reports, the publication will focus on identifying the visions of the future world that are embedded in the Eco-schools' programmes and what conceptualisation of learning-teaching processes and school development can be identified in this work. The outcome of this analysis will result in the development of 'scenarios' which guide the initiatives described in the reports. For setting the frame for this analysis, basic ideas on Environmental Education alongside evaluation and the use of quality criteria / quality indicators in this field are discussed. Finally, the publication aims at reflecting on the potential of such scenarios and quality criteria for schools' future work toward sustainable development.

The present comparative study is the outcome of the *first and second* stage of the research work originally launched by the COMENIUS III European network programme: '*School Development through Environmental Education*' (SEED). The work of SEED is one of the activities of ENSI, an international decentralised network of national authorities and research institutions. ENSI is a UNESCO partner within the UN Decade for Sustainable Development (DESD), 2005-2014, aimed at involving all countries in concrete ESD strategies, development and review.

The overall research programme covers the following 3 stages of study / work:

1. National reports identifying implicit and explicit criteria used to guide, support or award Eco-Schools that incorporate principles and actions for sustainability in whole school plans
2. A comparative analysis of the national reports
3. The development of a set of quality criteria for ESD-Schools

The publication "Quality Criteria for ESD-Schools" (Breiting, Mayer & Mogensen, 2005, translated into 10 languages) – the outcome of the *third* stage - is inspired by the present analysis and proposes a non-exhaustive list of 'quality criteria' for schools that wish to work on developing Education for Sustainable Development (ESD). The proposed list is considered as a starting point for reflections and aims at facilitating discussions within the school and with all stakeholders to clarify the main aims and

changes to orient school development to ESD and to develop the school's own list of quality criteria, adapted to the school's own situation and the school's plans for change.

The comparative study draws on national reports produced by researchers and/or national representatives in the following SEED countries: Australia, Austria, Belgium - Flemish Community, Denmark, Finland, Germany, Greece, Hungary, Italy, Korea, Norway, Spain - Catalonia, and Sweden. The authors would like to acknowledge the material provided in these reports.

Frame for the study

In order to obtain comparable material for the comparative analysis guidelines were given to ensure the descriptions of each country's initiatives were similar in form and structure. The guidelines suggested that each country report should consist of three main sections:

- State of the art in Environmental Education
- The Eco-schools' development process
- Case studies

The section on the state of the art in Environmental Education comprised a description of official national or regional programmes/documents that had supported not only Environmental Education but also school development in the framework of the values inspired by Environmental Education in the country. The reports include more interesting work guided by international, national or local NGOs supporting either classroom initiatives in Environmental Education or school development. In order to enlarge on this issue, this qualitative data was supplemented with quantitative data derived from a questionnaire. Some additional countries not taking part in the SEED/ENSI research programme also responded to this questionnaire.

In relation to the second section on the Eco-schools' development process, the national co-ordinators were requested to select the more interesting initiatives, according to their dissemination in the country and relevance from point of view of the ENSI approach to environmental education. Specifically, the authors were asked to describe for each national initiative:

1. The general characteristics of the programme
2. The explicit and implicit set of criteria that rule the belonging to the initiative
3. The kind of development processes the initiative proposes

4. The kind of support offered to stakeholders in the programme
5. The main obstacles encountered

It was stressed that all these points should be extracted from official documents, evaluation material or from interviews with actors in the programme. For every initiative selected, the author of the report was asked to give a personal opinion about its relevance and effectiveness according to the criteria. This means that the reports provided not only 'facts' but also information in a subjective way at two levels. On the one hand, the reports provided information on national initiatives as they were interpreted by the authors themselves: what they consider as relevant according to the 5 specific issues/areas to be dealt with and what were their opinions on these issues. On the other hand, the very choice of national initiatives was a kind of indication of what the author him/herself conceptualised as an Eco-school.

We are well aware that national activities within the field of Environmental Education take place within diverse ideological backgrounds and are written in different ways, using different phrases and structures. In one sense, this makes comparison between them difficult. But in another sense, this diversity makes the comparison even more important as this to some extent can be recognised as cultural difference i.e. that different aspects (aim, teaching and learning approaches etc.) are weighted differently in each country. This becomes clear when identifying and comparing the explicit criteria mentioned in the reports – i.e. criteria directly formulated in programme documents, official statements, etc. However, it comes perhaps even more into play when trying to identify, interpret and compare the implicit criteria in the actual programmes i.e. criteria that often govern programmes in a more 'hidden' way. We consider this latter type of criteria, as difficult as they are to perceive, to be very important for the comparative study.

In cases when there do not seem to be correspondence between implicit and explicit criteria, evaluation becomes a central 'tool' for identifying this lack of consistency. What is more important, however, is to consider evaluation not as a kind of 'quality assurance' that often comes from the outside, but as an internal need for strengthening 'quality enhancement', as a kind of evaluation that supports and steers change. Therefore we consider it important to recognise evaluation as an intrinsic part of an EE programme, consistent with the philosophy behind it, and we devote a chapter in the comparative study to addressing problems connected to the evaluation of EE programmes and the use of quality criteria.

The national reports were written with different interpretations of the term 'eco-schools', typically linked to a variety of ideas on Environmental Education and of the possible contribution of Environmental Education to school development as a whole. The Eco-School programme per se was developed in 1994 as a response to the outcome of the UN Conference on Environment and Development of 1992. This was initiated by Member organisations of the Foundation for Environmental Education (FEE) with the support of the European Commission and follows a specific schedule¹. In the current context, however, countries interpreted the term in a more 'fluid' way than the original meaning provided by the FEE programme.

Reading guide

The publication is organised in two major sections. The first section is the comparative analysis of the national reports. Arranged in alphabetic order by country name the reports follow in the second section.

The first chapter outlines our common framework for the analysis of the national reports. We consider it relevant to offer readers insight into our basic ideas on central issues and approaches to Environmental Education – and our philosophy.

Evaluation is the core theme of the second chapter, because it is our view that striving for quality in Environmental Education (and ESD) programmes puts evaluation at the centre of teaching and learning activities in this field – and, moreover, a type of evaluation which is consistent with the perspectives or philosophy of Environmental Education. The chapter thus deals with what we mean by evaluation and what we mean by quality.

The third chapter written by Attila Varga, National Institute for Public Education, Hungary, gives a general picture of the international state of the art on Environmental Education. Both qualitative data from the country reports as well as quantitative data from a questionnaire have formed the basis for this descriptive chapter.

The next chapter also draws on the information provided by the reports and focuses on trends and divergences in the national initiatives described. This chapter, which is comparative and analytical, follows the 5 specific areas provided in the guidelines that

thus function as 'optics' for the analysis. The chapter mirrors the vast diversity in interpretation of Environmental Education and how it is 'operationalised' into concrete programmes in the countries represented in the study

In the same way the fifth chapter takes as the point of departure the national reports and aims at making a cross-analysis of EE initiatives in order to give a picture of the underlying values behind and guiding the programmes, and thereby give a sense of what are (could be) the future development prospects, or scenarios. As a basic principle, the analysis becomes a 'quest for scenarios', with reference to the scenarios proposed by OECD in on the future development of schools and of teachers' education (OECD, 2003).

The previous chapters have in a sense 'looked back'. From the information provided by the national reports we have tried to identify not only the quality criteria used in the national initiatives, either explicitly or implicitly, but also central scenarios guiding them. Besides this, we have presented reflections on our ideas regarding Environmental Education and evaluation as a conceptual frame for this analysis and identification. The concluding chapter in the first section of the book is 'looking forward'. Thus, we discuss the potential of scenarios in guiding schools' development paths towards sustainable development and in establishing quality criteria that can actually support this development.

The remaining part of the publication is the 13 country reports presented in alphabetical order: Australia, Austria, Belgium - Flemish Community, Denmark, Finland, Germany, Greece, Hungary, Italy, Korea, Norway, Spain - Catalonia, and Sweden.

In the annexes are the guidelines for the national reports and the questionnaire on the 'State of the art'.

I. Perspectives on Environmental Education - A Critical Framework

1. Introduction

This chapter of the comparative study aims at setting out our framework for the analysis of the national reports on initiatives in the field of Environmental Education.

At the very beginning of the project in 2003 the first step was to develop not only a theoretical but also a practical framework for the analysis. The aim of our discussions was to reach a shared understanding of central issues, ideas and approaches related to Environmental Education. In this process we have been following and guided by the basic ideas of ENSI that EE aims at promoting environmental awareness and *“dynamic qualities, such as initiative, independence, commitment and readiness to accept responsibility”* (Posch, 1991).

The purpose of developing this shared framework was not, however, to use it as a standard for the national reports to meet. The discussions supported us in structuring and focusing our analysis work. First it helped us to develop the guidelines which the national reporters should try to follow regarding the structure and focus of their reports. Related to this, the framework assisted us in giving parallel feedback to the authors for their first drafts. Later on, it focused our work process by providing structures and perspectives to the cross analysis of the national reports.

Even though the analysis and finalising of the report took place during a transition period where focus was shifting from Environmental Education to Education for Sustainable Development (ESD) we feel that it would not be appropriate to describe this framework in the context of ideas, current discussions and approaches related to the latter type of education, i.e. ESD. Therefore, this chapter will deal with our common understanding of crucial aspects of Environmental Education – which, as it will turn out, we believe, be highly relevant also to Education for Sustainable Development.¹

¹ For presentation of a proposal for a non-exhaustive list of ‘quality criteria’ 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, see Breiting, Mayer & Mogensen, 2005.

We will in this preliminary chapter strive at expanding and giving new facets to the ENSI perspective on EE. In essence, we will argue that EE should not come about by reducing environmental education to a mere (however necessary) instrument for protecting the natural environment, but instead by putting it forward as a form of education for citizenship, for critical participation and for taking personal responsibility in actions and decisions concerning the natural, social, cultural and economic environment (Mayer, 2004).

By way of introduction, the chapter will set up some general assumptions about the certainty (or lack) of our knowledge on environmental issues and problems. Following this track, we discuss how environmental problems can be viewed and dealt with in an educational context which *“go far beyond the symbolic ‘earth day’ or ‘field trip’”* (CERI-OECD, 1991) but which, in general terms, strive to contribute to *“improve the quality of education in general and to reactivate values towards society”* (Posch, 1989). One of our main ideas is that Environmental Education should play a significant role in qualifying students to take an active part regarding the solution of future environmental problems. This is revealed further in the subsequent part of the chapter. It will be argued that behaviour modification should be replaced with the development of action competence, strengthened and qualified by the students’ critical thinking. It is also suggested that an action-oriented and participatory Environmental Education can help the students to complement a ‘language of critique’ with a ‘language of possibility’.

2. Environmental Education – embedded in a culture of complexity

Environmental Education is embedded in a culture of complexity (Mayer, 1997). The term complexity takes on, however, different meanings in different contexts and in different cultural environments, both nationally and internationally. In some countries the term is often used in a “negative” way, meaning “complicated” - too difficult to understand with current knowledge levels - while in other cases the term takes up a widespread epistemological debate on the structure, organisation and limits of knowledge and therefore on the “culture” that informs society and schools, and to which teachers themselves contribute.

In our interpretation, risk, uncertainty, unpredictability and the awareness of limits are part of processes which construct such a culture of complexity. In environmental education, this entails attention to undue generalisations and simplifications; an

attention to the *'structure which connects'* (Bateson, 1979), to relations and processes and not just to the final states. Complexity above all has to do with the attention to the relation between the observer and the observed, between those who know and the system that must be understood. Complexity in asking oneself about the *'relevance'* of questions rather than about the correctness of results, and to highlight *limits* and *problems* more than proposing solutions. Thus, the complexity is not so much, or not only, related to external reality that we cannot manage to simplify, but to the modalities of knowledge with which we build our representations of the world.

An Environmental Education that cannot offer certainty but only probabilities and trends, an Environmental Education in which specific knowledge, choices of value and the evaluation of risks and of uncertainties are all strongly interlinked, requires everyone - and not only scientists - to have a sense of responsibility, critical reflection and democratic exchange of views. That of democracy should then always accompany the notion of uncertainty. A democratic society should moreover be seen as a *"place of critical reflection"*, a society in which *"no problem is solved in advance"*, and where *"uncertainty does not cease once a solution is adopted"* (Bauman, 2000) - in which not only is the future uncertain, but also the past, since it is open to review and can be interpreted in various ways.

3. Environmental problems are problems of society

Seen in this perspective of complexity, environmental problems are not simple problems to which one can find simple 'black and white' answers. Following this, environmental problems should not be perceived as problems in nature or between humans and nature. This stance is deeply rooted in an ideology linked to the possibilities of science and technology, of managing our planet as a machine and of predicting our common future – promoting a kind of Environmental Education that can be termed *'education for environmental management and control'* (Huckle, 1993).

Rather, environmental problems should be seen as societal problems determined by conflicting interests between humans or groups of humans in the utilisation of natural resources (Schnack, 1998). Following this track, environmental problems appear at least at three levels. On the individual level conflict exists between incompatible needs and wishes, often expressed as personal dilemmas. On the societal level conflicting interests exist between various groups and/or individuals. And finally conflicting interests can be regarded as conflicts at a structural level of society, e.g. conflicts between political

decisions and market forces, or economical mechanisms. If Environmental Education shall deal with the real environmental issues we have to face all three levels of conflicting interests.

Students' work with an environmental issue should thus identify, expose and analyse conflicting interests and how they affect our future. Moreover, the fact that they are societal problems implies that no one subject has a monopoly on describing and dealing with them. A critical and multi-perspective analysis is needed if students are to gain in-depth knowledge about them. With this view of 'environmental knowledge', it is meaningless to argue for the existence of objective knowledge, as *"We can never identify how things are, especially in matters of people and their environment, without already interpreting what we find, implicitly preparing for decisions or making value judgements."* (Stengers, 1992) - but we need instead to compare and contrast the different points of view, and therefore values.

This implies that learning in Environmental Education is just as much a search for meaning as it is a search for more or less objective and factual knowledge. Perhaps, it seems more and more important that the value aspect in the teaching and learning process becomes central. In Environmental Education it is not the finding of solutions of a technical nature that really matters. Such solutions are rarely lacking. The question is rather one of identifying the diversities of values, choosing among accessible solutions, and making a qualified choice. Therefore, desirable views, norms and values should not be pre-identified in this process. On the contrary, Environmental Education should focus on value *clarification and development* within the context of the students' own worldview and they should be free to determine, to hold and to justify their own values.

However, as Peter Posch argues (1993, p. 29) values may be divided into "espoused values" and "values in use". Embedded in this perspective on values lies a central and powerful argument for working with values and especially value clarification because, as Posch reminds us:

"Discrepancy between espoused values and values in use may provide an explanation for some of the difficulties of values' education. If those values that are transformed in behaviour are largely unconscious and unexamined it is understandable that espoused values (the values we discuss and talk about) may not even touch those values that are realised in behaviour."

The difficulty the teacher finds when working with environmental education, as with any other kind of 'education' which refers to values, is that of 'believing in what you do while at the same time giving space for other beliefs'. Open debate on values and conflicts is not just a way of bringing them to light, it is also a way of practising a fundamental value: the respect for differences. This is a position held strongly by Elliott (1995):

"Educating for environmental complexity involves a recognition of the diversity of value positions which shape human conduct in the environment and give rise to controversial issues."

Conflicting interest as point of departure for the study of environmental problems has been central in many publications from the Research Centre for Environmental Education (e.g. Jensen & Schnack, 1997, Schnack, 1998, Mogensen, 1996) and from ENSI (OECD, 1991; OECD, 1995; Elliott, 1999). Several developmental programmes have moreover shown that the concept of conflicting interests makes it possible for the students to get behind the environmental problem and analyse people's legitimate, obvious or hidden interests in the problem in question (Breiting et al., 1999).

4. Focus on action competence – not behaviour modification

The main aim of schooling is to prepare students to take an active part and - in an independent way - act in relation to the conflicts and problems which are present in society in a given cultural tradition, albeit their complex nature. This entails making it possible for students to transform themselves into critical, democratic and political human beings; to make them qualified to handle what Foros, a Norwegian, calls 'a *constructive counter pressure or the good revolt*' (1991, p.17). Or as Schnack argues (2000), it is a question of helping the students to become autonomous persons, who are neither simply adapted to the situation, nor "idiots" - alluding to the Ancient Greek notion that people who lived "privately" and took no part in the affairs in community were called "idiots".

The opposite of being an 'idiot', or being adapted to a certain situation through behaviour modification is to be an action competent person. The action competence approach is related to developing a critical, reflective and participatory approach in which the future adult can cope with environmental problems in a democratic way. A behaviour modification approach aims at prescribing to pupils certain behavioural patterns here and now that we believe contribute to solving current environmental

problems. According to Schnack (2000, p.112.), the most common approach to EE has been guided by aims related to behaviour modification:

"In fact, the modification of behaviour has been the overall aim of perhaps the majority of measures taken in the area of environmental and health education; and this, unlike action competence, is something that can be specified and measured."

The objective of the behaviour modification approach can be related to current environmentally friendly behaviour where the direction is given. In this way, the "success" of an Environmental Education project can be evaluated on, for instance, the reduction in the pupils' use of water or electricity. The evaluation of the action competence approach, on the other hand, must be seen in relation to whether it has developed the pupils' will and ability to involve themselves in the environmental issues and qualified them in forming their own criteria for decision making and choice of actions. Action must in this sense be seen in a future perspective where direction is not given beforehand.

5. Critical thinking

As a major prerequisite for developing the students' action competence, described in this way, Environmental Education must not only be recognised by students as crucial to their lives but also enable and urge them to be curious and question things around them, scientific phenomena as well as societal structures and conditions (Mogensen, 1997, Mogensen & Nielsen, 2001). On a concrete level this entails questioning and asking for reasons why things are the way they are and why others (and oneself) act as they do. But it is not only asking for reasons. It is also giving reasons - stating why, and the rationale behind a certain position. It is to take serious Emanuel Kant's famous sentence "*Sapere aude!*" "*Have courage to use your own reason!*". In other words, it entails developing the students as critical thinkers.

Reasoning and judgement are the ultimate objectives of critical thinking. This appears particularly apt in connection with action competence because choice of action possibilities assumes a kind of intentionality. The action is directed towards something and there is a reason for that direction. A frame of substantiates - a number of criteria - that explain why one has decided to do as one is doing, must be developed and generated. Habits (for instance, reliance on scientific and technological "solutions" to environmental problems), customs, religions, prejudices etc. are innumerable in connection with the choice of action possibilities when the problem is environmental,

simply because it is just these habits and customs etc. which are part of the cause of the problem.

An epistemological view on the reasoning aspect – searching for and giving reasons - is heavily underlined by Siegel in building up critical thinking (1988). By considering evidence, searching for relevant information, questioning the validity of sources of information, analysing assumptions, detecting bias, exploring alternatives and presenting own viewpoints and action possibilities, students become wiser as to what mechanisms, phenomena and barriers that in a broad sense are connected with the solving of an environmental problem.

Elliot (1991 p. 35) points to the same issue and argues that developing environmental awareness as a pedagogical aim implies that teachers: *“accept responsibility for critical standards in discussion, e.g. by requiring arguments to be based on reasons and supporting evidence”*

Critical thinking entails a reflective and critical approach to the structural levels of society as well as the scientific and the personal levels, and the connections between them. For example, the development of critical thinking skills could help students realise and explain the decrease in clean drinking water and the potential dangers to individual health and related to the difficult situation farmers are put in when forced to use crop sprays in large quantities due to free market forces in agriculture. Hence, it implies that the consideration of one of the levels is linked to, and demands considerations of, the others as well - earlier expressed as the *“sociological imagination”* by C. Wright Mills (1959).

Critical thinking includes a dialectic perspective (Mogensen, 1997) and refers to two dictionary meanings of the word *“dialectic”*. The first is what Henry Giroux many years ago called *“contextualisation of information”* (1978). This means critical thinking obliges the individual to look at a case from several points of view, listen to other people's understanding and treat them responsibly and fairly. In situations where many different points of view show there are varying conceptions of a given case, it recognises that knowledge is not only an objective phenomenon which from all points of view and at all times is the same. This supports the understanding that knowledge is dependent on latent interests and values.

The dialectic perspective also refers to the dynamic view that progress and development take place by constantly challenging, querying, criticising, and breaking

down existing practice with the aim of reconstructing a new and alternative practice without the deficiencies and errors of the previous one.

This dialectic perspective can only be maintained responsibly if it is assumed the critically thinking person has certain characteristics or predispositions. This is what Richard Paul calls *“the intellectual and moral virtues of the critical person”* (1992). In this approach to critical thinking such qualities can be:

- the courage not to accept passively everything, but to actively participate in discussions and debates i.e. a willingness to get involved;
- an ability to empathise, to appreciate other people's ways of thinking and their ideas, as well as an ability to dissect one's views and see beyond one's own narrow sphere of interests;
- the will to apply consistent criteria of assessment to oneself and others;
- awareness of the limits of one's own knowledge;
- the will to persist despite great barriers and frustrations;
- the belief that arguing for a case has effects

Critical thinking is thus not merely a particular way of thinking nor does it denote a specially refined *“thinking technique”* which is particularly suited to solving problems. In this context critical thinking is to be understood as a coherent theoretical construction which does include the latter dimension, but which also implies views on the direction and content of thinking. The backdrop for this is the belief that critical thinking and emancipation are coherent. It is the belief that traditions and structures in society, and the corresponding knowledge systems are not just phenomena of repetition that are to be reproduced without being critically analysed and, if pupils think it appropriate, opposed.

6. A language of critique and possibility

Although the critical approach to Environmental Education is underpinned by an understanding of the value of teaching about controversial issues this is not to say that the teaching needs to promote pessimism, apathy or unnecessary fear. Indeed, society and schooling tend to eliminate controversies, risks and uncertainty, and to hide and limit conflicts. But the kind of Environmental Education inspired by the culture of complexity and the need of critical thinking argued for in this chapter, instead calls for facing those controversies, risks and for dealing with those uncertainties and limits. Indeed, it enables people to realise that *“constraints”* correspond to

possibilities/opportunities, and that there is no real independence without the uncertainty and risk of choice.

Seen in this way, the educational question is not whether we should or should not work with controversial issues. We are bound to. It becomes more a question of how can we help students to develop a competence to address the problems and how can we do it without leaving them resigned and anxious. One central point here is that it is necessary to complement the "language of critique", which contributes to clarification of problems, with a "language of possibility", which contributes to make the solution meaningful and possible (Fien, 1993, Giroux 1988). Giroux claims (ibid, p. 134): *"It is important to recognise that although educators often refuse, subvert, and, where necessary, critically appropriate dominant forms of knowledge, this does not mean that they should continue working exclusively within the language of critique. On the contrary, the major thrust of a critical pedagogy should centre on generating knowledge that presents concrete possibilities for empowering people. To put it more specifically, a critical pedagogy needs a language of possibility"*.

By combining critical thinking with the language of possibility it is emphasised that to be a critical human being does not equate with being negative and sceptical of all and everything in a deterministic way. A critical thinker is not a "no man" but a human being who strives to couple the critical process of reflection and inquiry with an empathetic and optimistic vision of potential, seeking solutions and positive direction. The language of possibility underlines that the critical thinker does not look for limits and restrictions but in a creative and open-minded way searches for and is inspired by ways that have been successful and fruitful for others – in other cultures, in other periods of time, and other situations. Thus, by focusing on not only what may be 'wrong' but also what might be 'right', critical thinking coupled with a language of possibility gives human beings personal and collective capacities that can be transformative and point to new visions of the future, much needed for sustainable development.

Among other things, taking real problems as the starting point in education can encourage this complementarity of critique and possibility. Through such an approach, pupils, together with a responsible teacher, can find relevance and coherence in their learning and teaching because of the authentic attachment to the real world outside the classroom and because the pupils in such situations often will realise that adults

respect them and speak and listen seriously to them. This – and the learning potential of working in this way - will be the theme for the next section

7. Action orientation

It is regarded as fruitful that the students in their learning have an action dimension. Focussing on the action perspective in Environmental Education means that the students as part of the learning process prepare and take actions together with their teachers to solve or counteract the environmental problems they are working with, for instance, voice their solutions in public meetings or in newspapers – and afterwards in the classroom reflect on the experiences gained.

As the last sentence indicates, it is important that the actions are placed within an educational philosophy – corresponding to Elliot's claim (1991, p. 27): *"As an outcome of this process (i.e. cycle of reflection and action) environmental awareness or understanding is a form of practical wisdom developed through reflective action. This process for developing understanding is a process of action research"*.

What is considered to be a successful (pedagogical) action should not (only) be evaluated in terms of how well the pupils collect the litter on the beach or to what extent they buy organic milk. Actions must first and foremost be seen in relation to their educational and/or epistemological value - not in the first hand in relation to any possible societal and material consequences of the activity. Environmental problems are societal problems which are to be solved at a political level. It is thus not the task of school or teaching to solve society's political problems, nor to improve the world through the behaviour of the students. It is crucial to distinguish between the pedagogical aspect of the action and the material importance of the aspect, where the criteria of success are connected to whether the environmental problem is solved partly or completely (Breiting et al, 1999).

Karsten Schnack (2000) argues that a characteristic of an action is that it is intentional. The action is directed towards something and has a reason for that direction. This has, as a precondition, that a frame of substantiates - a number of criteria -, reasons explaining why one has decided to do as one is doing- must be developed and generated. Therefore, the students' reasoning and judgement – their critical thinking - prior to and subsequent to the action give rise to important learning processes in an action-oriented Environmental Education.

However, besides this more “rational” kind of knowledge there is also the meta-knowledge which the students acquire by having been personally involved in the solving of a real-world problem where they often meet obliging adults in person. Through such an approach students can develop confidence in personal and communal action as well as an appreciation that it helps to get involved. This is a kind of ‘emotional’ or ‘affective’ marked understanding which is essential in the development of action competence. Although it can seldom be made explicit it is not, nevertheless, less true or of less significance. This holistic view on knowledge has also been stressed by, for instance, Scheffler (1977, p.172): *“Indeed, emotion without cognition is blind - and cognition without emotion is vacuous”*

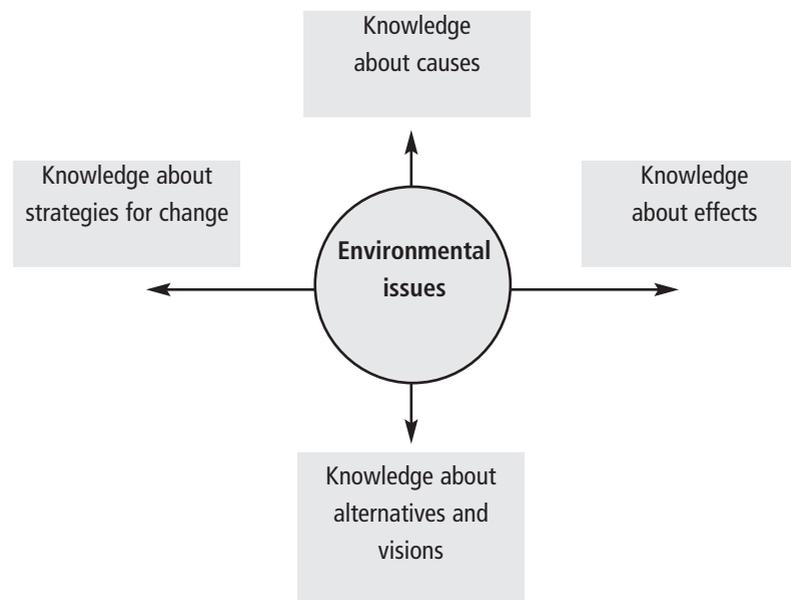
There is a Danish word for the overall holistic outcome of such an epistemological process which, unfortunately, does not have an English counterpart. However, it is close or similar to the German word *erkenntnisse*. To put it in a more slogan-like formulation, the action experiences must be appraised – and seen in connection to – their ability or capacity to broaden the students’ *erkenntnisse* – to make the students wiser. Seen in this perspective, the interest for action and hence action experiences seems to correspond with the position of Kolb (1984) in his theory of “Experiential Learning”. What is essential in stressing the epistemological value of action and action experiences is expressed by Crew (1987, p. 147) in the following way: *“Real experiences, at the most teachable moment, generate special meaning and purpose. The real, the practical, and the concrete have a special motivation. There is no comparison between made-up exercises in the textbook and real problems, the solution of which makes a practical difference. When knowledge is learned in relation to use in actual situations, that knowledge becomes more permanent, functional, and transferable. The best teaching-learning situation is the proper blend of actual and vicarious experiences, of theory and practice, each enriching the other”*.

An underlying premise for this epistemological perspective is that teachers and students are engaged in the same kind of process: action – reflection – action, but with different contents. For the students, the actions are “environmental” while for the teachers they are “educational”. The students are absorbed in solving the environmental problem, while the teachers’ interests are focused on preparing the most optimal learning situations for the students. Therefore, an “unsuccessful” action seen from the point of view of the students – the failure to solve the environmental problem

– can from the point of view of the teacher have been a “successful” learning situation.

8. Action knowledge

The action-oriented approach in Environmental Education, i.e. where focus is on the development of students’ ability to act and bring about changes, has consequences in terms of demands for a certain kind of ‘environmental’ knowledge and insight that needs to be developed by the students. According to Simovska & Jensen (2003) this position has considerable implications for planning, implementation and evaluation phases with regard to the kind of knowledge which should be in focus. Simovska & Jensen (Ibid,) proposed four different dimensions of knowledge within which a given environmental and health education could be viewed and analysed. These knowledge dimensions are as follows, paraphrasing from Simovska & Jensen:



The first dimension deals with knowledge about the existence and scope of environmental problems. These are the effects of the society’s environmental impact, for instance reduced forest growth or deteriorated human health caused by acid rain. Or it can be the effect of pesticides which accumulate in food chains and end up in our food. This knowledge is, of course, important because it arouses concern and awakes

attention. In this sense, it is a prerequisite for taking action – but standing alone, it does not help in giving answers to questions dealing with *why* we have environmental problems and how we contribute to solving them (ibid.). It must therefore be complemented with the subsequent dimensions.

The second dimension deals with knowledge about the fundamental causes behind environmental problems. As mentioned earlier, we have pointed out societal determinants underlying our way of exploiting the natural resources and we argued that the notion of conflicting interest could be essential in this identification of the root causes behind environmental problems. In general, this knowledge dimension relates mainly to the sociological, cultural and economic areas while the former one was connected to natural science knowledge.

The third knowledge dimension includes the actual process of change. Simovska & Jensen claims that this dimension covers aspects of knowledge related to fields of psychology and sociology: how to have control over one's own life, how to influence the level of life style as well as the level of the living conditions in society. It also includes knowledge about how to structure cooperation, how to organise strategies, how to analyse and use power relations.

The fourth dimension is focusing on knowledge about alternatives and visions. This dimension has as a prerequisite that it is in the classroom worthwhile and valuable for action taking to work with and create joint visions: what are our wishes, dreams and needs in relation to sustainability and how do we believe they can be reached. This dimension could include knowledge about how issues are tackled in other cultures, both nearby and far away, since knowledge about these circumstances can be a good source of inspiration for developing one's own visions.

Simovska & Jensen (Ibid.) underline that all these mentioned dimensions of knowledge should be thought through carefully from the perspective of action and change. The danger of only working with knowledge related to the level of effect of environmental issues has a tendency to create a great sense of worry, and if not followed up by knowledge about causes and strategies for change, can be directly associated with breaking down commitment and contributing to action paralysis.

9. Participation

If education is seen as qualifying the future generation for a democratic society, this implies that the teacher must share the responsibility for the teaching process with the students, not make all the decisions and not give all the answers to the questions. Thus, a crucial feature in Environmental Education is that the students participate in decision-making processes and feel they have degree of ownership over the project. This notion of participation is an aspect stressed by many international Environmental Education researchers (e.g. Hart, 1992; McCallum, Hargrives & Gipp, 2000).

Condensed to one sentence, participation in Environmental Education is to take part, to share responsibility and to be involved in joint actions – all matters that help qualify the students for the basic texture of social life. Seen in this perspective the notion of participation is closely linked to the notion of democracy: *“The members of a democracy are not spectators, but participants, perhaps not all equally active all the time, of course, but all potential participants, who decide themselves what to be involved in, when and why”* (Schnack, 2000). Hart (1992) stresses also the connection between participation and democracy, and interprets participation as *“the fundamental right of citizenship”*.

In the light of these quotations, several other reasons for including student participation in Environmental Education could be put forward, all in one way or another linked to the notion of democracy. Seen from an ethical perspective, student participation is inevitable because the teaching and learning process deals with and affects *their* lives and *their* futures. But also seen from a learning point of view, participation plays a considerable role because it puts the students at the centre of the learning process giving them ownership over it, alongside promoting motivation to discuss, find solutions, and act in a social context – which all together encourage their confidence in own abilities. In this connection, the socio-cultural theory based on Vygotsky (1978) highlights the learning perspective by emphasising that knowledge should be understood as a social construction in which cognition, context and practice interact: meaning is dynamically created and re-created through participation in socially organised activities.

The very notion of participation has different meanings and can take place on several levels. This is especially underlined by Hart (1992) in his reflections on children's participation, using a ladder as a metaphor for the different degrees of initiation and collaboration children can have when working on environmental projects with adults –

ranging from non-participation to different form of participation with increasing degrees of initiative and independent decision-making by students.

Hart argues that the competence to participate can only be acquired gradually through practice; it cannot be taught as an abstraction (Ibid.). Therefore, it should be a challenge to Environmental Education to provide conditions to optimise opportunities for every student to operate at the highest level of his/her ability and desire; the challenge is to qualify the students to be a democratic citizen. However, one of his main points is that (Hart, 1992):

"It is not necessary that children always operate at the highest possible rungs of the ladder of participation. An important principle to remember is choice. A programme should be designed to maximise the opportunity for any child to choose to participate at the highest level of his or her ability."

This suggests that participation does not necessarily and always mean that the students should own the project totally, having decided everything. In a perhaps 'marginal' interpretation, ownership and participation can also involve deliberately passing on the decision to the teacher and letting him/her suggest different possibilities from which the students can then choose. Following the arguments above, the important matter is the students' choice.

10. Closing comments

The critical approach to Environmental Education, which we have argued for in this chapter, underlines the role of education in developing future citizens' competence to participate actively in the forming and changing processes regarding the society's environment problems - in the direction which they find most reasonable in response to the problem. We have also suggested and argued for a close relationship between action competence, participation, democracy and Environmental Education.

Hence, the democratic and participatory perspective in Environmental Education means that it is not the aim of teaching and learning in this field to point to specific ways of behaviour or to specific understandings of the future society. It is rather prescribing an obligation for the students to become critical thinkers, i.e. to question critically, but fairly, and act according to the answers founded - and in that way take part in the development of a more democratic, just and sustainable society, which (Baumann, 1999):

"...should make its members free: not only free in a negative sense, i.e. not obliged to do what they don't want to do, but free in a positive sense, i.e. to be able to use one's freedom to do things ... capable of influencing one's conditions of life, of elaborating the meaning of the 'common good' and of making the society's institutions conform to that meaning"

2. Evaluation in EE and the use of quality criteria

1. Introduction

In this chapter we present our approach to educational evaluation, in an attempt to revise the existing 'school culture' about evaluation and to find methods, and analyse practices, more consistent with the perspectives on Environmental Education described before.

We don't believe, in fact, neither in the possibility of a 'value-free' evaluation, specially for social and educational programmes, nor in one pure technical approach, where evaluation is considered as essentially a 'measurement' where complex social and educational variables are reduced to numbers. We will explore then different approaches to evaluation, looking for coherence and consistency, and trying to find what is the meaning of using 'indicators' or 'criteria' in this framework. The search for quality must be, in fact, at the centre of EE and ESD programmes and evaluation strategies cannot be thrown over: the real questions are about what we mean for evaluation and what we mean for quality.

The demand for educational evaluation over the last 20 years has changed radically: from evaluation as a judgement made by those with the position or authority to do so – the teacher, school head or inspector – we have moved on to data gathering, description and interpretation that require research, in-depth study and reflection.

There are four rather different forces that have shaped the recent rapid growth in demand for evaluation (Norris, 1998):

1. The first force, which prevails in an expanding education system, is the need to control public spending and to thus develop an information gathering system to support decision-making.
2. The second, more ambiguous, force is essentially market needs and thus the necessity to establish efficiency parameters (and not necessarily of effectiveness!) enabling schools to "compete" with one another; this force is not generally concerned with any large scale innovations, but accompanies and valorises the development of new technologies and the increase of curricula offered.
3. The third force for evaluation initiatives stems from a different conception of the education system: it recognises that innovation and autonomous development of schools is the main road to the development of educational proposals which a) bear in mind the diversity of local contexts, b) guarantee the equity, and not equality, of

possibilities, and c) develop participation and the spirit of responsibility towards the future. Evaluation, in this case, above all aims at understanding change and coping with the unpredictability of innovation outcomes.

4. The fourth force, which has come to light over the last decade, is the need for all organisations, and thus schools as well, to become 'more adaptive' in the face of the complexity and unpredictability of the real world and of the educational processes. *"Institutional reflexivity and the learning organisation lie at the heart of this impulse toward evaluation"* (Norris, 1998).

The presence of contrasting forces highlights how, even in the field of the evaluation of education systems and programmes, we are faced with a crisis of values and a need for change, which is all the greater and deeper when we deal with issues concerning environmental education (EE) and education for sustainable development (EDS). The world of an expanding economy, of a secure job for life, of scientific and technological solutions for all problems and of undisputed moral superiorities is over for good. From the world of security and predictability, promoted at the end of the 19th century, the 20th century has instead led us to a world characterised by uncertainty, complexity, the interdependence between all components of a system whose ultimate limit is the whole planet.

Yet, the most widespread proposals for the evaluation of education systems run the risk of stopping to defend positions that other sciences have already abandoned: in particular, the illusion – pertaining to a positivist paradigm – of objective knowledge based on facts, immune from prejudice and thus from cultural contexts and value decisions. Rejecting the idea of educational evaluation as an "objective measurement of results" does not mean to say we should give up the need for evaluation. Instead, it means recognising evaluation as an intrinsic part of the processes for building new knowledge, attitudes and behaviours. The fact that EE and EDS are at the centre of the discussion add a further element of complexity to the problem. Both in the environmental and the educational fields, a culture of complexity calls for a kind of evaluation that takes this complexity into account and that does not limit itself to 'measurements' - which are often impossible in this field - but focuses the attention on 'emergencies' in order to give value and not to judge, to stress strengths and weaknesses of projects, initiatives and programmes.

To make this possible we need to first clarify the value and limits of evaluation criteria and instruments used and reflect on their consistency with respect to a change process

that cannot just be limited to curricular contents and behaviours, but must firstly by ethical and epistemological.

The following reflections on evaluation aim to summarise the discussion, both outside and inside the ENSI network, that has over the years accompanied the need for evaluation of EE and of EDS. Starting from 'paradigms' underlying the various proposals of educational evaluation and the experiences of evaluation gained over the last few years in EE, the analysis will try to grasp the features – over and beyond the ambiguous use of terminology – that 'quality criteria' should have for a kind of evaluation that is in line with the principles guiding EDS.

2. For an evaluation consistent with a culture of complexity

In the last ten years EE and EDS have gone a long way in looking for deep changes in the conception of knowledge and in methodologies, and because of this the need for research and evaluation is increasingly important every year. The evaluation of quality offers a challenge to EE. Awareness of the limits of our knowledge, of the unpredictability and uncertainty of future development forces us to evaluate as accurately as possible what we are now trying to do. But research and evaluation that we need for EE and for EDS must be oriented both to the complex and dynamic nature of education and to the complex and dynamic nature of environmental issues, in a search for consistency between what we preach for the environment and what we practice at school.

A culture of complexity requires an evaluation that takes into account this complexity; an evaluation that gives up the illusion of scientism, that goes beyond the idea of evaluation as assessment and keeps instead to a meaning of evaluation as "assigning value" and of 'bringing out' the strengths of a project, of an initiative, or of an educational programme. Evaluation in education cannot be a neutral process which guarantees per se the objectivity of the results, but it is – like any technique or scientific theory – a theory-laden operation, full of values and consequently "ideological". In fact, the very concept of evaluation in the field of education has, in recent years, undergone a very critical analysis and has assumed different characteristics according to different cultures and different values systems, but also according to the different conceptions of knowledge.

Within a European network of reflection on evaluation methods and proposals consistent with EE – the REVERE (*Reseau pour l'Evaluation en Education Relative à*

l'Environnement) network – it was suggested, following a proposal by Robottom and Hart (1993), to distinguish the various approaches to evaluation according to the different paradigms on which they are based. Each paradigm corresponds to a conception of the world and, even if it may correspond concretely to a variety of evaluation models according to the specific situation it is applied to, it indicates what in a certain research area may be considered as "important, legitimate and reasonable" (Liriakou and Flogaitis, 2000). According to these researchers, the currently analysed paradigms at an international level as regards evaluation, and particularly concerning evaluation in EE, are as follows.

1. A positivist paradigm, which corresponds to what has been called a 'culture of machinism', that is still dominant. In the positivist paradigm, reality is objective and the experimental method, via a control of variables, allows us to discover the true nature of observed reality – to describe it and generalise it. In this view, evaluation is essentially a measurement, and the problem is to identify the main variables and to find methods guaranteeing the necessary validity and objectivity. In this paradigm, the role of the evaluator is purely technical: s/he must, above all, know the instruments and analyses to be used and merely apply them. The objectives of evaluation are defined beforehand by experts or by the authorities who need the evaluation. In the education field, it corresponds to a view of education that aims at providing knowledge and skills clearly defined at the outset, and possibly formulated in an operational mode, so that the evaluation of results of an educational process consists of their assessment. This view of evaluation is shared in many international and national documents, often in implicit contradiction with practice, where teachers, principals and inspectors use also value based criteria for their judgements.
2. A paradigm that contrasts with the one above, is inspired by post-modern criticism of the illusions of science and technology, and may be called 'relativist' or 'interpretative'. In this view, objective reality does not exist, but is subjectively constructed; and knowledge is also subjectively constructed, even though there may be inter-subjective views, and thus realities, between groups of people who have similar values, contexts and cultures. But if there are multiple realities, the objective of the evaluator is essentially to bring them out and to explore the points of view of those who, in different ways, have taken part in educational action (Guba and Lincoln, 1989). The evaluator, though, does not have any objective parameters or criteria to judge the effectiveness of the action and must only try to clarify the

various points of view and make them explicit through dialogue and observation. The evaluator's role is that of a negotiator, who is necessarily external to the project or action and uses empathy to move towards other people's positions, but rigorously abstains from giving opinions or personal points of view. As a result, the methods are almost exclusively qualitative: non-structured or semi-structured interviews and observations. The evaluators, as 'negotiation agents', must be prepared to bring out values and conflicts, but must also try to solve them through reflecting on the collected data. Through interaction of the interlocutors, evaluators must then build a common view which, while maintaining differences in points of view, finally reaches a consensus on the evaluation to be made and the actions to be taken. This approach, typical of social non-hierarchical programmes, is not easy to find in the educational development, and can be assimilate to an action-research based school development process, where an external partner is requested to 'evaluate' the process as 'critical friend'.

3. A third, still not very widespread but emerging, paradigm that the authors call 'socio-critical', that somehow tries to integrate the extreme positions of the first two above, and to link them up in a more complex view of reality. Reality is, in fact, perceived as an objective but complex reality, whose representations and meanings change according to historical and social circumstances. Knowledge is thus socially constructed and is not based on abstract principles, but is functional to the changes underway in a society. Theory neither precedes nor follows practice, but is strongly linked to it. As a result, evaluation is one of the instruments of change and, in order to bring about change, deals with processes - as in the relativist type evaluation - and also results. The evaluator does not avoid the need for a judgement, but the judgement is based on stated and shared criteria through negotiation with all stakeholders concerned in the action or programme to be evaluated. Methods are both qualitative and quantitative, depending on context and process. The main difference with positivism is that this view of evaluation is *participatory*, in the sense that the evaluator negotiates the evaluation process and strategies *with the stakeholders*, in an attempt to make external evaluation encourage *self-evaluation*, and thus also a training process. The evaluator himself is a social agent of change and, as such, is the bearer of interests and values that cannot be eliminated but must be made explicit. The characteristic of the evaluator is not objectivity or the abandoning of his/her own point of view, but making his/her own values and point of view explicit as a guarantee of impartiality. The strategy is that of attention to emergencies that are not foreseeable in a complex process and often not perceived

by those involved. The aim is to understand actions in order to change them by proposing change scenarios in line with the different values involved.

The three paradigms are outlined in the following table.

	Positivist	Relativist/ Interpretative	Socio-critical
The object of evaluation	Results	Education processes and relations between the various agents involved	Education processes, relations between the various agents and results
Judgement type	Fact judgements based on established criteria and/or objectives	Negotiated and agreed value judgements	Judgements about values based on negotiated criteria
Methods	Quantitative	Qualitative	Qualitative and quantitative
Evaluator characteristics	Objectivity	Neutrality	Impartiality
Evaluation plan	Pre-established	Responsive	Participatory
Key words	Measure, control, forecast	Describe, interpret	Bring to light, change

(Liriakou and Flogaitis, 2000)

Even though outlines and schematisations are always reductive of a reality that is more fluid and complex, it is evident that EE and EDS find in the socio-critical paradigm a point of view in line with the needs for rationality and respect for complexity that are coherent with their status of education for change.

3. Quality Criteria versus Quality Indicators as potential instruments for the Evaluation of EE and EDS programmes

The main difficulty in the dissemination of the socio-critical paradigm lies in the use of methods and the construction of instruments which, largely created within the positivist paradigm, need to be adapted and reinterpreted. Quality indicators represent one of these instruments widely used in the educational field over the last 20 years. In particular, since the 1990s and through national and international programmes, there has been the construction of programmes for identifying, collecting and comparing indicators – the OECD INES (Indicators for Educational Standards) project, the Education Quality Indicators Program (EQUIP) of Canada, the European proposal for a limited number of indicators to assist national evaluation systems, etc. – or projects for constructing synthetic indicators of the ‘outcomes’ of systems, such as those collected by the OECD through the PISA (Programme for International Students Assessment) and SIALS (Second International Adult Literacy Survey) which now involve up to 60 countries.

The main reasons for this interest in indicators are not only the first two forces described in the introduction – the need for ‘control’ together with market pressures – but also the need, imposed by a knowledge-based society, to take the various education systems to the same level of results and thus to compare education systems, curricula and the increasingly more autonomous and differentiated schools, not only within a certain country, but within federations like Canada, the United States or Australia, and by now even at European level.

The term ‘quality indicators’ is an ambiguous one and tries to reconcile two views of the world, two paradigms: one term, ‘indicators’, that derives from the positivist paradigm and that generally refers to statistics and standardised procedures, is related to another term, ‘quality’, that originally refers to another paradigm, to other needs and to another value scale. While there is a desire not to forego quality, there is also the attempt to reduce it once more to numbers and quantities. This tendency may, however, be reversed by trying to “qualify data and statistics” and by using indicators as traces, as clues, within a consistent value system, employing mediation and negotiation procedures that refer to the socio-critical paradigm.

A review of the ‘*approaches towards the evaluation of ESD*’ conducted by Victoria Coleman (2002), offers a broad and reasoned overview of the use of the term ‘*quality indicators*’ and the term ‘*quality criteria*’ in the education field. In her opinion only the

latter can be considered consistent with the principles of EE, and of ESD, in a socio-critical paradigm. But, what would enabling a classification of these instruments within one or other paradigm? the term used or the characteristics of the process implied? If, for example, we examine the use made of the term ‘indicators’ in biology, such as when seeking indicators for the quality of water or air, we know that they are based on the presence or absence of certain organisms in a given environment. We are thus dealing with both ‘process’ indicators and ‘result’ indicators, since the quantity and type of ‘surviving’ organisms constitutes the result of the complex interaction between organisms and their environment. And the tables relating the quality of water with, for example, the macro-invertebrates collected (or the quality of air with the lichens identified) are linked to the specific contexts and change over time in the same way as the adaptability of living things develops over time. Therefore, not all indicators are ‘measures or statistics’ in the narrowest sense, and not all necessarily simplify systems. Even economic indicators, which are also based on statistics, are trying to grasp the needs of the complexity of society.

In effect, part of the approach suggested by indicators seems to be consistent with the requests for evaluation presented by EE programmes and projects as regards certain characteristics:

- 1) Firstly, resorting to indicators means accepting that an educational process – be it a large scale project or a process involving just one teacher in only one class – is too complex a process to be ‘measured’ only by short-term outcomes.
- 2) Indicators do not, in fact, necessarily propose the ‘measurement’ of a result or the adoption of a linear input-output model, nor is it necessary, even if it is the most common situation, be they numbers or statistics: “*In my view, indicators are only information considered important for some or as a basis for decision-making, or simply to increase understanding*” (Eide, 1989, p. 87).
- 3) Indicators should also never be used alone but be correlated within a system (Nuttal, 1992) in which the relations between the components also go to make up an evaluation element. The indicator approach to evaluation is systemic and, as with EE, the information provided by the whole system is greater than that provided by the sum of its parts.
- 4) An indicator system must have its own logic and ethic, should be based on a model and on values that must be explicit, and in which the importance of the various indicators is stressed (Oakes, 1989). The values and models will differ according to the cultural context and to the project elements to be evaluated. Differences and similarities between models - and thus between indicators - will

also provide an element of comparison and evaluation.

- 5) Indicators not only accept updating, but need to be continuously updated: they do not constitute a static system, but a continuously developing dynamic one.

The very definition of indicators thus contains elements of ambiguity. In some languages the term 'indicators' recalls both 'direction indicators' – and thus the possibility of guiding decisions – and also 'clues', and thus the reconstruction of complex events. An Italian historian, Carlo Ginzburg (1986), proposed for human sciences a 'circumstantial paradigm' versus a 'Galilean paradigm' typical of natural science. In a circumstantial paradigm, small differences, small signs enable the historian, the psychologist, the policeman to rationally reconstruct and understand what has really happened. The circumstantial paradigm was another way to look at the socio-critical features of the evaluation, and, in Italy, a study was conducted at the beginning of the 1990s with the aim of identifying a system of quality indicators for EE projects based on a conception of environmental education founded on a culture of complexity and on ENSI rationales (Mayer, 1991). The study, reported in a book together with the main outcomes (Ammassari and Palleschi, 1991), considered as a starting point a definition of a shared model of environmental education – integrating various aspects of an ethical, cognitive, existential and methodological nature – from which a 'system of quality indicators' was derived. The search to identify qualitative dimensions was opposed to quantitative indicators and rested on a holistic conception of the development of environmental awareness. The proposed 'indicators' consisted in qualitative descriptive statements, general criteria, that have been used for both self-evaluation and for external evaluation of EE projects in 10 pilot schools of different level and adopted in the following years by many EE programmes.

At the same time, a national reflection on Quality Criteria for Environmental Education has been proposed in Spain (Gutierrez Perez, 1995). In a Catalogue of Criteria for the evaluation of EE programmes commissioned by the municipality of Seville (1992), the criteria were based on an EE model defined beforehand and were proposed as an instrument not only of evaluation but also for support and planning purposes for teachers and promoters of EE programmes. The operational methodology through which the criteria were to be applied was that of a 'democratic evaluation', following McDonald (1974), consistent with the aforementioned socio-critical paradigm.

Another example comes from the Netherlands, where the SLO – the National Institute for Curriculum Development – took the initiative to start the project *Quality indicators*

for sustainable environmental education in secondary schools (Ankonè, Kuypers, Pieters, van Rossum., 1998). The aim was to "develop a set of indicators and strategies for schools wishing to improve their quality towards sustainable development with respect to pedagogical, educational and managerial aspects". The working group (4 pilot schools and the SLO researchers) first tried to establish a shared view of EE to then arrive at 3 categories of inter-related indicators. For each indicator, the SLO put forward a long list of viewpoints, on the one hand, corresponding to observable elements while, on the other, reflecting the needs of the specific school and thus corresponding to the adapting of the general indicators at a local level. The viewpoints were the product of a discussion and negotiation process within each school and, as such, were the starting point for self-evaluation.

A final example consists of the Criteria for the Green School Award in Sweden. Here, too, the starting points are the 'fundamental values' expressed in the national curriculum. "Green School activities typically feature involvement as well as awareness and knowledge of the relationship between man and nature from an environmental, social, ethical, aesthetic and cultural perspective" (The Green School Award, p.15). The schools are responsible for the self-evaluation of their action plan and "the democratic principles of being able to influence, take responsibility and participate are seen as central" (GSA, p. 6) to the development of the environmental dimension at school.

As we may deduce from these examples, in the practice of EE, the difference between 'quality indicators' and 'quality criteria' is not so clear-cut. The difference does not lie in the use of the term 'indicators' or the term 'criteria', but in the implicit or explicit values accompanying them and in the procedures in line with the stated values. In the socio-critical paradigm, the heart of the problem is not the specific instruments but the theory guiding them, and thus the interpretations drawn. The proposition of 'observable facts', even if not measurable in the narrowest sense, does not contrast with the paradigm once it is clear that there are no facts and phenomena in the educational field that are completely replicable or possible to standardise, and that thus any list of observable phenomena must be considered only as an 'exemplification' of 'clues' and 'descriptions' which may be only idiosyncratic and therefore established by each school or organisation for its own specific context. Using the term 'quality criteria' is thus not enough to specify one's adherence to the socio-critical paradigm: as Victoria Coleman highlighted in her review, in many cases the term is misused and accompanies a positivist type evaluation. This tendency to – generally unconsciously – mix aspects of

the two paradigms is not by chance but corresponds to a tension between a demand for evaluation for 'quality assurance' that comes, above all, from the outside, and an internal need for evaluation for 'quality enhancement', for a kind of evaluation that supports and steers change.

4. The ENSI contribution to the Evaluation of EE programmes

In the ENSI project, discussions mainly focused on the role of evaluation within action-research processes. Action research was proposed as a work and research method both for teachers and also for the national co-ordinators and pedagogical experts, at the start of the second phase in 1990. Action research was a possibility, not an obligation, consistent with the views of EE proposed by the ENSI project and with the need for regular evaluation/reflection on the education process being set up. The theories on learning and education referred to by the ENSI project are, above all, the ones put forward by Lawrence Stenhouse, the founder of the CARE and advocate of the importance of involving teachers in researching on their own practice (Stenhouse, 1975). Action research envisages a cyclical process of planning, action, evaluation and reflection that can apply both to environmental issues and also to problems arising in educational innovation: "*pupils engage in active enquiry and action in the environment and teachers research the educational strategies they employ*" (Pettigrew and Somekh, 1994, p. 12).

In the ENSI project, teachers' action research could count on a 'pedagogical support' - on a researcher who often played a dual role of facilitator and evaluator. Even though this dual role caused some problems, it contributed to highlighting the need for, and the importance of, internal evaluation processes in any innovation process, and the need for practices of triangulation involving a third point of view. The triangulation metaphor, taken from construction and navigation techniques, allows "*taking a bearing of one's position*" (Stake, 1998) and using repeated observations, different instruments and especially different points of view in order to collect and analyse data (Elliott, 1994). The ENSI project made great use of triangulation as a way of validating observations and reflections conducted during the project.

Even if internal evaluation, envisaged by action research, and the case study have been and remain the common evaluation and self-evaluation instruments of the initiatives and projects carried on by the schools participating in the ENSI network, debate on evaluation has led to proposals for an external evaluation that, based on 'negotiated'

criteria and values, relates achieved results with the processes used by various projects and programmes in the environmental education field. In 1991 the international group responsible for the ENSI project met at Cromer for a meeting completely dedicated to the evaluation issue. The meeting was organised by the OECD-CERI together with the Centre for Applied Research on Education (CARE) of the University of East Anglia, and wanted to focus on the evaluation problem to then put forward a methodology that would be "*grounded on the need to understand the relationship between individual action and political and social systems*" (Pettigrew and Somekh, 1994, p. 15). In this occasion, the ENSI network made a definite decision and, by referring to the 'responsive' type evaluation proposed by Stake (1988) and the 'democratic' one proposed by McDonald (1974), chose the socio-critical paradigm as the frame of reference consistent with the principles inspiring their proposals for EE.

The Italian proposal for a Quality Indicator System was presented in Cromer (Mayer, 1994) and gave a start to the debate, presented in the previous section, on the appropriateness of using the term 'indicators' or the term 'criteria'. At the end of the second phase of the international ENSI project, 'indicators' were used in a very broadest sense, as an interpretative tool for the project, as a set of elements - partly envisaged in the planning stage and partly emerging during the process - that go to make the project significant and relevant for environmental education. The indicators established in this case only partly related to the results and mainly focused on the processes, obstacles and possibilities encountered during the project and that highlighted one or other innovative characteristic. The reports drafted at the end of the second phase of the ENSI project gave as quality indicators elements such as "*the awareness of complexity*" (Elliott, 1995), "*the emerging of dynamic qualities among teachers*" (Mayer, 1995), "*the importance given to the question of values and controversial issues*" (Elliott, 1995), "*the capacity to recognise and handle uncertainty*" (Mayer, 1995) and the establishing of "*dynamic networks*" (Posch, 1995).

In Linz, in 1998, the ENSI network continued to reflect on the need and limits of evaluation in an EE oriented to sustainability. Studies of a comparative and collaborative kind, such as the ones carried out by ENSI, require a definition of the criteria used for evaluation. The data collected suggested that:

1. "*Ensi activities were valued for a range and variety of effects which were often very context-specific*" (Elliott, 1998, p.7): **quality criteria cannot be defined regardless of the context.**
2. Different people perceive different effects from the same activity, following their

different value perspectives. Headmasters, teachers, parents and students valued different aspects of EE activities: **quality criteria cannot be defined regardless of the stakeholders.**

3. The mixture of criteria and indicators proposed in the evaluation experiences of various countries suggests that two quite contradictory logics of EE and of evaluation are used.
4. A possible useful distinction for future evaluation research can be a distinction between 'general aims and principles' of an EE programme, 'criteria' that specify these aims, and 'indicators' describing what can be concretely observed in different contexts. Only some of these 'indicators' or 'clues' can be pre-specified while many of them are so context-bound that they have to be discovered in the course of the evaluation process.

In the final conclusions some general issues are raised concerning the general characteristics of an evaluation consistent with the broad aims of the ENSI projects and with a socio-critical evaluation:

1. Evaluation in EE must be open and sensitive to a range of evaluation perspectives that can vary from one context to another, and cannot be generalised or easily translated from one perspective to another.
2. This evaluation might serve the joint purpose of quality development and quality assurance, even if the latter is very challenging since *"we do not as yet know enough about the processes and conditions needed to do them well"* (Elliott, 1998, p. 35).
3. This kind of evaluation can make a significant contribution to enhancing the quality of EE within the education system as a whole.

The final recommendation for the ENSI network was:

The ENSI network needs to undertake a systematic review of national documentation concerning the evaluation of EE initiatives in schools and in the light of it develop and test an evaluation model aimed at enhancing the quality of EE in schools, as this is defined by criteria implicit in ... the socio-ecological approach to environmental education. (Elliott, 1998, p. 36)

5. Quality criteria in a socio-critical paradigm

Quality criteria thus seem to be a useful strategy for evaluating EE programmes, initiatives and projects, but, as we saw in the previous sections, there are conditions

that must be borne in mind and respected in order to be consistent with the socio-critical paradigm (Mayer, 2000):

- A quality criteria system must be the fruit of comparison and debate among all those involved in the operation.
- The definition of a reference model, the identification of areas of activity and evaluation, and the construction of criteria are all elements of a common active reflection; identification of observable indicators, clues or descriptors is specific of negotiation concerning every school, every project and evaluation team in order to account for the characteristics and specifics of each context.
- Therefore, no standards can be established but only 'thresholds' within each area that guarantee the minimum necessary to talk in terms of environmental education and quality.
- In order to avoid self-referencing and to bring out strengths and weaknesses, evaluation via a quality criteria system must provide for an external evaluation team, possibly a team of 'peers', that guarantees a 'triangulation' of different viewpoints.

A System of Quality Indicators of this type is thus an instrument which summarises and in some way specifies an *environmental education philosophy*. In order for it to be acknowledged by all concerned, i.e. to really be a frame of reference and a binding element of a programme or project, it must be jointly constructed and accepted by all those participating to the project.

The following table (next page) shows the features that a system of quality indicators (or criteria, as we saw, the actual term is not really important) has within the positivist paradigm and those that a system of quality criteria should have to be consistent with the socio-critical paradigm. We have not tried to define the characteristics of quality criteria in an 'interpretative paradigm', because the paradigm in itself refuse the idea of common defined criteria, even if results of a negotiation.

This comparative study on quality criteria for the eco-schools is inspired by these characteristics and aims not only to analyse the various dimensions proposed for the development of an 'eco-school', but also the implicit and explicit criteria as well as the procedures used for their evaluation. Quality criteria, indeed, are often implicit and this fact becomes evident when the context of the evaluation is a comparative intercultural one: strength and weaknesses of School Development and of EE processes are, in fact, cultural and context dependent and often becomes 'transparent' and invisible to the

	Quality indicators (<i>criteria</i>) in a positivistic paradigm	Quality criteria (<i>indicators</i>) in a socio-critical paradigm
Reference context	The specified frame of reference is considered to be objective and valid for everyone. Its inspiring values are generally not specified.	The frame of reference is specified together with its inspiring values; awareness of the existence of other points of view is evident.
Characteristics of indicators/criteria	The indicators are either quantitative data or observable phenomena that are operationally defined.	The criteria are general descriptions of characteristics explicitly derived from reference values. An indication of observable facts consistent with the criteria is only exemplificative.
Procedures for their definition	The indicators are established via essentially top-down procedures.	The criteria are defined via both top-down and bottom-up procedures, and require stakeholder participation.
Procedures for their ascertainment	Once the indicators are established, they are ascertained through sector experts. No negotiation procedures are envisaged.	Once the criteria are negotiated and agreed, the stakeholders turn them into 'observable' or 'documentable' indicators. Evaluation is still both internal, by the stakeholders, and also external. The external evaluator is often a peer group member.
Evaluation report	The results and interpretations of the evaluation via indicators are established by the group responsible for the evaluation.	The results and interpretations of the evaluation via criteria are agreed between the internal and external group of evaluation.
Expected results	Classification and selection of initiatives, programmes or schools, in line with the established indicators. The possibility of benchmarking between the various initiatives	Stakeholders' awareness of the quality achieved with reference to the starting values. Orientation with respect to the changes still necessary. Exchange and comparison between different experiences.

eyes of the local stakeholders. An international context allow to recognize what quality features are really common to different contexts and what are locally dependent, and offer the possibility to individuate general quality criteria orienting the school development toward quality enhancement leaving space to cultural and local differences.

In this vision, our main questions in conducting the comparative analysis of national reports have been:

- What conception of quality for eco-schools programme emerge from the national reports? Is it possible to define, at an international level, a common meaning for the quality of an ecoschool development process?
- It is possible to define quality, and the process of evaluation, in a way consistent with the vision of EE and of evaluation we have elaborated?
- It is possible to define quality criteria that reflect this quality and orient future school development in the direction of a sustainable development?

In the following chapters we will try to go through these questions and propose our lecture of the national reports.

3. The State of the Art in Environmental Education - An International Review

By Attila Varga, National Institute for Public Education, Hungary

1. Introduction

In order to understand the extent, role and potential of eco-school developments in different countries it is necessary to have a general picture about the international state of the art in Environmental Education (hereafter EE). To draw up this picture, two kinds of data have been used. The information available in the introductory chapters from the country reports on the national initiatives in the field of EE, was used as qualitative data. Alongside this, a questionnaire was used to collect some more comparable and quantitative data. Thus, this review is based on data collected from 28 countries, as follows:

Eco-school quality criteria country reports:

Australia, Austria, Belgium (Flanders), Denmark, Finland, Germany, Greece, Hungary, Italy, Korea, Norway, Sweden,

Questionnaire about the state of art in EE:

Australia, Albania, Bosnia and Herzegovina, Belgium (Flanders), Bulgaria, Croatia, Denmark, England, Estonia, Finland, Hungary, Kosovo, Lithuania, Macedonia, the Netherlands, Norway, Poland, Romania, Serbia and Montenegro, Slovakia, Slovenia, Sweden, Turkey,

The countries studied were reached with the help of two international institutions: the SEED¹ network and the member countries of the Regional Environmental Centre for Central and Eastern Europe (REC)². The presentation of the data collected follows the structure of the questionnaire³.

¹ SEED is a Comenius 3 network in the framework of the Socrates programme of the European Commission, which promotes Environmental Education as a driving force for School Development.

² The Regional Environmental Centre for Central and Eastern Europe (REC) is a non-partisan, non-advocacy, not-for-profit international organisation with a mission to assist in solving environmental problems in Central and Eastern Europe (CEE). Thank to Eva Csobod and the REC Country Office Hungary for their help in reaching REC countries.

³ See the questionnaire in the I. Attachment

2. Governmental background

The first question dealt with the governmental background for EE. Just less than half of the respondent countries reported that they had a common document (or concept, or programme) on EE from the Ministry of Education and the Ministry of the Environment. In one fourth of the countries the document comes only from the Ministry of Education, and in another fifth of the countries the document comes only from the Ministry of the Environment. In more than ten percent there is no governmental document or programme available (table 1)

Table 1⁴ :

<i>In your country (or region), have the Ministry of Education and the Ministry of the Environment agreed upon a common document (or concept, or programme) for Environmental Education hereafter: EE, or for Education for Sustainable Development hereafter EfSD?</i>	Count	%
Yes	11	42%
The document (or programme) comes only from the Ministry of Education	6	24%
The document (or programme) comes only from the Ministry of the Environment	5	20%
No official documents are available	3	12%
Countries answered:	25	100%
No answer	3	-

It is also worth mentioning that there are a few examples of involvement of other ministries e.g. "The Ministry of National Defence, Ministry of Administration and Self-government for Civil Defence Corps, Ministerial Council on Education, Employment, Training and Youth Affairs". These examples indicate that reaching sustainability implies long-term thinking and initiatives that involve governmental structures in EE as well as the obvious ones (educational and environmental) because such partnerships can help in ensuring that the impact of EE will continue after the end of compulsory education.

⁴ All tables summarize the data available from the applied questionnaires and from Eco-school quality criteria reports

3. School Development and EE

The second question, in a very similar way to the first one, investigated school development as the other main target area of SEED. More than half of the respondents answered that definitions and/or documents are available on school development in their countries. One third of them mentioned concrete school development programmes while one tenth said that school development is not an issue in the educational efforts of their countries (table 2).

Table 2.

<i>In your country (or region), do you have any common definition, document or programme about school development?</i>	Count	%
Not at all	3	12%
There are definitions and/or documents	13	55%
There is at least one programme for school development	8	33%
Countries answered:	24	100%
No answer	4	-

The effectiveness of EE is greatly enhanced if students receive it as a result of a continuous school development process. School development can be considered as a systematic planning and decision-making process in order to optimise the work of the school as an organisational entity. Targeting school development should mean targeting every part of the school life and even linking these parts and the structure of the school. In spite of the need for a holistic approach almost each reported school development programme have focused on only one or some aspects of the whole process, e.g. *“Changes in the organisation of the school day, changing in the learning style”* (Norway).

The majority of respondents reported that their school development programmes had some (not all) elements of EE. No country stated that EE was totally missing from its school development programmes. The minority of respondent countries have school development programmes with an EE focus, and these programmes deal with the whole school development: e.g. *“The criteria (the aims of the programme) cover all aspects of school life, i.e., both teaching and the school as a workplace and therefore seen as a tool for school development”*(Sweden).

These programmes indicate the potential of EE to function as an integrative factor not just in the field of teaching and learning but also in the entire school life. EE could in this way become a driving force for school development. The existing theoretical and pedagogical background of EE could serve as a basis in the process of integrating fragmented or partial school development concepts and programmes.

Table 3.

<i>If there is a programme about school development does it have any elements of EE or EfSD?</i>	Count	%
Not at all	0	0%
To some extent	13	81%
There is at least one school development programme with EE/EfSD focus.	3	19%
Countries answered:	16	100%
No answer	12	-

4. EE in the national curricula

The third question in the questionnaire was about the situation of EE in the national curricula. The first part of the question dealt with primary and lower secondary education and the second part with secondary education. The results of these two parts will be presented together, as the results were very similar. (table 4).

No country reported that EE was absent from its educational system. Half of the countries reported that EE was implicit in their national curricula as part of different subjects i.e., there is not a separate chapter dealing with EE and possibly EE is not mentioned at all in the curricula, but the aims of EE could be identified therein. Informal integration of EE is more likely to happen in natural sciences and geography than social and physical education. In secondary education, subjects are highlighted slightly more as the ‘hosts’ of EE, but it seems that informal integration of EE in the curricula alone does not help to integrate crucial social and health aspects of EE. It should be mentioned here that there are very effective developments for integrating the social and health dimension of EE as part of a subject. These developments usually mean the introduction of a new subject or subjects like *“Citizenship”* (England) or *“Health”* (Flanders).

Table 4.

<i>Is EE present in the national curriculum in your country</i>	<i>Primary and lower secondary education</i>		<i>Secondary education</i>	
	Count	%	Count	%
	Not at all	0	0 %	0
Yes, as a subject	4	14%	6	21%
Yes, as a cross-curricular theme	11	39%	11	39%
Yes, informally as part of one or more of the following subjects:	13	47%	14	50%
Natural science	11	39%	13	47%
Social science	7	25%	9	33%
Geography	8	28%	11	39%
Physical education	3	11%	4	14%
Others Science curricula	8	28%	7	32%
Countries answered:	28	100% ⁵	28	100%
No answer	0	-	0	-

The majority of countries also use other ways rather than informal integration to achieve the goals of EE. There are basically two ways to integrate EE into curricula: to establish a new subject or define EE as a cross-curricular issue, an overall aim of education. Both solutions have both advantages and disadvantages.

Separate subjects mean that a specific and solid timeframe, a detailed work plan, and personal responsibilities are easy to identify. One-seventh of the countries use this opportunity at the primary level and one-sixth at secondary level.

EE as a cross-curricular issue implies an opportunity to influence the total time spent in the school, to be present in all school activities and to involve the whole staff of the school. Approximately half of the countries studied favour this approach to achieve the goals of EE. A blend of separate and cross curricular EE could balance the pros and the cons. Ten percent of the countries embrace both options in their educational systems. Another approach reported is to involve EE formally in many or all subjects. This has the effect of EE becoming a cross curricular issue without the inherent disadvantages.

5. EE School activities

The fourth question dealt with methodological aspects of EE and focused on the situation of three widely used methods of EE – namely: project work, outdoor activities and team teaching. The results show that the formal support of these three methods is very different (table 5).

Table 5.

<i>Which of the following school activities are recognised and/or suggested in the National Curriculum?</i>	<i>Team teaching</i>		<i>Outdoor activities</i>		<i>Project work</i>	
	Count	%	Count	%	Count	%
	Not at all	13	54%	0	0%	7
In primary education only	0	0%	2	8%	1	4%
In secondary education only	1	4%	2	8%	2	8%
In both	10	42%	20	84%	14	59%
Countries answered:	24	100%	24	100%	24	100%
No answer	4	-	4	-	4	-

Outdoor activities are featured in the national curricula of all respondent countries. In many cases this is for both primary and secondary education, rather than either for primary or for secondary. Less than half of respondent countries however reported team teaching as a method of teaching either for primary or secondary level. More than the half of the respondent countries reported that team teaching was not a recommended teaching method in their national curricula. Project work is somewhere in between; it is suggested that in more than two thirds of the countries it features either in primary or in secondary level, but often in both levels.

One of the main efforts of EE is to build a bridge between everyday life and school. That is undoubtedly why project work, outdoor activities and team work are recognised as suggested methods for EE by many countries. Teaching and learning leaves the classroom and the classes. Outdoor activities turn the scenes of everyday life into scenes of learning, projects make the process of learning more similar to the processes of everyday life, team work brings the soul of co-operation into the life of schools, which is vital for a society to be sustainable.

Outdoor activities are the most apparent from the above-mentioned methods. From the respondent countries four fifths of the countries reported that outdoor activities were recognised or suggested both in their primary and secondary education. The close relationship between outdoor education and EE is often mentioned in the data e.g. there is a subject called „*Outdoor Education and Environmental Studies*,“ (Victoria, Australia). Another reports states: „*in the process of improving the outdoor environment of a school, students and teachers as well as parents, members of the local community and alumni all participate, and the social ties of the locality are enhanced accordingly*“ (Korea).

Project work was reported as recognised or present in both primary and secondary education by half of the countries. This is understandable, taking into account that project work is inconceivable without extra organizational work of teachers. If project work is recognised or suggested, the conditions of this extra work should be ensured. Thus introducing project work into education needs extra resources.

The need for extra resources is even higher in the case of teamwork: traditionally one teacher is responsible for one classroom activity from planning to assessing performance. If there is teamwork at any stage of the process it could mean that at least two people have to be paid for an activity done only by one person before. Naturally there are several methods of renewing the division of tasks and responsibility in schools for using the advantages of teamwork and minimize extra costs, but these methods usually need significant changes in the working methods of the school. So introducing teamwork into the school life requires serious extra financing, or the reorganization of school life. This could be the reason behind the fact that just one third of the countries, - mainly rich countries - reported team-work as recognised or suggested both in primary and secondary education.

The country reports usually do not mention team teaching as an existing practice at all. Team teaching appears only once as part of “good practice” (Denmark). In all other cases where team teaching is mentioned the practice is still a step backward. The teamwork of teachers is limited to outside the classrooms: teachers who teach the same class have meetings and discussions before and/or after teaching, but teaching itself still remain an individual effort.

The reports emphasised that the aims of EE could not be reached with teachers working totally individually. The first step to creating common approaches by teachers is to create teacher teams first, purely as a forum for exchanging experiences and co-

ordinating individual educational efforts. This kind of team building is an ongoing process in many investigated countries. On the basis of these teams real team-teaching could emerge.

Besides outdoor activities, project and team work, respondents highlighted the following school activities, useful for the diffusion/dissemination of EE: international programmes, local actions, and co-operation with the local community. The educational dimension of the “*Think globally, act locally*” slogan could be achieved through these activities.

International projects are very useful if the aim is to demonstrate the global aspects of environmental issues. Working with international partners is one of the most effective ways to demonstrate to pupils that environmental problems are universal and interdependent.

Local actions and co-operation on the other hand are perhaps the most effective way to demonstrate pupils’ own potential and responsibility regarding their environment.

6. Background to eco-school initiatives

The role of the fifth question was to examine the background to the eco-school initiatives of the different countries

In half of the countries the eco-school initiatives are based on both Ministry of Education and NGO programmes. One fifth of the countries have official programmes from the Ministry of Education and one quarter of the countries have programmes led by NGOs (see table 6).

Table 6.

<i>The Eco-school initiatives in your country, if any, are based on:</i>	Count	%
Non official Ministry of Education programme or project	5	20%
NGO offers programmes	7	27%
both Ministry of Education and NGO programmes	13	50%
they don't exist	6	23%
Countries answered:	26	100 ⁶
No answer	2	-

Virtually independent of whether NGOs or governmental institutions offer eco-school programmes, approximately half of the countries reported very tight co-operation and common programmes in the field of EE and the other half reported that the NGO sector worked virtually independently from governmental initiatives.

Two models of co-operation between the Governmental and NGO sector could be described. In the first model co-operation between governments and NGOs means not only simple moral and financial support from governments to NGOs but joint initiatives and co-ordinated management in the field of EE. The co-operation is expressed in one report: *„the initiative is organised by the NGO on behalf of the government“* (Austria). In the second model NGOs are more independent. Governmental support (both moral and financial) exists in this model too, but there are no joint actions or management by the two sectors.

As the cultural context and the historical background of individual countries determine the role of NGOs and governmental institutions it is not possible to compare the two models. Even within a model countries are different. The purpose of drawing up these two models is simply to illustrate that NGO – government co-operation can be successful in sometimes totally different ways.

Conclusions

This brief overview of the state of the art in environmental education aims to create a framework for discussion about eco-school developments. The circumstances of eco-school developments are changing very quickly, and are different in each country⁷. Despite this huge diversity one tendency is obvious from the data. If we would like to mainstream the values of EE or ESD a strong central –governmental or NGO – support is needed. Eco-school developments could really have an effect on educational systems if there is a solid legal and institutional background supporting them. To transform a traditional school into eco-school should not be a purely bottom up process in most schools.

That is why the success of the UN Decade on Education for Sustainable Development (DESD) is essential for future eco-school development, as DESD targets governments and provides help in developing supportive frameworks for ESD developments such as eco-schools. On the other hand, the variety of eco-school programmes appearing in the comparative study shows that governments should also work with resources and experiences from the local cultural and pedagogical contexts.

⁷ That is why the last two questions of the questionnaire were not discussed at all, as almost all respondents expressed their doubts about what was an EE or an ESD Master (or PhD) course and what was not.

4. Trends and divergences in the national initiatives - A Comparative Analysis

1. Introduction

This chapter is focused on a comparative study on the contribution of Environmental Education and Education for Sustainability to school development. The analysis will follow the structure proposed by the Guidelines that the authors of the reports were asked to follow as closely as possible.

All partner and member countries in the SEED Network were requested to write a report on national initiatives in this field. The national co-ordinators were asked to choose among the initiatives existing in the country for Eco-school-like development processes, the more interesting, according to their

- a) diffusion in the country;
- b) relevance from the point of view of the ENSI approach to environmental education;
- c) relevance from the point of view of the pedagogical constructive approach
- d) relevance from the point of view of the participation in the process of diverse stakeholders.

For each type of initiative chosen, it was suggested that the report should describe:

1. the **general characteristics** (*if it is institutional or not; distribution, relevance according the three points of view listed*);
2. the **explicit set of criteria** that relate to the initiative, i.e. the expectations the school should fulfil (*if class or school initiative; integration into the pedagogical school plan, co-operation with the local community, active involvement of parents, teacher teamwork; ...*);
3. the **implicit set of criteria** that govern the initiative, i. e. (*aims and general values proposed; importance given to one set of explicit criteria compared to others - e.g. 20 criteria for the care of physical environment, few or no criteria for the planning of the school curriculum -; the way explicit criteria are realised in practice...*);
4. the **kind of development** process the initiative proposes (*number and type of steps; role of self-evaluation; role of the community; research based processes; presence of external evaluation...*);
5. the **kind of support** offered to students, teachers and principals to enter and to participate in the process of school development;

6. the **main obstacles** encountered by the initiative (*opposition or lack of interest from the school authorities, difficulties in involving the whole teaching staff; lack of interest from the schools; unforeseen hidden barriers...*).

It was pointed out that all these issues should be extracted from official documents or from interviews with actors in the programme. For every chosen initiative, the personal opinion about its relevance and effectiveness according to the criteria was requested from the author of the report.

The following is an analysis on trends and divergences emerging from these reports.

2. General characteristics

Most of the national initiatives described are governmental based, rather than NGO-led. This means that official bodies like ministries or municipal authorities launch the majority of EE projects. In some cases the Ministry of Education in co-operation with the Ministry of Environment support the programmes jointly, while the supportive official body usually is the Ministry of Education. In one case, however, the national initiative is a joint programme of no less than four ministries: Ministry of Education, Ministry of Environmental Protection and Water, Ministry of Children Youth and Sport, and Ministry of Family and Social Affairs.

The explicitly mentioned numbers of schools participating in the various national programmes differ greatly. However, the success of an EE programme cannot at first be measured on the numbers of participating schools. EE development programmes which try out new ways or perspectives relating to environmental issues can be successful despite relative few numbers of schools while an EE programme with more emphasis on implementation can be evaluated on the numbers of schools. Taken as a whole, there seems to be a tendency that more practical and hands-on oriented initiatives like Schoolyard programmes or programmes related to monitoring the environment attract a large number of schools. For instance, in Australia, 3000 groups of students are reported to monitor waterways in their catchment areas.

Several countries take part in the international EE programme of the Foundation for Environmental Education (FEE). In some countries this is a clearly NGO based programme while in other countries, it is run by a NGO organisation but has been officially approved by national ministries. A key feature of this programme is that the

schools are supposed to work with predetermined issues/themes following a certain line. Other non-FEE initiatives are, however, more horizontal in their approach. The Hungarian report stress that: *“The initial driving force of the network seems to have been the Centre for Program and Curriculum Development. Presently, the Centre is still responsible for co-ordination in the network but gradually the initiatives are shifting more and more from top-down to horizontal ones, starting from the participating schools.* In the Danish report it is emphasised in correspondence hereto that the MUVIN programme *“was school-based with all decisions concerning the teaching delegated to the participating teachers, and it was focussed by a common emphasis on conflicting interests related to people’s use of natural resources, combined with some guiding criteria”.*

Taken as a whole, thus, most national initiatives do not give schools full ownership over the projects, i.e. giving them freedom to choose themselves what they want to work with. Most often the theme is more or less given to the schools beforehand. From the national reports it is not possible, however, to derive what influence this may have on the students’ and teachers’ engagement and learning outcome from working with it.

3. Explicit set of criteria

What types of explicitly mentioned criteria are related to the EE programmes described in the national reports? “Explicit criteria” in this context means the expectations which schools are obliged to fulfil if they wish to participate in an EE programme. They are often formulated in official materials or documents. Analysing the presented explicit set of criteria in the report, they can be divided into four general groups or levels which each covers a number of subgroups.

Education and pedagogy – criteria related to:

- a) learning outcomes
- b) teaching and learning approaches
- c) focus on the environment per se or environmental problems

Internal structural relations – criteria related to:

- a) participation
- b) whole school approaches
- c) quality enhancement

External structural relations – criteria related to:

- a) co-operation with the local community
- b) establishment of co-operation with other schools, institutions etc.

The physical and technical environment – criteria related to:

- a) actions oriented to improve the physical environment or reduce consumption of energy, trash management, recycling, etc

This chapter does not intend to “judge” or compare in a normative way the criteria put forward by the various programmes. The purpose is rather to give an overall picture of the different criteria that are considered to be important in the current EE programmes in SEED partner and member countries. In most of the reports it is a combination of a number of them.

3.1 Education and pedagogy

Learning outcome

Some of the criteria mentioned are related to the programmes’ learning outcomes. One kind of learning outcome in this field is related to knowledge and understanding. In the reports it is, however, rarely specified what specific knowledge areas are considered to be central. This can, of course, be due to the abstract level of the criteria. However, in a few reports certain knowledge areas are proposed explicitly. For instance, in the Austrian, Italian and Danish reports it is emphasised that controversial issues, conflictual issues or conflicting interests constitute knowledge areas considered to be essential, rather than more systematic structured subject-oriented knowledge. This indicates that knowledge areas that in these programmes are not only natural science oriented but also rather (critically) socio-economic oriented.

Most often the expected learning outcomes are formulated in terms of competencies, virtues and/or skills – intellectual, practical, or transferable. It can be more general competencies like dynamic qualities involving promoting a critical, reflective attitude (Austria and Italy), action competence (Denmark), democratic virtues (Hungary) and empowerment (Australia). In the Flemish report the notion of communication is stressed in connection to various bodies (environmental associations and companies) Finally, some reports stress that criteria related to love and care for nature are important. Thus, in the Greek report it is put forward that the school is expected to

achieve: *“the reinforcement of its image as a school that respects and loves the natural environment”*

Teaching and learning approaches

Most of the reports express criteria that are related to teaching and learning approaches – including the teaching atmosphere - which are considered to be central.

An often-cited criterion is that the teaching must be cross-curricular: The Norwegian report emphasises that *“Cross curricular approaches are involved, specifically including socio-economic aspects of environmental issues”*. From the Danish version of the Eco-school programme it appears that this approach is a must due to the complex nature of environmental problems: *“...co-operation between the different school subjects is necessary when working with the project. Cross curricular work is encouraged by the practical projects and also by the complex nature of problems related to wise use of resources”*.

Different ways of organising and structuring teaching sequences are in many reports subjects for criteria. This includes:

- project work
- different kinds of student activities
- nature experiences.

The many nature-oriented programmes in connection to camps and forest schools emphasise in particular the last two criteria.

In some of the initiatives explicit criteria are mentioned which focus on identifying obstacles and barriers in “traditional” EE. For instance, in the Korean report, an explicit criterion is that the programme must strive to identify key challenges facing formal environmental education and come up with solutions.

Focus on the environment per se or environmental problems

As indicated previously, some programmes stress – and therefore relate criteria to - the focus for environmental education as environmental problems including controversial issues. The focus for an environmental education project is thus not predetermined other than it should include controversies related to humans, use of the environment. This was highlighted strongly in the Italian, Austrian and the Danish report. In the latter report it is mentioned in connection to the MUVIN programme: *“In the understanding*

of issues in the community the focus should be on conflicting interests relating to the use of natural resources.”

In other reports focus for the EE projects is more or less given beforehand. For instance, in the Flemish report it appears that the school can make a choice between one or more of the following themes: waste management, mobility, water, materials, greening of school environment, energy, kitchen and canteen. The same is the case in several of the FEE programmes.

3.2 Internal structural relations

Participation

Many reports stress the notion of participation or concepts related to it: co-operation, joint decisions, student control, and negotiation. In the Flemish report, for instance, this is one of the key criteria. Moreover, participation is seen here from the perspective of progression: the schools are working with participation at different levels, gradually increasing the degree of students’ participation. On the first level *“Pupils are at least involved in executing environmentally friendly activities”*, on the next level, they *“must also be involved in planning the activities”* and on the third level they work on *“a balanced representation of pupils from all forms, teachers, and other members of the school community”*. Other reports mention other aspects of participation. For instance, the Australian report underlines that *“students will have some control in determining the nature and content of their learning experiences”* while the Swedish report stresses that *“an action programme for promotion of sustainable development is drafted jointly by the school management, teachers, other staff and children/pupils”*. In the same line the Norwegian report formulates that *“Teachers must ensure adequate opportunities for student participation”*

Whole-school approach

In line with the SEED programme, many of the reports attach importance to criteria which are directed to the whole-school approach in its various guises. For instance, in the Italian ENSI programme explicit criteria are made in this connection: *“The key role assigned to the school as a whole and not just to one or more particularly active classes, as with previous studies”*. In the Greek report the following reasons are given for the inclusion of these criteria: *“The involvement of the entire school in the programme. Eco-Schools are not only implemented by a class or grade but require the participation of the entire school community. This is because the actions*

proposed have an impact on the entire school unit. For example, the reduction of energy or water consumption from only one grade cannot have tangible and measurable results. All grades should adopt corresponding behaviour and the proposed interventions should be respected by all in order to finally change the way energy and water is used in the school's daily routine".

In some of the reports criteria focus on operationalising the notion of the "whole-school approach". For instance in the Norwegian and Catalanian report criteria are mentioned that integrate EE perspectives and activities in schools' pedagogical plans and policy documents. In other reports, criteria are put forward stressing the establishment of environment councils or committees – for instance, made up of teaching staff, non-teaching staff, families and pupils, with the purpose of co-ordinating and promoting the EE programme (Catalonian).

Quality enhancement

In some of the programmes criteria are put forward which support a kind of internal/external quality assurance in relation to the basic pedagogical ideas behind the programmes. Thus, the Italian report mentions that in relation to the ENSI programme the use of action research methodologies in Eco-schools and Eco-centres serves as an instrument for investigating both the transformation process in order to become an Eco-school and the process for supporting this transformation as an external partner.

The same action research methodology approach is underlined in the Danish report. In The Green Touch programme several criteria were explicitly put forward - all aiming at developing, exchanging and making visible new pedagogical knowledge and experience in each school and between schools within the field of EE. This was done in particular by the resource persons who acted as critical friends/ supervisors for colleagues in their own school and other schools.

In the Norwegian EE programme, research institutes supervised the students' collection and handling of empirical data on, for instance, mapping of plant species in the local environment. An explicit criterion mentions that student activities involve making accurate scientific observations and measurements. For that reason schools received detailed descriptions from universities on methods for the investigations and criteria for making reports on these issues.

3.3 External structural relations

Co-operation with the local community

The students' co-operation with the local community is emphasised in many national reports, albeit defined and implemented differently. This is indicated by the following abstract from the Greek report: *"This criterion forms the chief condition for the programme to commence. Specifically, for a school to start applying the programme, a collaboration protocol should be signed between the school's principal and the municipality. This step is necessary, as the interventions that take place in the schools require at least the financial aid of the municipality. Apart from ensuring the municipality's support, the programme aims at the general involvement of the local community and the development of joint initiatives and actions which exceed the school's boundaries and have an impact on the broader neighbourhood".* In the Norwegian EEN programme a special emphasis is placed on involving the local community. The schools receive in this respect guidance about how to select relevant local partners including parents, local management, NGOs etc.

Analysing the reports more closely, the co-operation with the local community can take place in different ways:

- the community supports the EE projects financially
- students use the local community as a source for collecting information
- persons from the local community come into schools and act as resource persons
- students communicate results from investigations etc. to the local community
- students use the local community as an action arena – often in close dialogue with key persons or organisations from the community

Very often the rationale behind the co-operation is to make the school better known in the local area. Pupils influence their parents and also debate with people living in their local area in order to encourage them to follow the good examples presented by the students. For instance, from the Australian report it appears that schools are to be role models demonstrating sustainable practices and are to contribute to educating and influencing others in the community to adopt their own individual sustainable practices.

Establishment of co-operation with other schools, research institutions, EE centres

While the former mentioned criteria were related to co-operation between school and the local environment and community, some national reports emphasise criteria that imply co-operation on another level involving other types of institutions. In many of

them these co-operation relationships functioned as a central and fundamental part of the programme.

Norway has emphasised this and also the Greek report put forward criteria which emphasise that schools should strive for *“participating in initiatives aimed at strengthening relations of co-operation with other schools, organisations, institutions or associations at a local, national and international level”*.

Another example of the significance of creating co-operation relationships is found in the Italian report. The Italian ENSI programme stresses the importance of creating a dual network

- A network of schools already active in environmental education, that could focus their reflection on the necessary actions to develop the quality of their school in the direction of eco-sustainability.
- A ‘partner’ network composed of centres and associations in the same geographical area as the schools that could support the schools in their research work while at the same time reflecting on the roles and skills necessary to be ‘partners’.

In this programme, the potential for development and innovation is closely connected to the establishment of this network.

3.4 The physical and technical environment – criteria related to: Actions oriented to improve the physical environment or to reduce consumption of energy, trash management, recycling, etc.

In most of the reports criteria connected to the action perspective are prominent. The expression ‘action-oriented EE’ means that the students as part of the learning process take actions alone or together with their teachers to solve or counteract the environmental problems/issues they are working with.

This action perspective is in several programmes justified by being a natural and necessary practical alternative or supplement to theoretical studies and that the school in this way participates in solving environmental problems. For instance, the Greek report claims: *“The programme cannot be covered with a theoretical study of the thematic units of energy, water, trash and sustainable school. Its successful application presupposes the forming of proposals and the undertaking of specific action which attempts to solve the school’s problems in relation to the previous*

themes. Thus, certain action must be taken so as to reduce energy and water consumption in the schools and for the better management of trash (reduction, reuse, recycling)”.

The Austrian report underlines criteria connected to what they term the technical/economic level. These criteria are related to the schools’ ecologically sound and economic use of resources. This includes measures to save resources, to reduce waste, to design indoor and outdoor space in an aesthetic and ecologically viable way, and to promote healthy living. In the same way, the Swedish report put an emphasis on criteria that are connected to improving the physical environment. To this area they describe 9 sub-areas involving a total of 45 criteria.

4. Implicit criteria

The previous mentioned types of criteria – explicit criteria – are the ones which are explicitly formulated in programme documents, official statements etc. But often behind or in the operationalising of these explicit mentioned criteria there are some implicit criteria that actually govern the initiative. As mentioned in the guidelines given to the SEED member and partner countries prior to writing the reports they can be aims and general values proposed; importance given to one set of explicit criteria compared to others - e.g. 20 criteria for the care of physical environment, and few or no criteria for the planning of the school curriculum -, or the way explicit criteria are realised in practice. They can also be the explicit criteria connected to structural, educational and content oriented matters.

An analysis of the interpretation of implicit criteria connected to the national initiatives reveals two dimensions:

1. Implicit criteria enriching or giving perspective to the programme
2. Implicit criteria narrowing or obstructing the perspective of the programme

Some examples on both dimensions can be given:

Implicit criteria enriching or giving perspective to the programme

An implicit set of criteria – functioning as overall values and ideas behind a programme - can support and enrich the programme. Several reports indicate this. For instance, the Greek report argues that the Eco-School programme attach importance to the concept

of 'citizen'. It is stated that the forming of an 'environmentally responsible citizen' constitutes the ultimate aim of the Greek programme. In the report, the definition of an environmentally responsible citizen is put forward as a person *"...who does not only participate in the financial and social life of the city or area s/he lives in but someone who is also an active member of the 'political' life and is interested in issues concerning the planet, democracy, peace and sustainability"*. Seen in this perspective, this implicit criterion gives value and quality to the given explicit criteria (related to involvement of the entire school and the local community, the co-operation between teacher and students, and taking action).

A similar and corresponding implicit criterion is stated in the Danish report as it is put forward that behind the MUVIN programme is a general and philosophical understanding that human beings are participants rather than spectators, stressing the need to involve and qualify the future generation for a democratic society through environmental education.

In the Flemish report it is argued that at the start of the national Green School project, strong emphasis was put on the instrumental character of environmental education - much more materials to support EE in schools were devoted to waste management than to other themes. As a consequence of the introduction of the cross-curricular themes in the Flemish compulsory education, aspects such as participation, decision-making, educational gains etc. became more important and even as important as environmental gains for the LOGO award. Behind the Flemish ideas of cross-curricular thinking lie thus some implicit criteria enriching what environmental education is aiming at.

In the Italian Legambiente programme an implicit criterion is related to the notion of "attention to complexity". By this, it is meant that no future (developmental) paths are predefined or even closed and that importance must be given to diversities of viewpoints and conflictuality. This perspective corresponds with the Danish notion on conflicting interests in the use of natural resources and that knowledge in relation to environmental issues is complex and extensive. It is thus argued that environmental problems must be seen as more than just their "effects", for instance, the degradation of the natural environment. Also, the causes of environmental problems and alternatives and visions for a sustainable future and possible actions must be considered to form important components of "environmental education knowledge".

Implicit criteria narrowing or obstructing the perspective of the programme

In other cases, implicit criteria actually dominating the programme can be an obstructing or narrowing factor in relation to the value of the programme. In the Greek report it is highlighted that the national thematic network "The School Yard" stressed the achievement of particular interventions and visible improvements in the school playgrounds (school yard) and that the effort to upgrade the school yard at both an aesthetic and functional level is obvious and measurable in regards to its efficiency. However, they also notice, that *"the same does not occur with the promotion of its pedagogical dimension. Despite the fact that it is especially projected, not only in the targets but also in the programme's general way of thinking, the importance of pedagogical upgrading and use of the yard area is not accompanied by precise quality criteria on this level"*. In this case, the visible outcome of the programme seemed to indicate greater importance than the learning outcome.

The Catalan report gives a similar example on how the focus in the school diagnosis (a questionnaire) which was the first step towards attaining the "Escoles Verdes de la Generalitat" distinction, can have a disadvantageous influence on values and content in the programme and thus function as an implicit criterion. In the report it is stated that: *"This questionnaire is characterised by the fact that it is composed largely of closed questions or stresses data such as the area of the playground or number of waste bins. With questions of this nature, the replies are limited to the indicators put forward, impeding the true reflection of the school's situation. Such generalisation means that a great deal more subtle information is lost"*.

The Italian report gives an example of explicit criteria related to working with action research methodology which was either not perceived as important or misunderstood – thus other, implicit, criteria in practice governed the programme. This gave, according to the author, the result that the participants did not understand the notion of "being part of research": *"for many schools, it was not clear what this meant and the negotiation process was long and complex. The presence and attitude of the partners was decisive: if the partner managed to clearly organise its work as a support for the research, accepting to support the initiatives as well but always keeping the former role as the main one, then the school's reflection on the meaning of sustainability progressed"*.

5. The programme development process

The programme development process for the FEE programmes differs only slightly in each country and is in general alike. The non-FEE programmes are, however, “looser” or more liberal in their structure`

Most often the development process for the Eco-school programmes is a step-by-step plan beginning with submitting an application to the organisation or official body that offer the programme. In some cases participation is free for the school whereas in other cases schools have to pay an annual subscription.

After joining the programme, a common feature is that the schools make a self-assessment on a specific issue (trash, energy etc.) and establish an environment committee. Some EE initiatives use questionnaires or conduct an environmental diagnosis of the school. On the background of the result of this investigation the school works out an action plan. The action plan is often closely connected to the explicit criteria assigned by the programme. Having fulfilled the action plan, the school documents the steps of development in a report and finally, applies for the award.

Many Eco-school programmes often start with a reflection phase but the topics for discussion are most often a matter for the participants to decide. For instance, in the Norwegian Value programme the school selects a theme that is appropriate for them. In the Italian ENSI network, the Austrian ECOLOG school network, the Danish MUVIN and Green Touch programme workshops are dedicated for this purpose. Another feature of some of these programmes is that the evaluation of the programme is not external (in order to get the award) but rather internal and serves to identify new challenges and objectives.

6. The kind of support

Many programmes carry out formal professional development activities: seminars, workshop or in-service teacher training programmes of several hours. In some programmes, these activities functioned as an introduction to the programme while in other programmes were an ongoing process. For instance, in the Danish MUVIN programme in-service teacher training courses in the form of study circles ran parallel with the teaching in the classes. As a part of these professional development activities, several of the initiatives are closely linked to research institutions, centres or national agencies for education. Thus, the Hungarian report mentions that the Eco-schools work

are supported by pedagogical-psychological research providing a theoretical basis of the pedagogy of sustainability.

In some programmes professional development takes place through a network where great emphasis is put on schools supporting each other by communicating experiences and achievements. For instance, building and maintaining a regional support system is a vital part of the Austrian Ecologisation programme. In this programme it is noted that: *“the development of professional competence in organising communication to disseminate innovation will become increasingly important, irrespective of the ecologisation programme”*. Some of the programmes combine professional development in a network and the use of action research methodologies. As mentioned, the Italian ENSI Network programme has set up a dual network. Also in the Danish Green Touch programme two kinds of network were established: a network comprising schools making partnerships and a network of critical friends whose tasks were to act as supervisors for colleagues at other schools.

In some programmes, local resource persons support schools in their work. For instance, local water or energy authorities have employed people to liaise and conduct training activities for students and/or teachers. Or teachers can receive help and support from local branches of WWF organisations or environmental NGOs.

Another common support is different kind of stimulating material and information available to the teachers: written material, books, leaflets, training packages. Specifically, in the FEE programme each Eco-school receives educational material comprising the thematic units of Energy, Water, Trash and Sustainable School. Environment-oriented programmes with a specific focus are often more concrete and instrumental in their support. For instance, schools participating in the Australian Waterwatch programme are provided with water testing kits and a guidelines kit. Almost all programmes include a virtual database in which all schools are able to both receive and supply data on environment related issues. Very often the database also functions as a facility for schools to use in reflective work.

7. The main obstacles encountered

Obstacles in relation to a specific programme are, of course, always context dependent – each programme has its own obstacles, “pitfalls” and problems. However, some common obstacles and barriers can be extracted from the reports.

In many reports it is argued that the main problems in relation to a fruitful completion of the programmes are related to structural or technical matters. For instance, from the Greek report it appears that EE takes a certain position on the scheduled time table: *“The fact that EE is applied voluntarily in schools and at scheduled hours other than those foreseen by the curriculum, discourages many educators from getting involved in this process”*. Another issue put forward in the Hungarian report relates to communication problems. For example, the Hungarian OECD-ENSI Network programme’s main platform for communication is its homepage and many primary schools are without access to Internet.

Insufficient financial support is also highlighted in a number of reports. This means that often – as mentioned in the Hungarian report - the management of the Hungarian Eco-school Network has to lobby for support almost on an ongoing basis. Clearly, these efforts consume much management time and prevent the schools from doing more constructive work.

Some Eco-school programmes share common obstacles relating to bureaucracy. The Catalanian report states that following their EE programme means filling in many forms and doing a great deal of writing. In this case it caused some schools to lose their motivation and abandon the programme, especially if the advisor did not succeed in motivating and supporting the teaching staff. The Swedish report shows, in the same way, that one of the most mentioned obstacles emphasised by the participating schools in their reports to the National Agency was too much documentation.

Some reports outline obstacles of another kind. Obstacles in this perspective are connected to the participants’ interpretation of the core issues in the programme. For instance, if aims in the programmes are related to developing the students democratic decision-making competencies it becomes an obstacle if teachers are pushing students towards predetermined environmentally friendly individual behaviour given by them or others – and not taking the students ideas and suggestions serious. This is indicated in the Danish report and corresponds with *“the reorientation of the role of the teacher to be less a classic informing teacher and more a supportive coach in the learning of the students”*. An equivalent to this example lies perhaps behind the following feedback from a Flemish school when they find that *“Environmental education often has a negative connotation as it is often very prescriptive (don’t do this, don’t do that ...)”*.

The Catalanian report identified that a potential obstacle is that the programmes often put an emphasis on the technical aspects – both in relation to investigating the environmental problem being dealt with, preparing and carrying out action plans and evaluating them. According to the report, the programme by so doing fails to consider an evaluation that goes beyond activity, and it does not give adequate attention to the process of self-evaluation or the reflection on what has been done. This means, the report continues, that it focuses solely on activities that have been planned, granting no importance to really ascertaining if the school is carrying out an internal change in its way of acting, teaching and thinking. The report concludes, *“When following the programme, it is all too easy to degenerate into an activism devoid of content, and for schools to join the programme for the prestige it brings, not because they truly believe in what they are doing”*. This is also an item for discussion in the Danish report. Here it is argued that if teachers want to connect an EE project to a technical environmental improvement programme, it is crucial to be fully aware that there are two different programmes with various means, aims, learning processes involved and criteria for success.

Getting the entire educational community involved in a whole-school programme is not an easy task, as stated in many reports. Giving reasons behind this, the Australian report claims that environmental education is often seen as a lower priority or soft option in the total curriculum and sometimes forgotten when mentioning major priorities. This can, of course, be part of the reason. But in many reports it is noted that EE programmes often are run by fiery souls. Approval by all the staff is seldom a condition for enrolling a programme – which in many cases means that the project may become the responsibility of a smaller group. This can cause refusal by the rest of teacher staff to participate in the programme; it can undermine their colleagues’ efforts and ultimately lead to its failure.

In relation to EE programmes seen as a whole-school approach, the Italian report noted that the main problem appears to be that of shifting from the level of personal involvement of a few teachers to then extending the idea of a sustainable school to the whole school. It is argued that this kind of process calls for a clarity of vision of what sustainability at school means without losing sight of the school’s main role as an environment in which to build knowledge and visions of the world. The Korean report emphasises in somewhat the same terms that the challenge first and foremost is to change the paradigm of the school’s teachers. In their project on creating the schoolyard, supporters of the project expect as many members of the school as possible

to participate in the process of creating the schoolyard forest from the planning phase, and the schoolyard forest creation to extend over a long time period, whereas many teachers actually prefer that the forest be created in the shortest time possible and to be led by the school administration. It is stressed in the report that this gap should be bridged, but it is difficult!

The Swedish report provides some evidence for the claim that the success of making an EE programme to a whole-school program can depend on the size of the school involved in the programme. Seminars for pre-school, school and municipal representatives have revealed that small pre-schools and schools have good prospects of succeeding in gaining support and the broad involvement of staff and children/students. This is reasonable enough, it is stated: *“the fewer people and activities involved, the easier it is to co-ordinate the project, allocate responsibility and find time to co-ordinate”*.

Finally, an interesting point is put forward in the Greek report. They argue that the negative attitude with which many school communities face the initiatives of certain educators and students are due to the fact that they want to bring changes in the school context. The diversion of the school’s programme from its normal function and the involvement of students in activities other than the traditional “subjects” of the curriculum, frequently create discord and arguments coming from educators and parents. They add that some of the promoted changes and interventions can also cause negative reaction of residents in the neighbourhood or municipality.

5. A quest for ‘scenarios’ in the eco-schools programmes – a comparative analysis

1. Introduction

The national reports collected allowed us to examine data concerning 28 ‘programmes’ or proposals for ‘eco-schools’ which involved over 3500 schools in 13 countries in the years 2003-2004. A good half of these initiatives concern programmes proposed by local, national or federal educational authorities while the other half were carried out in cooperation with NGOs or with other authorities, either international ones, like UNESCO or the GLOBE project, or national ones – above all, the Ministry of the Environment. Of these ‘proposals in cooperation’, three concern the national versions of the FEE programme, variously found all over the world, while others follow even markedly different lines. The ‘ecoschool’ phenomenon is thus fairly widespread in the world and an analysis of the various programmes and practices can allow us to pinpoint viewpoints and orientations for the future that often remain implicit in the national reports and case studies, and are at times even beyond the awareness of those drafting these documents.

This section thus aims to go over the programmes collected in an attempt to glean elements of consistency, and at times images and metaphors, that can help us to understand what are the underlying values guiding them and thus what are the future development prospects. We have called this study a ‘quest for scenarios’, with reference to the scenarios proposed by the OECD for the future development of schools (Schooling for tomorrow, 2001 and 2003). The questions we asked ourselves for this second reading of the programmes are the following:

- What images of a possible future does the described eco-school programme tend to put forward, either explicitly or implicitly? What sustainable future is the school system preparing its students for? What changes are envisaged with respect to the current society/ies and what role of the citizens?
- In the schools analysed, what is the prevailing image of teaching/learning processes? What knowledge, skills and attitudes are a priority in an eco-school programme? What methodologies are used and why?
- How do environmental education (EE) and education for sustainable development (ESD) relate to the development processes of the whole school? What scenarios for the future of schools do these proposals explicitly or implicitly refer to? What are the

internal relations between teachers, between students and with parents? What are the 'relations with the local community'?

As in the OECD's case, the scenarios we have tried to identify are not 'realistic'. Instead they offer an extreme view of reality in order to help us reflect on what we really want, or do not want, to achieve through the eco-school programmes. Each of these scenarios rests on different value elements and on different images of the world and of knowledge. None of them are perfect and none are completely mistaken in moving in the direction of sustainable development. More important, the programmes examined are not referable to any one particular scenario, but are a mix of the ones proposed. Our aim was not to try and classify them, but only to propose elements on which to reflect.

2. What images of the future world (environment, society, school) are embedded in the Ecoschool Programmes?

An initial idea of what the programme focuses on, and thus what image of change for a sustainable future is at the heart of the actions proposed, may be gained from the very name of the programme although such an analysis, of course, does not give full 'credit' to the programme:

- Programmes such as '**environmental care at schools**' or '**green schools**' or '**environmental conservation model schools**', or even initiatives based on '**green school awards**' or '**certificates**', show an environmentalist origin, with at times overtones of 'ecologist' militancy, and with quality criteria inspired by environmental certification systems for enterprises, ISO 14001 and EMAS. Albeit with the due adaptations to the peculiar features of school institutions, programmes of this kind contain procedures, and especially watchwords, inspired by principles of '*sustainable management and control*': waste reduction, the saving of natural resources, and the protection of biodiversity. This approach almost always considers 'action' as a key component of the education process and thus lies within the picture of an '*education for the environment*'.
- Programmes such as '**forest-schools**' or '**nature schools**', or even programmes more linked to school development, but always in relation to nature, such as '**learnsapes**' or '**the school yard**', or '**school yard forest**', instead show an origin more linked to a kind of EE based on experience and direct contact with nature; there is thus the idea of EE as '*education in the environment*', and the use of natural environments '*as an extended classroom*'; the actions proposed are essentially 'renaturising' or reforestation actions.

- Names like '**sustainable schools**', '**eco-sustainable schools**', '**schools capable of future**', or programmes of '**education for a sustainable development**', indicate a reorientation of EE in the direction of eESD. This reorientation at times appears to be only a name, but in some cases it clearly indicates the acknowledged importance of the social aspects of education for sustainable development. concerning school life and democratic participation, as well as attention to pedagogical aspects, above all, those concerning the culture of complexity and the development of '*imaginative critical thinking*'.
- Finally, names like '**values schools**' or '**demonstration schools**', indicate the importance attributed to pedagogical aspects, above all, the construction and communication of values, and to a school quality meant as a 'good learning environment', where 'pedagogical creativity' and education for citizenship combine to form a model for institutional and educational sustainability.

As mentioned, names alone are not meaningful – above all, in a comparative study where names are often translated and lose their connections with the contexts that generated them. For example, a programme such as the Danish '**Green touch project**' is one that mainly focuses on school development, and not on the natural environment, and stresses innovative aspects for learning and the importance of mutual support between teachers of different schools, committed in the reflection and innovation. Even the programme '**Environmental Education Network**' in Norway does not only propose EE initiatives, but also explicitly refers to sustainable development, and organises its work through support and exchanges between teachers and research institutions via the internet.

Therefore, going beyond a mere name and also examining aims and operative proposals, we have identified three dominant "scenarios", sometimes occurring at the same time, corresponding to three images of a sustainable future world that the school wants to lead its students towards:

1. **A scenario inspired by technical rationality.** Sustainable development is viewed in the context of management and control issue: the knowledge, especially scientific knowledge, already exists as well as the technologies and best practices necessary for limiting or even solving environmental problems. What is needed is to inform people and arouse their awareness, especially through schools, so that they may take on proper behaviours. Implicitly, great changes to the market economy and to the western model of development are not deemed necessary.

2. **A scenario inspired by the development of individual values in a new man-nature relationship.** Sustainable development is viewed as a matter regarding the relationship with nature and as a question of individual lifestyles. Great changes are necessary, but what must change is not so much knowledge as individual attitudes and behaviours, which must come closer again to the natural world in order to appreciate it and to then influence social decision-making.
3. **A scenario inspired by social change.** Sustainable development is viewed as a challenge for today's society : it cannot be achieved without changes that must also be social, cultural and ethical, and whose scope cannot as yet be completely foreseen. Schools thus have a role of preparing for change, of building action competences based on critical and complex thinking and reflection, but also on values of solidarity and democracy.

None of these future scenarios is clearly described in any of the eco-school programmes. But the attention to procedures and results, above all technical ones, makes us think of a future for which we already have solutions but lack only the willpower to implement, while attention to producing 'local knowledge', to critical thinking and participation instead makes us think of the need for deeper changes, still to be constructed.

3. What images of the learning-teaching processes emerge from the Eco-schools programmes?

We talk of schools and of programmes, but the pedagogical and educational criteria are not always explicitly expressed in the reports we have collected. In these cases, the 'implicit belief' is that the activity proposed – be it action for the environment or an experience inside nature – is per se enough to create motivation and involvement, and that in turn this motivation will guarantee significant learning and proper behaviour.

This rather naive approach is limited to only a few cases, though. Most of the reports collected describe both the learning processes that are desired to be implemented, and also the procedures for involving students in identifying the problem to be dealt with and the solution to be proposed. Often also the knowledge necessary for dealing with the problems of 'sustainable development' is formulated, even if interpreted in a more limited meaning as the 'proper' use of natural resources. One aspect often remains implicit, however: what knowledge are we talking about? What knowledge will be necessary for our future and how can we build this knowledge?

In many cases, it is taken for granted that knowledge means 'disciplinary knowledge', and particularly that of certain disciplines: '*A forest school could not be without biology or geography, but without social aspects it could be acceptable* (Hungarian report). In other cases, the knowledge relates to the issues to be dealt with (water, energy, refuse ...), on which the disciplines will have to converge by providing 'expert' knowledge necessary for constructing future actions or experiences. In these proposals, knowledge seems to be like an 'encyclopaedia', better if available on line, from which to obtain information and which can be updated and enriched only by the 'experts'.

In other cases still, however, the emphasis is on individual construction of knowledge starting from experience and action in the community. In this regard, schools recognise the importance not only of 'abstract and general' knowledge, such as most scientific and technological knowledge, but also of 'local knowledge', proper of the concrete situation, where local culture, experience accumulated over time and relations with the community are fundamental.

"The experience demonstrates the relevance of the school within their social and cultural environment improves dramatically when the schools define the regional area as a teaching subject and thus contribute to the creation of local knowledge" (German report, BLK).

In some cases, this knowledge includes a reflection on the 'values' used implicitly or explicitly, and a 'development' of values in line with a sustainable future.

'Teaching reveals the relativity and variety of attitudes and values, and brings out different views on the reasons and solutions for environmental problems so that students are able to make justified value judgements' (Finnish report)

In other programmes these values are embedded in concrete competences to be achieved: thus, in the BLK programme in Germany, one of the competences to be developed is 'solidarity' and more specifically it stresses that '*to show empathy commitment and solidarity involves the purpose of fostering justice, the balance between poor and rich and the reduction of oppression*".

In cases where they explicitly describe the kind of knowledge to be constructed, we find various interconnected elements:

1. Firstly, the necessary knowledge is a 'complex' knowledge, talking in terms of '*complex and extensive knowledge*' (Danish report, Muvin), such that '*programmes are flexible, taking into account local diversity and realities,*

stressing the diversity of viewpoints and the conflictual elements' (Italian report, Legambiente), based on the attention to interactions, *(the content) of the knowledge being constructed includes interactions in nature, interactions between nature and society, interaction between nature and the socio-economic systems and politics, and interaction between countries'* (Norwegian report) and able *'to deal with uncertainty'* (German report, BLK).

2. Hence, it is a 'critical' knowledge that develops the *'ability to reflect individual and cultural models'* together with the *'ability to look critically at one's own and foreign cultures'* (German report).
3. It concerns not only the causes of current problems but also the *'alternative visions for a sustainable future and possible actions'* (Danish report, Muvin) and which is concerned with building *'future oriented thinking and knowledge about future scenarios and planning'* (German report).
4. It is also strictly connected to the understanding and practice of civil cohabitation and of 'participatory democracy', considered as *'vital aspects of the philosophy of eco-schools'* (Hungarian report) and where the educational environment is such that *'healthy and sound minds are reared to become the citizens of free democracy responsible for the future of society and the country'* (Korean report, Schoolyard Forest Project).

Moving now from the implicit or explicit image of the knowledge to be achieved to that of the necessary teaching-learning processes, we see that certain elements are found in nearly all the proposals and thus correspond to a widespread shared image of EE geared to sustainable development:

- a) The importance of **action** and **direct experience** for meaningful learning: Australia talks in terms of *'experiential learning'*, Finland stresses how *'students need experiences showing that their own ethical, practical, economic, social and occupational choices make a difference'*, while Korea emphasises the need for *'practicality'*.
- b) The importance of **involvement**, and at times also of **participation**, in decision-making, firstly as regards the students, but then also of most of the teachers, parents and the local community.
- c) The **cross-curricular** nature of the experience proposed and, at the same time, the **interdisciplinary** nature of the environmental issues, and thus the need for a problem-oriented and/or project oriented approach.

Examining each of these elements, however, here too we see some differences in the conceptions underlying action, involvement and interdisciplinary nature.

The widespread faith in **action** as educational in itself may, at times, also be a way of not dealing with the problems of a real change of curricula and of teaching methods. If the results of the action are assessed in technical terms – savings actually achieved – or in numerical terms – people, the number of school subjects involved – and the emphasis is on **ecoaudit** procedures and not on teaching-learning processes, the risk is that the processes are sacrificed at the expense of concrete results (results which, amongst other things, as Austria and Greece lament, are difficult to achieve and thus often the cause of frustration among students). In this kind of 'eco-schools', great changes are not envisaged in teaching processes, there are no changes in the disciplinary approaches, which are just 'pooled together' to combine the strengths of the teachers in order to obtain a tangible and measurable result. The view of teaching as a **transfer of useful problem-solving information and strategies** is not put into question. When, within this framework, there is the explicit recognition of the need for action also at a pedagogical and social level, the aims generally concern only the transfer of 'ecological knowledge' or 'behaviours'. This attitude also applies to the transmission of 'ecological values', that are taken for granted and widely shared and for which no exchange of the different viewpoints is envisaged.

When the action is proposed in a **natural environment**, in favour of a 're-naturalisation' or 'a conservation', the innovative pedagogical aspect is, above all, the one geared to the empathic link between pupils and the natural environment, and thus takes for granted the fact that it is suffice to work in nature and for nature in order to construct a new way of perceiving the world, and to predispose the students to a change in behaviours.

A different kind of 'action' is the one also referring to involving issues from a social standpoint, where it is necessary to go beyond the facts and look at 'interpretations', points of view, the interests of everyone, and develop a line of thought that is critical while at the same time proactive. In these cases we find that eco-schools supplement environmental type actions with 'social' type actions such as *'activities to prevent mobbing' or 'bullying'*, (Norway) or inter-cultural exchange initiatives, peace initiatives or programmes envisaging a complete integration of the disabled in school work (Italy).

The notion of **participation** is often mentioned, but only in a few cases descriptions are given regarding what kind of student participation is wanted. In the Swedish report, for example, where student participation is stated as essential, in actual fact *“according to the result reports, there is usually broad involvement among various staff categories, but it is not equally clear whether children/students have been involved in deciding the content of the action programme.”* It then concludes critically by saying how real participation is very difficult to achieve, considering that *‘in reality, genuine influence by students over their learning is a question of being able to influence content as well as approach in relation to chosen objectives’*.

The commitment to participation – not only of students but also of the teachers not directly involved – characterises many of the projects that see education for sustainable development as one of the forms of education for democratic citizenship. Participation is thus something that must not only be developed, but which requires care in order to be kept up, *in order to keep the broad involvement alive*. Other eco-school programmes, those linked to the ENSI proposals but also, for example, the Belgian one, stress that for making an action for sustainable development to become also an action for school development it is necessary that *‘the students participate in the decision making process, the problem oriented teaching and the learning by exchange of experience’*. The report also emphasises that very few schools interpret an eco-school programme in this way.

Finally, affirming the **cross-curricular** nature of EE also orients towards sustainable development, and the **interdisciplinary nature** of the environmental problems may lead to methodologically different proposals. The starting point for an interdisciplinary approach is, for all programmes, starting from a problem or real situation to be faced and to be followed up. The emphasis on disciplines or the way this interdisciplinary approach is conceived strongly depends, however, on the school culture at the outset: EE starting from authentic problems and organised as project work may be a common practice in some countries while in others, such as the Mediterranean countries or Korea, where the subdivision into study topics is much more rigid, it becomes a strongly innovative practice. This is particularly true when project work is not restricted to supplementary or voluntary ‘extracurricular’ school hours, but is introduced within each school subject on the time table, which thus in a certain sense have to ‘give up’ their organisation and systematic structure in order to experiment a different way of knowledge-building.

In some programmes, though, there is no criticism of the organisation of teaching by disciplines nor any attempt to go beyond this, but what is requested is a momentary ‘collaboration’ between disciplines on the basis of the problem. In other programmes, instead, *‘teaching and learning are not instrumental (for achieving technical results) they are at the centre of the Eco-schools process’* (Austrian report). The Ekolog programme in Austria, as in similar programmes in Germany, Finland, Italy and Norway, suggests recognising ‘three levels of sustainability’ within schools, and thus not just ‘a **sustainability at a technical-ecological-economic level**’, geared to the careful use of natural resources, but ‘a **sustainability at a pedagogical level, based on significant learning dealing with non-structured situations and even conflictual issues, and a sustainability at a socio-organisational level, based on a culture of communication and an atmosphere of mutual respect’** (Posch, 1998).

The characteristic of these programmes, as with the Muvin programme in Denmark, is that of presenting a great request for reflection and change with regard to teaching-learning processes: teachers are called upon to work with conflictual issues, to bear in mind not only the interdisciplinary nature but also the complexity of real problems to be faced, and to *‘emphasize pupils’ judgements and decision-making about ethical aspects of the environmental issues’*.

An aspect related to the image of teaching-learning processes is that of the teachers’ role within the programmes, and more generally the role attributed to ‘expert’ knowledge. The case studies accompanying the national reports often stress how a first great change necessary for the development of eco-schools is actually in the teachers’ role; a change due not only to the need for teachers to work together more, but also to the different teaching-learning modes necessary. In the eco-school programmes, the teacher plays the role of ‘stimulus’ and has the aim of creating involvement and motivation. Only in a few of these programmes is the teacher’s role as an ‘expert of the subject’ turned into that of an ‘expert of learning’, and only a few cases recognise that learning is a social and dialogical construction where the teacher’s role is to keep the debate open and curiosity alive - for instance, by avoiding to palm solutions off on the students: *“The role of the teacher is often to make sure that versatility and objectivity comes forward and that is why the teacher is the one who keeps asking questions and makes them in doubt.”* (Danish case study)

When the eco-school programme is geared to learning processes, the attention shifts from ‘actions for the environment’ to ‘educational actions’, and at the heart of the

project lies the 'search for professionalism on the part of the teachers' and thus reflection on the educational actions implemented. Thus, the Green Touch project in Denmark and the ENSI project in Italy no longer place the transformation of the physical environment at the heart of their proposal, but instead the transformation of the educational environment: *"For many schools, the most difficult part was becoming aware of the different focus of the project: no longer the environment, but the school; and the school as an environment in which to build a vision of a sustainable world"*. (Italian report, ENSI)

In this type of programme, it is considered to be a weakness and not strength that many of the teachers involved 'see EE as a kind of environmental advocacy, often grounded in the teachers' own environmental commitment' (Danish report). That is to say, the result of a teacher attitude that is too 'missionary' and assertive, and often an attitude of rejection on the part of the students, who see EE as a series of 'proscriptions, don't do this or that' (Belgium report) only aimed at a change in behaviours.

The scenarios that appear to emerge regarding the conceptions of teaching and learning processes are therefore:

- a) A scenario where learning is seen as the result of the **transferring of correct information** and strategies, and where 'active' methodologies for involving students are implemented. In this scenario, knowledge is produced in the appropriate places, scientific and technological research centres, and schools have the task of informing of the knowledge available in order to properly deal with environmental problems. The task of EE is to teach how to 'solve problems' by using the available technologies. The students are involved through local actions that, above all, have a motivating purpose. The teachers are responsible for the teaching processes as experts who can pool together their subject knowledge when the problem requires it.
- b) A scenario where learning is viewed as the result of an **individual construction process**, where the teacher is a facilitator, and where learning in real and local contexts, possibly linked to the natural world, helps to connect rational thought, emotions and values. The students are the ones responsible for their own learning, and the required actions for the environment are, above all, seen as a way to build motivation and to elicit behaviour of respect for nature.
- c) A scenario where learning is seen as a **social construction process**, and teaching as the introduction to a democratic dialogue between those with differing views,

knowledge and values. In this scenario, significant knowledge is the one constructed locally through a critical, but proactive, analysis of the widespread knowledge and values. Action and participation are, above all, considered to be of educational value, as a way to get acquainted with the practices of a democratic society. That is why the problems to be faced are 'built' together, without minimising their importance, but trying to explore the deep reasons underlying them, as well as listening to and discussing the various points of view.

4. What images of School Development and of the role of ESD?

The images concerning the possible developments of schools very often remain 'implicit' within the ecoschool programmes. Therefore, reference has also been made to the six scenarios developed within the OECD and discussed in 2003 by the member states: as already said, the scenarios describe in a somewhat "pure form" how schooling in general might take place in about fifteen years for schooling. They have been clustered into three main categories:

Scenarios 1a and b: "Attempting to maintain the status quo"

With the "status quo" scenarios, the basic features of existing systems are maintained well into the future, whether from public choice or from the inability to implement fundamental change. In Scenario 1.a, ("**Bureaucratic School Systems Continue**") the future unfolds as gradual evolution of the present with school systems continuing to be strong; in Scenario 1.b, "**Teacher exodus - The 'meltdown scenario'**" there is a major crisis of the system triggered by acute teacher shortages (OECD, 2003, p.13).

Scenarios 2a and b: "Re-schooling"

The "re-schooling" scenarios see major investments and widespread recognition for schools and their achievements, but also for the professionals, with a high priority accorded to both quality and equity. In Scenario 2.a, ("**Schools as Core Social Centres**") the focus is on socialisation goals and schools in communities, in certain contrast with the stronger knowledge orientation of Scenario 2.b. "**Schools as Focused Learning Organisations**". In this 2.b scenario schools are revitalised around a strong knowledge agenda in a culture of high quality, experimentation, diversity, and innovation, with highly demanding curricula. Professional leadership would replace the administrative thrust of the bureaucratic scenarios. Quality problems will be resolved through various form of professional mediation. (p.16-17)

De-schooling Scenarios

Rather than high status and generous resources for schools, the dissatisfaction of a range of key players leads to the dismantling of school systems. In Scenario 3.a, ("**Learning Networks and the Network Society**") new forms of co-operative networks come to predominate. Dissatisfaction with institutionalised provision leads to the abandonment of schools in favour of a multitude of learning networks, using the extensive possibilities of powerful and inexpensive ICT. This is in contrast to Scenario 3b ("**Extending the Market Model**") in which competitive mechanisms dominate. Existing market features in education are significantly extended and many new providers are stimulated to come into the learning market, encouraged by thoroughgoing reforms of funding structures, incentives and regulation. (p.17-18)

If we compare these scenarios with the image of schools that emerges from the reports on eco-schools, we see how the 're-schooling scenario' is the only one that adapts to a school geared to sustainable development. Moreover, we also see how many programmes are much more innovative and radical as regards the action and change to be implemented in the environment than the change to be implemented to the school organisation. Competitions and certifications based on standardised procedures are, for example, much more consistent with a de-schooling scenario and with the extension of the market model than with that of re-schooling, while the rigidity of learning processes and of school subject organisation seems at times to gear even these schools to the maintenance of the status quo. The market model, together with the request to improve the technical and economic efficiency of schools, can lead to very different scenarios than the ones consistent with EE and education for sustainability: efficiency in the use of resources can also be achieved in a hierarchical school model, that optimises the school's own and community's technical skills to achieve rationality and savings. This 'efficient use' does not, however, envisage the participation of students or of the community; nor does it accord the school any proactive cultural role.

Most of the programmes collected, however, definitely lie within the re-schooling scenario, and particularly within scenario 2.a, where schools are seen as 'core social centres', "*that enjoy widespread recognition as the most effective bulwark against social, family and community fragmentation*" (OECD. p. 15). The eco-schools propose themselves to be not just 'models of sustainable practices' (Australian report), in which '*the learning environment should function as an example of the sustainable way of life*' (Finnish report), but also as a model of participation and democratic citizenship.

The underlying idea is that the atmosphere, the school climate, but also the school's physical structure, have a strong educational valence: '*As the pupils spend the third part of their day in the school, the most important place for environmental education is the school-building itself.*' (Hungarian report). And when, as in some countries, schools are seen by students as '*a prison, old people's home, cement, ugly, dirty, colourless, dull, melancholy, disappointment, sadness*' (Greek report), the first aim for an eco-school is to 'put forward a dream' to give students the chance '*to make the school that they like a reality*', in the belief that "*the school teaches even when it does not teach.*"

From the case studies and concrete examples of eco-schools illustrated in the reports emerges the kind of school that students and teachers would like to build:

- A school where there is a '*climate of mutual trust and joint interest in development, and not only in the school community but also between the school and the local community*' (Greek case study).
- *Schools shall work to develop knowledge, positive attitudes, ability to co-operate and optimism about the future, and to teach pupils to believe in themselves. ... The school shall be aware of its responsibility to strengthening a belief in democracy and the inviolability of each individual in the school society.*" (Norwegian case study)
- *The school considers itself as a 'laboratory' - not a science lab, or a technical lab, but as a 'mind lab' - as a context where students, teachers and parents can experience new methodologies, new challenges, and contrast different points of view.*" (Italian case study)

However, these aims need the contribution and participation of the whole school – from teachers, staff and parents. Not to make everyone involved in the same actions, but so that everyone can contribute to the school climate, to how school is experienced everyday, because "*the credibility of environmental education depends to a great extent on how the environmental values reflect the everyday life of the educational establishment*" (Finland).

Involving the whole school is one of the critical points of this kind of programme: on the one hand, as we have seen, it is necessary in order to create a climate and consensus on educational methods while, on the other, it may be reduced to just an instrumental involvement with respect to results (you cannot save energy only in one class or in one classroom) and not be based on a real participation in decision-making.

Communication between teachers is not easy, above all if the school is a large one, and new working methods must be found that can assure a division of tasks and mutual trust. *'It may be seen from the result reports that larger units often have a working group that is responsible for the efforts ...and that allocates responsibility and tasks. On the one hand, this approach is quite certainly often necessary; on the other hand, the challenge faced is to ensure that everyone (or as many people as possible) feel involved as well as responsible, even if they do not belong to a working group with overall responsibility for certain issues.'* (Sweden report)

Above all, in order to also involve those teachers not directly concerned with EE, it is important for the proposal to stress the relevance for the whole school of the didactic approach and the kind of educational environment that one wishes to create, avoiding that initiatives be seen as *'extra-work, accepted only by the few involved'*. On the other hand, one of the challenges of ESD seen as a basis for school development is that teachers learn to work effectively with one another, and that they be aware that *'functioning as a teacher is not a purely private matter'* (Danish report).

This manner of working, however, requires an acknowledged leadership – not only to deal with **organisational aspects**, but also with the **harmonisation** of initiatives, of documentation and of reflections on these, in order to favour collective learning as a 'school organisation': *'school management's educational leadership, involvement and various forms of support play an important part in the process of gaining support, and also in making further environmental progress in order to achieve lasting changes'* (Sweden report).

The experiences collected and the reflections on them show how a strong commitment to EE and ESD cannot be asked of everyone: even for reasons of time, but especially for the respect of interests, availability and communication skills. More than thinking in terms of a 'promoting committee', something called for in some programmes, what is needed is a 'dynamic' organisation with different levels of participation and different levels of responsibility, where there is room for both a 'facilitator' group and a group 'responsible for documentation and reflection'. In this way, schools can start to function not only as 'core social centres' but also as 'learning organisations', and to bring together the two OECD re-schooling scenarios within a single project.

These 'school reorganisation' methods go in the same direction as various educational reforms that aim to shift *'from administration-based school organization to a new*

school organization supporting teachers and their course research to the fullest possible extent' (Korean report). This also needs a great commitment to both initial and in-service teacher training. Some eco-school programmes propose ad hoc training geared to the proposed action and certification; in others, teacher training becomes the dominant theme, often accompanied by action-research processes as a tool for professional development, not just of the individual, but of the school as a whole. Interesting in this regard are the programmes that consider teacher training not as an episode in the school's life, but as a development process of relations between the school and an external partner, especially when this partner is not seen as a 'technical' expert but as a 'research' partner who does not provide solutions, but acts as a 'critical-friend' to help find the solution locally and in line with the context and with needs. When research on action is the main innovation tool for a programme, then even in-service teacher training is geared to research, and the exchange of research experiences among teachers becomes the main tool for network construction.

Another issue characterising the development of eco-schools is the school-community relationship. All the programmes stressed the need for close interaction with the local community, but we can distinguish three main ways (on the whole equivalent to the 5 ways evidenced in chapter 4) for this relation to come about – sometimes at the same time:

1. A search for a relationship with the local community because it is necessary both from a purely economic standpoint – *'this cooperation is necessary as the intervention that takes place in schools require at least the financial aid of the municipality'* (Greek report) – and for the technical and political support that it can provide to the school in order to achieve the desired results: *'more can be achieved collectively'*. In this way, schools learn not to be isolated and that *'important skills of engagement and influencing must be learned'* (Finnish report). The school adopts an utilitarian approach to the community.
2. An interest for relations with the local community because it brings historically determined interests and points of view that are part of the identity of the environment the school operates in; the community thus provides the 'real educational environment' within which students and teachers, but at times even parents, can propose actions and construct significant knowledge. The school adopts a re-active approach to the community.
3. A recognition of the importance of 'social capital' and thus a school commitment to the sustainable development of its own community, not only by trying to provide students with *'an example of a sustainable lifestyle'*, but also by trying to play a

proactive role in the sustainable development of the community itself. The school adopts a pro-active approach to the community. Examples of this are the programmes connected to local Agenda 21 initiatives (Catalonia, Sweden, Norway) where: *'the educational work of the school functions as a resource in local Agenda 21 work, and local environmental protection work functions as a learning arena for the school'* (Norway). Even national trends are moving in this direction. In Korea, for example, one of the eight goals presented in 'Educational Vision 2002' is to change *'from knowledge-based school culture to community-based culture characterized by self-control and responsibility'*.

A final element we have taken into consideration is the kind of networking proposed by the ecoschool programmes. Networking, both among schools and between schools and other institutions, is considered by the OECD as one of the more likely future trends, regardless of the reference scenario. The sharing of resources and experts is actually possible both within a strongly centralised and bureaucratic network, and within a dynamic network in which successes as well as difficulties or hurdles are discussed. Not only this, but belonging to a network – even an eco-school network – may be seen by schools as either a self-promotion tool (and thus fit within a scenario of extending the market model) or as a possibility for mutual support and learning, where schools are regarded as educational 'communities' (sharing a vision and a common educational ethic) and the schools' network as a community of practices.

According to this perspective, eco-school programmes based on 'awards' and on the 'certification of results' run the risk of hiding the hurdles and problems encountered because they stress only the positive achievements and success. The national reports of Belgium, Catalonia and Sweden state the difficulty encountered in retracing the 'hurdles' in the schools' documents.

A two-stage network, such as the one put forward by Hungary, could be a solution: the first stage, for which certification is obtained, hinges on the schools' desire to stand out and be recognised as quality schools; while the second stage, after certification has been obtained, is open to a comparison among peers and to the possibility to learn from others' mistakes. *Eco-schools will represent the field of practice that "newcomers" (schools applying for the award) will be offered to share until they can fully participate in the ecological activities set forth in the award's requirement.* (HU)

To achieve this, however, a strong institutional support is needed for this kind of networking and the capacity to demonstrate its effectiveness and significance for the school as a whole, so that networking be seen not just as a means for developing EE and ESD, but more generally as *a meeting place that can help schools in their daily work.*

We have also tried to outline some scenarios for school development towards sustainability. These scenarios all lie within the OECD re-schooling scenario, but are more geared to reflecting on the kind of organisation necessary for the sustainable development of the whole school. The scenarios that we have identified in the eco-school proposals, but especially in the case studies, are as follows:

1. The **school** is considered, above all, to be an **enterprise** in which leadership and the division of tasks are functional to the effectiveness of the organisation, where relationships with the community are geared to the proper use of financial and natural resources, and where the accent is on excellence, also acknowledged within national and international networks, in order to face the market.
2. The **school** is seen more as a **family** that is mainly interested in maintaining and defining its own identity through strong interpersonal relations among all its members, and with exponents of the local community. The school comes across as a 'core social centre' for community initiatives and uses networks as a way to strengthen the collective identity.
3. The **school** is structured as an **educational community** that considers it necessary to learn from experience; the organisation envisages the alternation of roles and leadership, and procedures that can accept moments of conflict and difficulty in order to use them to strengthen confidence in being able to 'progress' together; the role played with respect to the community is as a stimulus, and networks are used as opportunities for exchanging views and for growth.

5. What evaluation and what quality criteria for eco-schools?

All the eco-school programmes call for documentation and a report on the results achieved. The differences lie in what is meant by results and what kind of report is required. Almost always, the report is meant as 'a list of victories and successes' and not a reflection on the hurdles that were faced and the solutions found (or not, as the case may be) to deal with them.

The idea of 'quality' inherent in the tools put forward to 'measure' it and assess it is thus a further difference between eco-schools, and often allows us to identify the dominant scenario in the programme.

The risk is that only technical results can be considered measurable, and thus assessable, and that the eco-school programme is therefore limited to *'a mere physical improvement in the school environment ..., lacking the perception of its educational effects and the importance of participation'* (Korea). This is the direction taken by those programmes that try to adapt 'quality control' procedures, designed and validated for enterprises producing goods and services, to the needs of ecoschools. In this way, they give credit to the idea that a complex process like the production of culture can be broken down and reduced to a series of procedures of the kind necessary for the production of material goods. Moreover, what is re-proposed is an idea of 'quality' established by the market, by user satisfaction, and which encourages a kind of 'short-term' competitiveness between schools. This kind of 'quality' is often based on passing fads and is not geared to sustainable development. In these cases *'it is too easy to degenerate into an activism devoid of content, and to join to the programme for the prestige it brings, not because they truly believe in what they are doing'*.

On the other hand, when programmes, and also certifications, are proposed with a view to 'reflection' and sharing – where schools are called upon firstly to reflect on the obstacles encountered and the possibilities used, to then share them with other schools – then we enter a sphere of research into innovation in which importance is also given to mistakes and to the problems dealt with, which changes the school culture from a competitive market model to one of sustainable development within a community of research and of practice. The real construction of sustainable development means moving together in large numbers and helping one another, and not pitting one against the other and trying to hide one's difficulties.

However, to achieve these results, a systematic – and, at the same time, dynamic – evaluation of quality is essential. The problem is that the vision of quality often referred to is ambiguous and not consistent with the great aims and principles guiding schools' motivations and actions.

How do we actually define quality? And how and when do we evaluate it? The mere fact of proposing an evaluation every year or every two years points to the idea that the quality we are talking of is something quick, concrete and achievable in the

relatively short term, and we thus do not talk in terms of learning processes and school climate. Even when learning processes are placed at the heart of the programme, it is not clear what procedures are considered important for quality evaluation: do we consider self-evaluation processes, or those of reflection and comparison, or particularly the concrete results achieved and certified by an external auditor?

Most of the programmes call for self-evaluation on the part of schools, but only some of them consider it as the most important element in the evaluation process, and very few try to organise evaluation as a process of comparison and discussion among peers or, in any case, among 'partners' that have established a relationship of acquaintance and trust. Using questionnaires and checklists does not solve the problem: as stressed in both the Korean and Catalan reports, a questionnaire is generally not a reliable tool for evaluating change, and it hardly acts as a stimulus for reflection.

Let us, therefore, go back to our initial questions: how do we define the quality of an eco-school programme? What tools should we use? And what view of EE and of evaluation should we refer to? We shall attempt to answer these questions in the next chapter.

6. Scenarios and Quality Criteria: tools for driving schools toward Education for Sustainable Development

In the previous chapters we have identified a set of quality criteria used, either explicitly or implicitly, by the eco-school programmes present in various countries of the world, and we also attempted to identify the main scenarios guiding these programmes, often in a more implicit rather than explicit manner.

What we now wish to discuss is the 'use' which could be made of these scenarios in guiding schools' development paths towards sustainable development and in establishing quality criteria that can actually support this development.

1. Scenarios as a tool for analysis and reflection

In a rapidly changing society that is uncertain and dynamic, education systems – and even schools – seem to chase after technological and social developments often without even managing to adapt to the present. Many publications, by UNESCO (Delors et al., 1996, Morin, 1999) and the OECD (1991, 1993), have tried to identify the key elements, knowledge and methodologies that will be necessary for tomorrow's education, but not only is it difficult to question the objectives and principles that have always underlain education institutions, but the time necessary for innovation and for changes has always been long in the school system. Environmental education and education for sustainable development are making a theoretical and practical contribution to this process of rethinking and reflection. However, operative instruments are needed which can be used also by teachers and students in order to give everyone the chance to reflect not only on the present and its needs, but also on the future, because the 'quality' that schools want to achieve must be reached in the future.

As Giddens (1990) pointed out, one of the profound changes between tradition and modernity is that the former looks to the past, where it finds elements to justify the present and to prepare the future, while with modernity it is the future – the ideas of future – that influence the present and change not only the present but our interpretation of the past. A realistic utopia and a shared representation of the future are the instruments to build not just the future but also the present. If modernity is

characterised by its 'reflexivity', it is through the spreading of possible future scenarios, of new constraints and new frameworks, that today's society can be influenced.

Scenarios are a specially designed instrument for reflecting on the future: scenarios are neither forecasts nor trends, which are impossible to establish in the middle and long-run due to the uncertainty and complexity of the contexts and relations, but are alternative images that take the possibility of "different futures" into account.

"Scenarios are a tool for helping us to take a long view in a world of great uncertainty Scenarios are stories about the way the world might turn out tomorrow, that help us recognise changing aspects of our present environment ... Scenario planning is about making choices today with an understanding of how they might turn out" (Schwartz, 1991).

Different steps are needed to develop scenarios, and in the previous chapters we have tried to develop the main ones :

1. We have identified the key-questions that drive an eco-schools programme analysing the trend and divergences on the basis of the guideline.
2. We have selected, on the basis of the national report, the characteristics that are more likely to influence the programme.
3. We have identified and developed 3 scenarios, each one consistent with a set of values, assumptions and models of behaviours.

Proposing several alternative scenarios underlines the fact that a scenario is not a pathway into the future and that a scenario should not be expected to emerge in a 'pure' form (Snoek, 2003). Scenarios are 'extreme' representations – reality is more blurred and what we have found, and what we expect to find in the future, is more a mixture of them. However, *'reducing the complexity of reality into a limited number of polar types stimulates sensitivity to the strategic choices to be confronted'* (OECD, 2001).

In the following figure, we have brought together the three scenarios in order to see their internal consistency and their differences. The scenarios are organised as possible answers to some key questions: the bold lines indicate the general questions and a synthetic description of the scenarios, that are detailed in the subsequent lines. None of the scenarios are meant to be the 'best' scenario, and not even the most probable one, but each one of them gathers together some trends currently found in

Key Questions	1st scenario	2nd scenario	3rd scenario
What images for a sustainable future?	A science and technology driven future	New relations with a nature driven future	A social change driven future
<i>What images of sustainable development?</i>	Sustainable development is a matter of management and control; science and technology will provide the necessary knowledge.	Sustainable development is a matter of individual choices, mainly related to new relations with nature.	Sustainable development is a social, cultural and ethical challenge, whose scope cannot as yet be foreseen.
<i>What aims for EE and ESD?</i>	Forming citizens who respect the rules in a given vision of the future.	Counteracting the division between man and nature; proposing experiences of contact with nature.	Preparing for active participation in social changes, accepting complexity and uncertainty, and the values of democracy and solidarity.
<i>What are the changes wanted?</i>	The main changes are in individual and social behaviours.	The main changes are in individual attitudes and behaviours toward nature and the environment.	The main changes are in individual and collective visions of society, with consequences on lifestyles.
What images of the teaching-learning process?	Learning as result of the transfer of correct information and strategies	Learning as an individual challenge, teaching as a facilitation process	Learning as a social process, teaching as an introduction in democratic dialogue
<i>What kind of knowledge is needed?</i>	Knowledge is an 'expert' production, to be transmitted as a foundation for taking action. EE needs to transmit the correct use (management and control) of natural resources.	Knowledge is an individual construction. Emotions and personal values are part of this knowledge. EE must propose a context where it is possible to appreciate the natural world.	Knowledge is a complex social construction. Local 'situational' knowledge and critical reflection on social habits are tools for the clarification of values and for 'propositive' critical thinking.
<i>What is the role of action-taking?</i>	Active methodologies and concrete experiences enhance motivation and foster meaningful learning.	Action-taking in a natural environment allows linking emotions to values and to rational thought.	Action and participation have an educational value, and are ways to get acquainted with the practices of a democratic society.
<i>What participation is foreseen?</i>	The discussion and acceptance of the action plan proposed.	Affective, emotional involvement in the actions taken.	Taking part in decision-making processes concerning the actions to be taken and the learning processes.
<i>What is the teacher's role?</i>	The teacher is a disciplinary expert responsible for the correctness of the information.	The teacher is a facilitator, connecting rational thoughts to emotions and values. Students are responsible for their learning.	The teacher as an agent for personal and joint knowledge construction. Learning as a dialogical matter between teachers and students.
What images of School development?	School as an 'ecological' enterprise	School as a Family	School as an 'educational research' community
<i>What are the goals for School 'sustainable development'?</i>	Improvement of school efficiency from a technical-economic-ecological perspective.	A strong sense of identity, improvement of communication and relationship within the whole school.	The school aims to become a 'learning organisation', accepting conflicts and criticism and using scenarios for building a common vision.
<i>What relationships with the local community?</i>	School and community make the best use of the budget and expertise.	The school acts as a 'core social centre': the school is open to the needs and proposals of the community.	The school acts as a 'centre for action', as a stimulus for local sustainable development.
<i>What is the use of networking?</i>	Networks as a showcase and means for corporative actions.	Networks as a possibility to expand relationships and to exchange good practices.	Networks as extended educational research communities.
<i>What kind of evaluation of quality is foreseen?</i>	External evaluation on the basis of defined standards (ISO, EMAS) for quality control.	Self-evaluation, appreciation of school activities by the stakeholders.	Action-research, self-evaluation and external (peers) evaluation for quality enhancement.

eco-school programmes and develops them in a consistent manner. There is thus no presumption of providing an accurate picture of future eco-schools, but instead the hope of inviting institutions, schools and teachers to come to terms with the proposed scenarios in order to examine their strengths and weaknesses, and to choose one's pathway with greater awareness and coherence. The 'best' scenario is the one that will emerge from a continuous process of reflection and exchange of views: *"the future is not anything that just happens but something that is created"* and the role of ESD research should include *"alertness and awareness of tendencies and active participation in the debate of future pathways to tread in education"* (Linde, 2003).

2. Bringing the scenarios to life

In order to complete the work on scenarios, and to make each scenario recognisable and challenging, the scenarios must be brought to life, describing in a consistent and plausible way the characteristics of the correspondent eco-school. It is evident, in reading the descriptions, that each kind of scenario has its own strengths and that choosing one of them may be influenced by the contextual situation – if the school is in a big town or in a little village – and by the age of the students.

The 1st Scenario: An Eco-School as an ecological enterprise

The school has a very good procedural organisation in terms of plans and structures, and it is very fond of quality, intended as school efficiency in reaching the pre-defined outcomes. As far as SD is concerned, the school quality is conceived mainly as an assumption of responsibility in the consumption and use of natural resources. The project plan is based on the fundamental idea that SD is a matter of management and control, and that future citizens must be aware of the rules which already exist and must behave consistently in their daily life. This meets the idea that an eco-school can function as a model for the students, and that methodologies and knowledge used for bringing down energy (or water, etc.) consumption at school can be used in the students' personal life. This exemplary role of school SD management is also 'functional' in connection to the local community. The teachers select the environmental issue they want to face each year and the general methodologies they want to use, according to their school plan and/or national curriculum, and the students are asked to participate actively in the programme and to show their creativity within the given framework. The teachers involved have a big role in searching for relevant information and materials, mainly in the field of science and technology, and they are very eager to gain as much information as possible in order to be able to give the correct answers to their students

– either personally or with the help of external experts. Collaboration between teachers is based on the division of roles and expertise. The assumptions are that knowledge and actions produce pro-environmental attitudes and lasting behaviour. The school responsibility for the use of natural resources is highly appreciated by the local community, which supports the school action plans and uses the school's activities in order to also reach the students' families. The school has obtained the EMAS certification and is a member of a national network of eco-schools, sponsored by a National Foundation.

The 2nd scenario: An Eco-School as a Family fond of nature

The school is considered by teachers and parents as a big 'family', where the emphasis is on communication and social relationships. At the centre of the school interest is individual development, and what really matters is how each individual evolves and develops. School plans are flexible and the structures and organisation are open to the initiatives of groups of teachers. Student freedom and creativity are among the main aims of the school, and for the teachers Sustainable Development and School Development can be reached through the enhancement of inherent personal capacities. A big priority is nature-oriented programmes because the teachers think that children nowadays are alienated and that it is important to experience nature in an unspoiled form in order to construct a strong, emotional empathy with living things. As a result, many outdoor activities are planned every year, together with 'nature weeks' and actions for protecting green areas and/or biodiversity. The teachers feel that their role is mainly that of arousing motivation and of coordinating and facilitating group work. Collaboration among teachers is very strong on teaching methodologies. The emphasis in the environmental programmes is not so much on content levels, but more on affective and value levels. The assumption is that good experiences in social contexts and good feelings in the field of environment and nature will lead to pro-environment responsible behaviours. The school is open to the community and is often used for many social purposes. The school is a member of a network of schools active in outdoor activities and nature protection, and every year the schools meet for an exchange of good practices.

The 3rd scenario: an Eco-School as an 'Educational research' community

The explicit goal of the school is the 'search for innovation', and teachers and students are asked to feel and to behave as a 'research community'. One of the main fields of school research is Education for Sustainable Development, where Sustainable Development is considered not only as related to the management of natural resources,

but also to the construction of new social responsibility in the framework of the local culture. One of the main efforts of the school is to act as a 'learning organisation', reflecting on failure as well as on achievement, accepting internal conflicts and criticism as possibilities for continuous development. The school mission and plans are discussed on a regular basis and thematic workgroups are the driving force of the school. Sustainable development is conceived as a social and cultural challenge, where continuous reflection and criticism on the current society is needed. Individuals and society are not seen as independent parameters, but as components that must change together in the direction of SD, and the main role of education is to identify the frames for this evolution. The perspective on change is both on the level of lifestyle and of living conditions, including market rules and societal organisations. The students are asked to work with the issue and problems they have contributed to define, exploring the multiple points of views, conflict and interests in each one of them, before searching for possible solutions. The teacher's role is to guide students in the construction of personal and joint knowledge, where teachers accept not having the right answer beforehand. Taking actions is considered important as an educational tool for getting critical knowledge and insights into the mechanisms and structures of a democratic society. In this process, science is used and questioned at the same time, looking to the correlation between scientific questions, technical solutions and social interests. The assumption is that a critical attitude will prepare for continuous changes in a 'not as yet definable' sustainable future. The school's actions have been a stimulus for the whole community, which is now involved in a local Agenda 21 process, where the role of the school and of the teachers is very important: in fact, the school is taking care of the retrieving of relevant information and of the facilitation of the debating process. The school is linked up to a network with other schools that share the same vision of SD and that accept to provide help – as a critical friend – in the discussion of the obstacles and problems the school comes across.

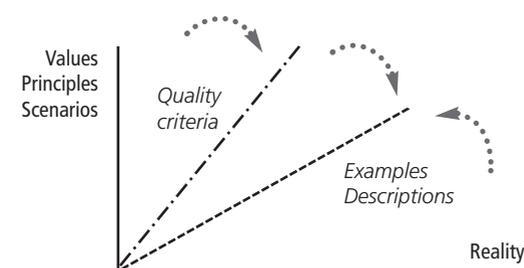
From Scenarios to Quality Criteria

Scenarios and Quality criteria can be used together, as part of the same strategy, for a school development geared to Education for Sustainable Development. The scenarios tool can be used to engage teachers, and all relevant stakeholders, in a meta-reflection on the school methods and aims: questioning and eventually changing mental maps is crucial in innovation for sustainable development. Transforming scenario reflection into a tool for development means:

1. Recognising the 'tacit knowledge' and implicit assumptions that often govern school habits and prevent innovation.
2. Exploring, in the light of the scenarios, the 'zone of proximal development' (according to Vygotsky), which is the first step that the school can plan, in the local context and situation, in order to move in the direction of the chosen scenario.
3. Establishing, in a participated way, what should be the quality criteria for evaluating the school changes in the direction of the scenario.

As we have tried to show in this report, quality criteria may be viewed as an instrument which summarises and in some way specifies the *school educational philosophy* with respect to sustainable development. While the scenario allows clarifying the reference values and principles for ESD, the criteria instead provide indications, as yet general descriptions, that help to turn values into educational actions, behaviours and choices. The criteria thus bring theory – utopia – closer to practice, as may be described by those experiencing it, and can be used as 'bridges' for moving from ideal values to the reality one wishes to change.

The following figure shows the shifts necessary for moving from an abstract idea of quality, consistent with the principles of environmental education geared to sustainable development, to a description increasingly closer to the multiplicity and diversity represented by the concrete real actions undertaken.



For quality enhancement, the criteria must be established and constructed by the school itself: participation in the construction of the scenario and of the criteria on the part of all the stakeholders is a further 'quality criterion'. The process leading to the scenario definition, to the construction of the criteria and their periodic revision is the most important element for a kind of quality that is not solely 'ecological' or 'economic', but also social and educational. The school must accept being a complex system itself, whose future developments are uncertain and unforeseeable, and which

can thus be guided only by successive approximations, involving the stakeholders in a process similar to action-research ones.

This does not mean it is not possible to also nationally or internationally agree on quality criteria that will act as a reference to all concerned, and which can be changed and supplemented when locally necessary. As a result of this study, we have actually proposed guidelines for the construction of quality criteria (Breiting, Mayer, Mogensen, 2005). The proposal presents a *'non-exhaustive list of Quality Criteria'*, preferentially referring to the aforesaid third scenario, supplementing it with elements coming from the first and second scenario. The proposal distinguishes 15 different 'areas' within which it proposes quality criteria; which in turn are presented in 3 broader groupings.

Quality criteria regarding the quality of teaching and learning processes	Quality criteria regarding school policy and organisation	Quality criteria regarding the school's external relations
1. Area of teaching-learning approach	10. Area of school policy and planning	14. Area of community cooperation
2. Area of visible outcomes at school and in local community	11. Area of school climate	15. Area of networking and partnerships
3. Area of perspectives for the future	12. Area of school management	
4. Area of a 'culture of complexity'	13. Area of reflection and evaluation of ESD initiatives at school level.	
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		

The proposal is based on the idea that a school wishing to take up the challenge of ESD in all its complexity and to make use of that effort for the school's general development, should concentrate its search for innovation and change in these 3 areas, but mainly on teaching and learning processes.

The underlying rationale of the proposed criteria is illustrated for each of the 15 areas, together with a concrete example of good practices linked to that area – an example often inspired by case studies contained in the national reports. For example, in the rationale in the area of *'visible outcomes at school and in the local community'*, we read:

'Educational goals and sustainable development goals do not always have the same priorities. Importance in education is not so much what issue is taken into account and/or what visible outcome is expected from the action, but whether the focus on the issue comes from the student's ideas and opinion, and whether the teacher takes care of the development of complex, critical thinking and of the clarification of values, when students investigate and try to solve the problems.' (p.16).

The correspondent quality criteria are expressed as a general statement, as for example:

'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' (p. 17).

What this means in practice is for the school to decide, but accepting the criterion or replacing it with other similar but more specific ones is one way to start reflecting on one's own educational actions and to start changing them. The proposal to schools is not that of simply adopting the proposed system of quality criteria, but of taking it as a frame of reference and as a working draft – as an aid for each school in building its own Quality Criteria System, suitable for the local context, and to be regularly referred to as a standard.

As Robert Pirsig in *Lila* says: *"When you get used to it, the idea that it is values which create objects is not so farfetched..."* and it is by actually turning values into 'quality' of real processes that schools can contribute to building a sustainable future.

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