

Development

Nature, School and Democracy

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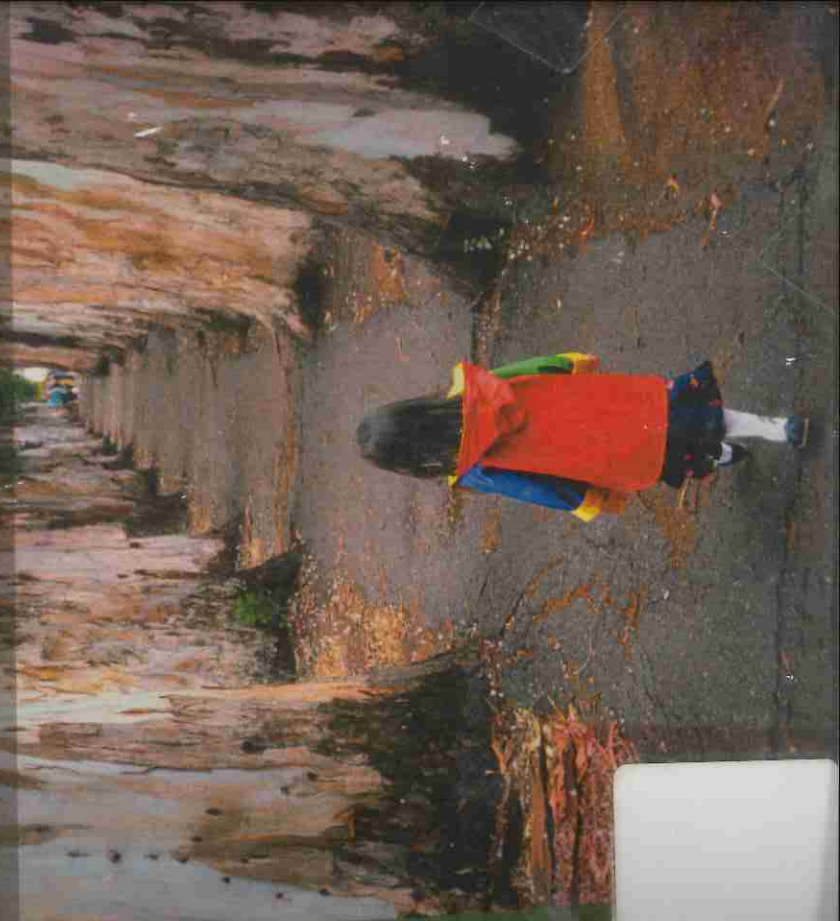
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Introduction: Teaching Competence in Education for Sustainable Development

The Shift from Environmental Education to Education for Sustainable Development

In recent years the discussions on environmental education have been focusing to a large extent on a possible shift from environmental education (EE) to education for sustainable development (ESD).¹

Traditionally, environmental education was based on the belief that certain sets of values, knowledge-perspectives and attitudes are better able to contribute to environmental friendly action and the solving of environmental problems than others. These principles should, therefore, be prioritised in environmental education. Accordingly, it was the task of environmental educators to formulate certain standards of environmental education and to develop both content and methods that modify the behaviour of students in accordance with those values and perspectives.

In the contemporary debate, however, most authors emphasise the social and cultural context-dependent character of the issues concerning environmental and developmental problems. This perspective has given rise to several approaches on environmental education that are less openly normative than the traditional methods. A point of departure for these approaches is that there are many conflicting voices about environmental questions in democratic societies and that nobody is in a neutral position to decide upon what actions will be most beneficial for our environment in the future. It has therefore been stressed that environmental education

1 At the end of this introduction there is a list of books and articles discussing environmental education and education for sustainable development.

should be characterised by *pluralism*. An important standpoint among these approaches is that re-establishing the essential role of education will support the freedom to form one's own opinion and enhancing students' competence in participating in a democratic debate. There are however also those pointing at the risk that such a pluralistic approach leads to the opinion that all the ecological limitations for life on earth are social constructions and therefore negotiable, and that the seriousness of the environmental crisis in this way is neglected.

Many authors and researchers have brought attention to the potential of ESD in this change towards a more pluralistic approach. As they see it, ESD creates the opportunity to make a new start and re-orient and vitalise environmental education. It is made clear here that there can never be a fixed connection between sustainability and development, hence the concept of ESD must be formed in relation to the local cultural, geographical, social and historical circumstances in which the education is to be put into practice. From this point of view ESD broadens the scope of EE as it connects ecological, economic and social development and thus creates a balance between sustainable human development and environmental protection. These authors maintain that ESD can be regarded as a tool in the achievement of sustainability through democratic practice.

But the concept of ESD is not uncontroversial. To some debaters ESD actually opposes pluralism in environmental education. It is pointed out that the policy documents that form the basis of ESD focus exclusively on the well-being of humans and ignore the intrinsic values of nature. In addition, and especially when associated with an economic market philosophy, the concept of 'development' implies a constant economic and technological growth in line with 'more is always better'. Some commentators claim, that in the rhetoric of ESD, education is regarded as a tool for sustainable development, which makes education instrumental in striving for something external to itself and prescribing a preferred end. Thus, ESD is seen as a top-down concept, promoting a specific ideology created by politicians and experts in power, at the cost of the emancipated qualities and the critical dimensions of education.

In this book we are trying to present a *pluralistic view* of ESD, connecting ESD to the important role of education in general to sup-

port the *democratic development of society*. In doing this we have tried to keep in mind both the important aspects of EE and the reminders of the problems of ESD as highlighted by its critics.

Requirements for Teaching Sustainable Development

The aim of this book is to contribute to improving teaching competence in the area of sustainable development. How, then, does one define such teaching competence? One way of creating an understanding of what teaching competence involves is to consider the type of problem that a teacher might face when teaching. One type of problem is that which arises in all teaching situations and is formulated in the question: *How shall I deal with this?* Such a question can arise when a student says, "I don't understand". In these situations there is rarely time to reflect – an immediate response is required. When we respond we must take into consideration a number of specific factors, such as who is asking the question, the level that he/she is at, the type of difficulties they usually encounter and whether similar areas have already been covered etc. It is not possible to learn these skills from a book. The answer to the above question is specific to the situation in which it arose. The answer is dependent on the fact that the student, class and teacher are all familiar with each other. It can be said that the answer to the question is, to a large extent, based on practical skills. Practical skills enable the teacher to e.g. individualise the teaching – to ensure that that all the students, depending on their own abilities and backgrounds, are offered the optimum conditions for learning. This knowledge is based on the results of tried and tested teaching skills that develop through practicing the profession for a long period. It can be likened to the way in the skills of a craftsman or crafts-woman increase as they become more familiar with their material and tools.

The other type of question – and the one primarily dealt with in this book – concerns the time we have to reflect and consider the situation: *What are my alternatives?* This question does not require

an immediate answer, and is more dependent on the reasons for our decision. The answer to the question has a general nature and has therefore a theoretical aspect. In this case theoretical answers or theoretical knowledge can be of help. Theoretical knowledge makes it possible to consider a phenomenon or an event from different perspectives; it is possible to illustrate a problem or a situation based on general reference points. The illustration below demonstrates how the same phenomenon (a cylinder) can be interpreted in two different ways – either as a circle or as a rectangle – dependent on which points of departure are applied in the approach.

Similarly students' difficulties in understanding an aspect of the issues treated in education can be regarded in the same way (e.g. a constructivist teaching theory as opposed to a sociocultural perspective towards teaching). Each perspective will offer a different explanation as to why the students are having difficulty in understanding, just as any potential measures in facilitating their understanding will differ according to which perspective is preferred. A teacher with a lot of theoretical knowledge about teaching and education can consciously adapt the teaching so that the process is made easier for the students.

But not only the learning process of the students can be put into different perspectives, even the teaching content can be highlighted from different starting points. Thus in education, environmental- and developmental issues can be put into several different perspectives (e.g. an ecological, ethical, economical and a political perspective). With each starting point there is a different way to

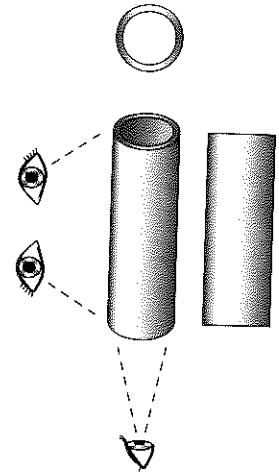


Figure Introduction: 1. Schematic diagram illustrating how the same phenomenon can be described differently from different perspectives.

understand and define how environmental problems occur and how best to solve them. This ability to be able to put environmental and development issues into perspective implies that the teacher e.g. can structure the teaching materials and lessons in a logical way which best allows the students to adopt a critical approach to the subject – skills in discussing environmental and developmental issues from various perspectives – in addition to making conscious evaluations of the different perspectives.

In brief this implies that a teacher with the necessary competence to teach the subject of sustainable development has:

- knowledge of environmental problems and sustainable development,
- theoretical knowledge of teaching and learning,
- practical knowledge and teaching skills (experience).

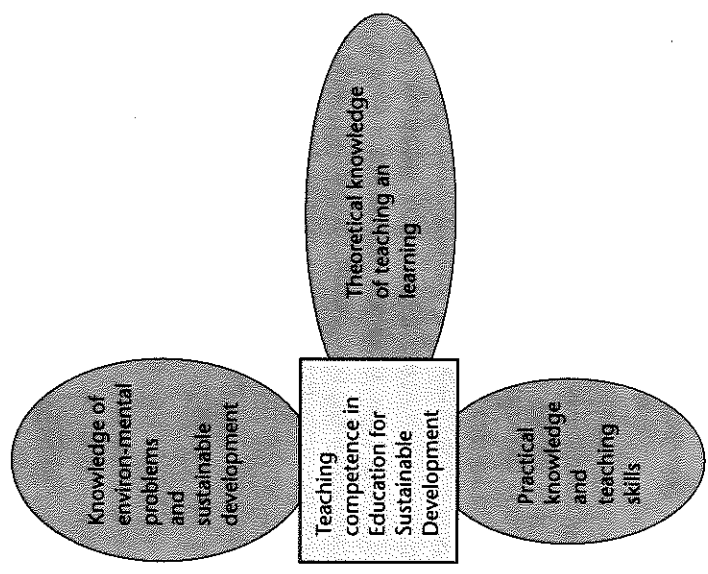


Figure Introduction: 2. Diagram showing the fundamental components of teaching competence in education for sustainable development (ESD).

When both knowledge and skills are integrated, the ability to put environmental- and developmental issues into perspective is developed. In this way they can be presented in lesson form, as well as help to solve problems and facilitate situations within the specific teaching situation.

The aim of this book, then, is to contribute to the advancement of the necessary skills required in order to teach the subject of sustainable development. This includes developing the ability of both active teachers and student teachers to make conscious choices from the alternatives available in the teaching materials and methods in such a way as to expand and deepen students' perspectives on sustainable development.

Book Layout

Apart from this introduction, this book consists of three parts and a conclusion.

Part I

The main point of departure for this book is that the basis for sustainable development lies in humankind's relationship with the natural world. Part I presents a general historical background to humankind's approach to and interaction with the natural world. Here we look at the history of humankind from the hunter-gatherer period up to today's industrial societies with their characteristic environmental problems and with a particular focus on how current environmental commitment has evolved, transformed and intensified over the years. Part I of the book can be described as resting in the encounter between geography, human ecology and environmental history.

Part II

In Part II of the book we take the background and situations from Part I and focus on four current – although principally different – ways of problematising and putting environmental- and development issues into perspective, namely:

- an ecological perspective on what characterises the natural world (chapter four),
- an environmentally ethical perspective on the different ways of morally relating to the natural world (chapter five),
- a political perspective on society's potential methods of dealing with environmental issues (chapter six),
- an economical perspective applied as a means of achieving sustainable development (chapter seven).

The purpose of these points is to bring to the fore four principally different lines of discussion. In addition to highlighting these four methods of problematising and putting environmental- and development issues into perspective, the chapters also follow a sequence. We begin by considering environmental issues as a question of knowledge; the following chapter then considers the problems from a wider angle by introducing an environmentally ethical perspective. This ensures that the issues cannot be reduced to questions that only address individual knowledge or access to information, and allows the norms and values of individuals to be included in the discussion. Following that we address the questions from a political and democratic perspective, which means that in addition to including the environmentally ethical standpoints of individuals, the questions also encompass deliberations on the possibilities of reaching collective agreements within the democratic social system. Finally, the economic aspect is considered as an example of efforts, based on a certain scientific perspective, to support and implement political decisions related to sustainable development.

Part III

In the third and final part of the book, the education perspective is presented, which highlights the fact that the way in which we relate to environmental- and developmental issues – from the points of view of knowledge, environmental ethics and politics – is something which we learn. In other words, the way we relate to the natural world and social development, as both individuals and members of society, can be directly linked to the way we are educated. In Part III, the aim is to explain how this learning process can be understood and, based on that understanding, present a number

Note to Readers

As has already been mentioned, the main aim of the book is to assist in the development of teaching competence in ESD. As the book does not specifically adhere itself to any particular academic subject, and the content stretches over many different fields of sciences, we hope that the reader will have the opportunity to discuss the issues of this book with peers competent in subjects other than his or her own. In such discussions those competent in, for instance, the social sciences can add their insight in sociological perspectives, while others educated in the natural sciences can contribute with their knowledge of ecology etc. We would also like to remind readers that any teaching skills will remain incomplete without the addition of tried and tested experience, and we therefore assume that the book's content will be both consolidated and discussed on the basis of actual experiences of teaching the subject of the environment and sustainable development.

The book layout indicates that while more common environmental problems such as the climate, genetics, energy, biological diversity and the natural landscape, will be brought up as examples, they will not be addressed systematically. The idea is that, due to its structure, the book will encourage discussions on the subject of ESD in Part III. The literature references appear as both footnotes and comments. Each chapter concludes with further details on any references given as well a section for recommended reading.

Further Reading

The following books and articles are recommended for further studies of the discussions on environmental education and education for sustainable development.

- Elliott, John (1999). Sustainable Society and Environmental Education: future perspectives and demands for the educational system. *Cambridge Journal of Education*, No. 3, pp. 325–341.
- Fien, John (1995). Teaching for a Sustainable World: the environmental and developmental education project for teacher education. *Environmental Education Research*, No. 1, pp. 21–34.

of applications and models that can be used in all areas of the teaching process. In chapter eight there is an introductory comparison between education for sustainable development (ESD) and other traditions within environmental education. Chapter nine presents an illustration of the views of the democratic role of education and the consequences of these views within the various traditions of environmental education. In chapters ten, eleven and twelve, the implications of ESD receive particular focus. Chapter ten takes a learning perspective on ESD, where the relationship between the learning of knowledge and the learning of values is one of the subjects addressed. Chapter eleven discusses the teaching perspectives of ESD based on the choices made available to the teacher. In chapter twelve, a closer look is taken, at the practical implications of ESD, with the help of examples.

Conclusion

The book concludes with a discussion about how knowledge and teaching skills in ESD can be developed. The conclusion can also be read as a summary of the book's layout. Additionally we present an outline of the central knowledge requirements of environmental and sustainable development as well as the knowledge on ESD presented in the book.

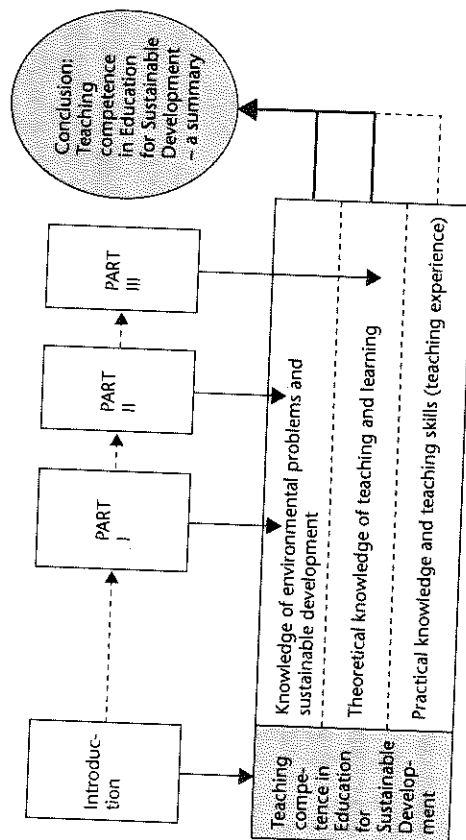
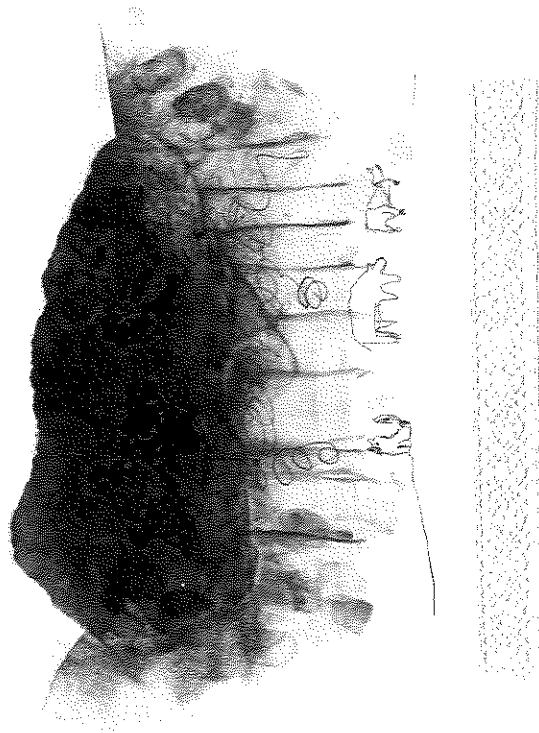


Figure Introduction: 3. Diagram describing the general outline of the book.

- Gough, Stephen (2002). Increasing the Value of the Environment: a 'real options' metaphor for learning. *Environmental Education Research*, No. 1, pp. 61-72.
- Huckle, John (1999). Locating Environmental Education Between Modern Capitalism and Postmodern Socialism: A Reply to Lucie Sauvé. *Canadian Journal of Environmental Education*, No. 4, pp. 36-45.
- Jensen, Bjarne Bruun; Schnack, Karsten & Simovska, Venka (Eds.) (2000). *Critical Environmental and Health Education: Research Issues and Challenges*. Copenhagen: Research Centre for Environmental and Health Education, The Danish University of Education.
- Jensen, Bjarne Bruun & Schnack, Karsten (1997). The Action Competence Approach in Environmental Education. *Environmental Education Research*, No. 3, pp. 163-179.
- Jickling, Bob (2003). Environmental Education and Environmental Advocacy: Revisited. *Journal of Environmental Education*, No. 2, pp. 20-27.
- Jickling, Bob & Spork, Helen (1998). Education for the Environment: a critique. *Environmental Education Research*, No. 3, pp. 309-328.
- Ljimbach, Susanne; Margadant-van Arcken, Marjan; van Koppen, C. S. A. & Wals, Arjen E. J. (2002). 'Your View of Nature is Not Mine': learning about pluralism in the classroom. *Environmental Education Research*, No. 2, pp. 121-135.
- Mckeown, Rosalyn & Hopkins, Charles (2003). EE ≠ ESD: defusing the worry. *Environmental Education Research*, No. 1, pp. 117-128.
- Rauch, Franz (2002). The Potential of Education for Sustainable Development for Reform in Schools. *Environmental Education Research*, No. 1, pp. 43-51.
- Sauvé, Lucie (1999). Environmental Education Between Modernity and Postmodernity: Searching for an Integrating Educational Framework. *Canadian Journal of Environmental Education*, No. 4, pp. 9-36.
- Scott, William & Gough, Stephen (Eds.) (2004). *Key Issues in Sustainable Development and Learning: a critical review*. London & New York, RoutledgeFalmer.
- Stables, Andrew (2001). Language and Meaning in Environmental Education: an overview. *Environmental Education Research*, No. 2, pp. 121-128.
- Stables, Andrew & Scott, William (2002). The Quest for Holism in Education for Sustainable Development. *Environmental Education Research*, No. 1, pp. 53-60.
- Sterling, Stephen (2001). *Sustainable Education: Re-visioning Learning and Change*. Foxhole, Dartington, Totnes, Devon: Green Books.

Part I A Background: Environmental History and Human Ecology



8 Selective Traditions Within Environmental Education

In this chapter we will attempt to present an introductory clarification of what education for sustainable development actually represents: what are the specific characteristics of Education for Sustainable Development (ESD)? What is new and what has already been accomplished in schools? A method of finding the answers to these questions is to compare education for sustainable development with earlier forms of environmental education.

Environmental education has clearly undergone changes during the years and is still approached differently in schools today. Research into the history of school subjects has shown that different traditions of how content and methods are selected in education are present within different areas of school studies. These traditions can therefore be termed "selective traditions"¹. These selective traditions represent a number of solutions as to what constitutes the best form of teaching within a subject, and also include different approaches in both the choice and organisation of content as well as the choice of teaching methods. Like most established traditions, selective traditions often function as an unobtrusive frame of reference, which suggests that one's personal understanding of what constitutes a good education is usually part of a general consensus on the matter. This usually results in new target proposals etc. being greatly influenced by frames of reference within current selective traditions. Here there is a great risk that new ideas and goals will never be realised. It is therefore important

1 The term "selective tradition" was originally developed by Williams (1973) to underline the fact that a certain approach towards knowledge and a certain educational praxis is always selected within the framework of a specific culture. The regular patterns of the selective processes that develop over time form a selective tradition. For studies of different selective traditions within specific school subjects see e.g. Fensham, (1998); Goodson, (1987) and Östman, (1995).

to be aware of the traditions that exist within a subject or field of study in order to make critical and conscious choices of educational content and methods.

Environmental Approach and Educational Philosophy

To a great extent, a person's specific view on environmental issues – their individual *environmental approach* – influences the way they approach and conduct environmental education. At a deeper level, this concerns how one perceives the character, extent and seriousness of environmental- and developmental problems, as well as how much importance one attaches to protecting the environment, taking part in environmental debates and the position one takes in environmental politics. We have already discussed the wide range of approaches to these issues in previous chapters. If we look at the conflicting interests which can appear in environmental issues, it is easy to appreciate that people adopt opposing positions in the range of environmentally related topics depending on their perspectives, values, intentions and interests. The aspect of environmental problems seen in terms of ecological, ethical, economical or political questions has also been addressed in earlier chapters. An important aspect of how we perceive the environment includes asking which of the above perspectives we consider to be the most important.

An opinion of the 'correct' approach towards environmental education is also determined by how one perceives environmental education; we can label this *educational philosophy*. Educational philosophy encompasses general ideas on the role and purpose of schools in society, as well as that which directly affects the teaching process. One way of structuring an understanding of educational philosophy is to start from the three main questions in education: *why?* – the motives of education; *what?* – the content of education; and *how?* – the method used in education. These questions can be problematised based on several different perspectives. From a student perspective, it concerns the learning aspects e.g. how the student

perceives the teaching and what the implications and consequences of the teaching are – which in turn depends on the situation and context as well as the background and experience of the student. From a teaching perspective, it is mainly a case of the choices of motive, content and method the teacher makes. Here we will (mainly) address the teacher perspective as a point of departure and, more specifically, look at the three main questions in the education process in the following way:

- On a social level, the *why* question addresses the main function of the school – the purpose the school serves in society. There is a basic difference of opinion in this question between those who regard the school as an institution which supports continuity in society, in the sense that it preserves and cultivates basic norms, values, viewpoints and knowledge; and those who suggest that the primary function of schools is to create change in society through questioning and critically assessing that which is considered habitual and taken for granted. The *why* question encompasses, therefore, visions of an ideal society – not least it considers how we see the role of the school in a democracy. Based on these broad standings on the role of the school in society, it is possible to observe differing opinions on the motives of teaching in various subjects and the levels of aptitude students should attain.
- The *what* question looks into the choice of content and on what particular grounds certain content is chosen. There is a great deal that can be included in teaching, even within the parameters of school policies – the question is: what is the most important and central in each case? This question is concerned with reasons why the teacher (and students) select a certain type of material, which also indicates that it is a question which concerns the teacher's view on whether or not knowledge is true, valid and useful (i.e. whether there is only one truth or several truths on the same issue; if it is only the models and terminology of science that are valid or if common sense and practical knowledge are also important aspects of our understanding of the world).
- The *how* question deals with the choice of work methods and approaches. A central question is: how can students effectively develop and achieve the goals which have been established in

the curriculum? The how question includes, therefore, understanding how the actual learning process takes place as well as how students are perceived e.g. whether a student is seen as a passive receiver of information who requires external motivation (e.g. qualifications), or whether the student is regarded as active and knowledge seeking with his/her own motivation. An important aspect of this question is how democracy is manifested in the teaching process, or to what degree the students not only participate but are also involved in the planning and realisation of the lessons.

A logical and systematic way of considering the above questions can be said to represent a specific educational philosophy. A specific educational philosophy is thus to be seen as a clear and coherent approach to the purpose and role of education in society, as well as a specific view to the mechanisms of, and the conditions for, the teaching and learning process. During the latter part of the 20th Century and the first years of the 21st Century, the debate on education has been dominated by three educational philosophies: *essentialism*, *progressivism* and *reconstructivism*. These educational philosophies are explained in brief below.²

- *Essentialism* states that the content of the education is to be based on the sciences. Here it is the actual subject that has priority and the teaching is based on instilling adapted scientific terminology and models. The role of the teacher is that of an expert in the subject, who has the task of transferring knowledge and facts to the students.
- *Progressivism* places the students in a central position. The teaching is organised around the needs and interests of the students. The choice of teaching methods is also given a great deal of priority, and the emphasis is on cooperation and problem solving as important aspects of the learning process. Student knowledge is developed through first hand experience of the natural world and society.

2 Descriptions of different educational philosophies were originally formulated by Brameld (1950) and Kneller (1972).

- *Reconstructivism* emphasises the role of the school in the democratic development of a future ideal society. A lot of attention is given to the teaching content and the viewpoints represented by the content. The objective is that students learn how to critically evaluate a wide range of different alternatives.

The Characteristics of the Selective Traditions of Environmental Education

Analyses of various official documents and policy documents for environmental education in schools have shown that there are at least three different selective traditions of environmental education.³ We will label these environmental teaching traditions based on their main orientations: *Fact-based environmental education*, *Normative environmental education* and *Education for sustainable development*.

These three traditions of environmental education describe different ways of understanding the correct form of environmental education that has developed in schools. Traditions in environmental education can be seen as historical accounts of environmental teaching, and can be accredited with constituting a part of the development where one tradition is based on the other, although studies have shown that these three traditions are all present in schools today. The purpose of clarifying these traditions is to establish some sort of reference point that can be applied when discuss-

3 These text analyses are carried out by e.g. Östman 1995 and 1999. The categorization of environmental education into three separate traditions has also been applied in the Swedish National Agency for Education's evaluation of environmental education in schools. That evaluation established the division of three separate traditions and demonstrated that they were both logical and coherent. The evaluation also demonstrated that all three traditions are present in schools today. The full result of the evaluation is available in Swedish in the National Agency's report: *Miljöundervisning för en hållbar utveckling i svensk skola (Environmental education and education for sustainable development in the Swedish school system)*, (2001), a popular version of the evaluation can be found in the National Agency's reference material *Hållbar utveckling i skolan (Sustainable development in schools)*, (2002).

ing teaching on the subject of the environment and sustainable development. They can be seen as alternatives to reflect on, oppose or support when planning lessons or formulating ideas. Here the question arises with regard to where we ourselves actually stand in relation to these traditions, and what we actually aim to achieve in our teaching.

It is important to point out here that the accounts of these traditions are in summary form and have been edited in order to make them clearer. As we are aware, reality is considerably more complex than our descriptions of it – there are infinite details to acknowledge in the practicalities of teaching and people are not always logical in their actions. In practice, teaching is always made up of a combination of different perspectives; although most teachers usually remain within the boundaries of one tradition.

We will now take a closer look at the characteristics of the three traditions of environmental education, with reference to their roots in educational philosophy as well as how environmental and developmental problems are perceived.

Fact-based Environmental Education

The fact-based tradition took shape during the development of environmental education in the 1960s, but became firmly established during the 1970s.

Environmental Approach

Fact-based environmental education is based on the approach that environmental problems are questions of science, and more specifically questions of ecology. It is based on the belief that science will solve all problems in this area. Environmental problems are therefore regarded as being knowledge-based problems which can be resolved by carrying out more research and supplying more information to the public. It is, therefore, the scientists (mainly natural scientists) who are expected to solve these environmental problems that are seen as being unfortunate side effects of the development

of society, the main cause of which is industrial production. The aim is to curb these side effects of the exploitation of the world's natural resources in such a way that secures the future of human prosperity and development. From an environmentally ethical perspective, this tradition is in agreement with the beliefs of modern anthropocentrism (see chapter 5). The natural world is considered as being separate from humankind and it is the task of humans to control it. The natural world is valued depending on how it can best serve humans.

Educational philosophy

From an educational philosophy point of view, this tradition lies closest to *essentialism*. In order to gain an understanding of environmental problems, the teaching process focuses on knowledge within the actual discipline. When dealing with environmental problems, the focus is on the study of scientific facts concerning current localised problems, their background and causes.

The focus in the lessons is centred on conveying scientific facts and concepts which have been adapted for educational purposes. Based on these supposedly objective facts, the students are then expected to draw independent conclusions and act on them. The most usual method of teaching in schools is teacher-led lessons. If it is necessary (or possible), laboratory tests or other practical experiments are carried out in order to illustrate particular phenomena. Field trips and other excursions also take place to a certain extent. All teaching is mainly carried out within the school's traditional subjects. Student participation takes place to the extent that the teacher observes students' attitudes and opinions and then incorporates them into future lesson plans.

Normative Environmental Education

During the 1980s, a new orientation in the social debate on environmental problems emerged (see chapter two). This development led to a challenge of the fact-based approach to environment and environmental education.

Environmental Approach

Within this tradition, environmental problems are primarily a question of values. The problems are looked upon as a conflict between humans and nature. This conflict affects human values, and environmental problems are resolved by adopting environmentally friendly values. In order to do this effectively, people must adjust the whole of society according to the knowledge and information gathered on the natural world e.g. well grounded ecological models, thermodynamic theories etc. Scientific knowledge is therefore regarded as promoting certain normative, prescribed values, which are acted on accordingly. Experts from various fields of science should, therefore, be those who advise and direct people in terms of how they should approach environmental issues, and what environmental values they should adopt. As a consequence, the goals in the development of society are seen as being clear and unambiguous: the environmentally friendly society is the ideal society. Similarly environmentally friendly values and actions are also considered to be good. From an environmentally ethical point of view, humans are seen as a part of nature and should therefore adapt to its conditions. More specifically, ethical logic can be taken from late-modern anthropocentrism, as well as biocentrism and ecocentrism (see chapter five).

Educational Philosophy

The primary goal in this approach to environmental education is that students are taught to develop environmentally-friendly values and behaviour based on scientific knowledge. A lot of attention is focused on developing the ability to form and defend a standpoint that is based on scientific fact. The reference point for this approach is the idea that a strong, almost causal, relationship exists between knowledge, values and behaviour; with knowledge in e.g. fundamental ecological conditions, students will naturally begin to act more responsibly towards the environment. A central aspect is the development of practical skills i.e. the ability to put into practice what has been studied and discussed in theory. From this approach, the teaching method can be said to aspire to encouraging humans to adapt to nature in order that the ecological

balance and the continued health of humankind can be secured for future years. This approach is often characterised by social criticism.

The content of the education consists to a large extent of subjects within the natural sciences; however, the social sciences also play a significant role. The educational content is partly organised in a thematic way, in which several teachers cooperate. The lesson content includes current and local issues, with global problems and future consequences also being addressed. In addition to environmental issues, resource distribution and population growth are also included. Although the lessons are based on scientific facts, values and emotional aspects are included.

To ensure that the lessons achieve the intended objectives, a great deal of attention is given to work methods and using student reference points that are based on their experiences and attitudes. The lessons are usually group-based activities, where students look for facts and information themselves, or are practically activated in other ways. Field trips are also part of this approach, as certain aspects of the lessons require first hand experience. The teacher and students carry out lesson planning together.

Together with a focus on problem solving, the combination of scientific facts and practically active students makes this tradition appear as a combination of essentialism and progressivism, which can be called *progressentialism*.

Education for Sustainable Development (ESD)

This tradition was developed during the 1990s, in connection with the Rio conference in 1992, as well as the debate and movement linked with Agenda 21. In recent years, the debate on the globalisation of the economy has, with all probability, had a certain amount of influence on this type of teaching. Increasing uncertainty on environmental issues and the growing amount of differing opinions in environmental debates are central points of departure in this tradition.

Environmental Approach

In this tradition, environment- and development issues are identified as being conflicts between different human interests. This implies that environmental problems are seen as political and moral issues. Different groups of people with equally different viewpoints and values have their own opinions of what constitutes an environmental- and/or a developmental problem; they also have differing views on how serious these problems are. As science is confined to supplying facts, it is not regarded as an ultimate source of guidance concerning the political and moral aspects of environment- and development issues.

The environmental theme is broadened considerably and is linked to the whole spectrum of social development. The environmental concept is therefore replaced with the concept of sustainable development, which encompasses ecological as well as economic and social sustainability.

The conflict-based perspective of ESD, with ties to the whole spectrum of social development, places the democratic process in focus. The opinions and values of all people are regarded as being equally relevant when determining the courses of action in environmental- and development issues. The democratic debate can be said to centre on the discussion of the 'good' society and quality of life, and how that can be achieved in the present and maintained in the future. No single environmental ethic is prioritised in this approach; here each alternative receives critical examination.

Educational Philosophy

The aim of this approach to environmental education is to give students the opportunity to learn knowledge and skills so that they can actively and critically evaluate different perspectives of environmental- and developmental issues. In this way the students develop the ability to engage in democratic discussions concerning how best to create a sustainable society and a sustainable world. This aspect suggests that the lessons have a *reconstructivist* character.

The teaching content includes the relationship between local and global problems as well as between the past, present and future. The focus is on sustainable development and the related topics of eco-

nomics, society and ecology. Sustainable development is a recurring theme in all education, due to its total integration.

The varied character and problems encountered in various aspects of the lessons indicate that methods of approach are also varied. Discussing the wide range of viewpoints is considered to be an important aspect of the lessons. Fact-based studies investigate the various standpoints on this development as well as the various conflicts existing between each party. This implies that natural and social sciences, in addition to experience-based, moral and aesthetic perspectives, feature in the lesson content. This indicates that pluralism is a reference point in the lessons. Under the supervision of the teacher, students are themselves responsible for lesson plans and realisation.

A Summary of Environmental Education Traditions

In summarizing the three selective traditions in environmental education in table form, we are able to identify a number of significant differences between them. The characteristics of the different traditions with regard to *approach to the environment* can be summarised according to the following table:

Tradition of Environmental Education	Fact-based Environmental Education	Normative Environmental Education	Education for Sustainable Development
Perspective on Environmental problems	Environmental problems are scientific knowledge-based in character and are resolved by means of research and gathering information	Environmental problems are value questions which can be resolved by exerting an influence on people's attitudes and behaviour	Environmental problems are political issues which should be dealt with democratically
The Cause of Environmental Problems	An unforeseen result of production and resource exploitation in society	A conflict between society and the laws of nature	Conflicts between humans' wide range of achievement goals

Tradition of Environmental Education	Fact-based Environmental Education	Normative Environmental Education	Education for Sustainable Development
Assessment of Specialists	Advice is sourced from experts in natural sciences	Experts from various disciplines are consulted even in value questions	All people are considered equal in deciding the outcome of political issues
The Goals of Environmental Measures	Industrial production and the standard of living are the main priority	Health and survival	Increase quality of life, even for future generations
Humankind's Relationship with the Natural World	Humans are separate from nature; the natural world should be under human control	Humans are an element of the natural world and should live according to its laws	Humans and nature are bound in a cycle of events and transitions

If we read the table from left to right we are able to see opinions on environmental issues ranging from a clear and unambiguous scientific problem to a viewpoint which is all encompassing as well as being more diffuse and abstract. As a result we can see that the conflict perspective is enhanced, the political and moral perspectives become more tangible, and environmental- and developmental questions become more closely linked with democratic issues.

These differences can be compared with those in the original reference point in educational philosophy, which is held by each respective tradition of environmental education. This variance is seen most clearly when we summarise and compare the *goals*:

Tradition of Environmental Education	Fact-based Environmental Education	Normative Environmental Education	Education for Sustainable Development
The goal of environmental education	Students receive knowledge of environmental problems by learning scientific facts	Students actively develop environmentally friendly values, primarily based on knowledge of ecology	Students develop their ability to critically evaluate various alternative perspectives on environmental- and developmental problems

By referring to these goals we can be more specific about identifying and summarising the important differentiations in the *content* and *teaching methods* of environmental education:

Environmental Education Traditions	Fact-based Environmental Education	Normative Environmental Education	Education for Sustainable Development
Political and moral reference point	A-political and a-moral	Morally and politically normative	Morally and politically critical
Central subjects and areas of knowledge	Natural sciences	Natural science and aspects of social science	Economical, social and ecological perspectives as well as ethical and aesthetic aspects
Organisation of lessons and teaching materials	Separate subjects	Thematic	Integrated
Time perspective	Present	Present and future	Future in relation to the past and present
Geographical perspective	Local	Local and global	Local, regional and global incorporated
Main Method of Teaching	Factual information from teacher to student	Student active in the development of knowledge and values	Critical discussions based on a number of alternatives
Students	Passive	Active	Active and critical
Planning and Democracy	Teacher plans based on observations and experience of students' input	Teacher and students plan together	Students plan under teacher supervision

If we compare Fact-based environmental education with Education for sustainable development we can see that environmental education, from a content point of view, has been expanded not only in aspects of time and space but also in scale; more school subjects are now involved. One interpretation could be that this type of education has become more focused on dealing with a complex reality -

attempting to grasp patterns and systems. Moreover, the lessons have become oriented towards the future and now have a larger input of political and moral perspectives in environmental and resource issues.

If the fact-based tradition concentrates on *results* in the form of learning specific scientific facts, and the normative tradition concentrates on *effects* in the form of environmentally friendly attitudes and behavioural patterns, then education for sustainable development is more concerned with being a catalyst of *processes*. Reading from left to right, the table demonstrates that students develop a more active and unrestricted role; this progression matches the lessons and approach towards environmental education developing a more critical and investigative character.

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9 Environmental Education from a Democratic Perspective

Evaluating the Alternatives

How can we most effectively evaluate the three different approaches to environmental education described in the previous chapter? Even though the three alternatives can be seen as a historical development of environmental education, it does not necessarily imply that education for sustainable development is 'better' than e.g. fact-based environmental education. None of these three traditions can in themselves be regarded as being either better or worse than the next when one considers that each respective tradition has developed different perspectives of determining what is a 'good' approach to environmental education. There is, clearly, no objective method of establishing what is 'right', since what is considered correct always stems from certain perspectives, intentions or pre-determined interests and values. We simply see things differently.

Making the 'right' choice is far from straightforward, even if one consults official documents since these are always the product of political compromise between varying interests and are consequently open to a certain amount of interpretation. Additionally, teachers who read the documents tend to apply their own perspectives and ultimately contribute their own subjective opinions to the content of the syllabi and curricula.

It is only when we see environmental education in relation to an established norm that we can begin to evaluate different alternatives. In order for such a norm to be accepted with any validity, it must be done so by the majority of people. Democracy is one such norm. If we agree that one of the most important roles of schools is to reinforce the process of democracy in society, and that the democratic process is fundamental in resolving environmental issues,