# The Missing Story

## *Education for Sustainable Development in Norway*

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# Abbreviations

IAEEA    International Association for the Evaluation of Educational Achievement

IPPC     Intergovernmental Panel of Climate Change

IUCN     International Union for the Conservation of Nature and Natural Resources

KL07     Kunnsskapsløftet 2007 (The Knowledge Promotion 2007)

L97      Læreplan 1997 (Curriculum 1997)

MUVIN    MiljøUnderVisning I Norden

PISA     Programme for International Student Assessment

RORG     Rammeavtale ORGanisasjoner

ROSE     The Relevance of Science Education project

TIMSS    Trends in International Mathematics and Science Study

UNCED    United Nations Conference on Environment and Development

UNESCO   United Nation Educational, Scientific and Cultural Organization

WCED     World Commission on Environment and Development

# Acknowledgements

The choice of topic for this thesis was guided by my keen interest and curiosity within the areas of communication studies and sustainable development. How sustainable development is communicated with young people is one of the key challenges of education in contemporary Norwegian society.

I would like to thank my supervisor, Nina Witoszek, for helping me define the scope of the topic and for guiding me through the process of researching and writing. Her creative ideas and critical eye have been invaluable for the development of this thesis.

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# 1.  Introduction

In 1987 the World Commission on Environment and Development, led by Gro Harlem Brundtland, placed the term "sustainable development" on the global political agenda. The Commission's report *Our Common Future* (1987) called upon humankind to pursue a path of sustainable development so that also future generations will have the opportunity to meet their needs. The concept of linking human development challenges such as poverty, unequal distribution of wealth, and social justice to the environment was path-breaking at the time. According to a UN organized panel of scientists (IPCC), environmental problems are even more urgent today than they were twenty years ago. The panel calls for human action and states that "Sustainable development can reduce vulnerability to climate change, and climate change could impede nations' abilities to achieve sustainable development pathways" (IPCC 2007). The inherent threat of climate change accentuates the importance of sustainable development.

To transform a society to become sustainable requires different kinds of efforts: political, structural, industrial, technological, and scientific, to mention a few. One of the main assumptions of this thesis is that to achieve sustainable development we also need to cultivate the right kinds of values, attitudes and behavior which often defy our traditional social and cultural contexts[1] (Soetaert and Mottart 2004). Education is an important institution in the negotiation and renegotiation of a culture. Education is also a key in shaping young people's perception of themselves in relation to the environment and the world around them. A major challenge for the educational system is to influence students to become active and aware citizens able to make decisions, have insight and understanding for people in other situations and influence their surrounding environment (Carlsson and Jensen 2006).

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[1] An argument that will be elaborated later in this thesis and that has been put forward by several theorists and writers on the issue of sustainable development (Hellevik 2002).

This thesis is an investigation of the role of sustainable development in secondary education (ages 13-16) in Norway.[2] The aim is to examine narratives on sustainable development in education, and find whether these stories have the power to captivate and engage students and teachers. Relevant questions are: (1) Does sustainable development have a prominent role in Norwegian secondary schooling? Is it an area of priority that receives attention and reflection from students and teachers? (2) Is the story of sustainable development told in a way that is accessible and empowering for students and teachers? Accessibility entails being able to grasp the story and frame it within the world as you know it. Empowerment, in this context, entails ability to include yourself in the story as an active participant and to explore alternative possibilities. (3) Are the textbook representations of development and the environment, two key concepts in sustainability thinking, conducive to promoting a sustainable future? (4) What are the strong and the weak areas of the story of sustainable development as it is told in secondary education?

The thesis argues that while environmental and developmental issues are part of compulsory secondary education, whether these issues are seen from a sustainable development perspective is very much left to chance. The holistic and inspiring story of sustainable development that provides a sound knowledge base, at the same time as it enables students to identify with the challenges at hand and use their reflective, creative and analytical skills to bring about sustainable development, is missing.

## 1.1 Sustainable Development in Norwegian Schools

We are at the outset of the United Nations Decade of Education for Sustainable Development. UNESCO's goal is to "integrate the principles, values, and

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[2] I have focused the analysis to secondary education to limit the scope of the thesis and because it is at this level that sustainable development issues receive serious attention in the curriculum and textbooks. I have also limited the analysis to the natural science and social science subjects because these are the only subjects where sustainable development is given a prominent role in the national curriculum (this will be discussed further in Section 3.4.1).

practices of sustainable development into all aspects of education and learning"
(UNESCO 2006). This goal is not new; twenty years ago the Brundtland Report
called for "a vast campaign of education, debate, and public participation" in
order to achieve sustainable human progress (WCED 1987:23). Norwegian
authorities claim to have taken a systemic approach to the issue of environmental
education in line with the goals of the Brundtland Report, and see themselves as
a vanguard of education for sustainable education (Ministry of the Environment
1994). Despite this effort, research shows that Norwegian people's engagement,
values and concern for the environment have been declining steadily in the last
few decades. However, at the beginning of the 20$^{th}$ century there was a slight
upward shift in concern for the environment in the population. In 2006 and 2007
there was an increased focus on man-made climate changes and grave future
forecasts, and on the extreme differences between rich and poor in today's world.
This media frenzy might contribute to enhance the tendency toward more
concern for the environment, but if this is actually the case is uncertain because
data for this period of time are not yet collected and analyzed (Hellevik 2006).

While environmental education is an integral part of the Norwegian school
system, it might seem teaching about sustainable development is not as systemic
as one might hope (Seippel 1997). There seems to have been relatively little
research and analysis of how education for sustainable development is conducted
and the effects it has had – especially during the last decade.[3] This context is the
starting point, and also a contributing motivation for this thesis. While there can
be little dispute that the Norwegian population – young and old – has ready
access to and knowledge about the environmental challenges we are facing, there
seems to be a certain apathy – as illustrated in the decline of environmental
enthusiasm – towards taking real and decisive steps in order to deal with these.
How can education contribute to foster active and engaged students with the
ability to see possibilities and make change?

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[3] Kristensen and Christensen conducted a series of studies on environmental education in Norway up until the first
half of the 1990s (Kristensen 1977, Kristensen and Christensen 1993).

## 1.2 Theoretical Inspirations

This thesis will appropriate Bruner's culturalist approach to education based on the premise that "education is not an island," but part of the continent of culture. The culturalist approach incorporates both a macro and a micro perspective. From an overarching perspective culture is seen as a system of values, rights, exchanges, obligations, opportunities and power. On the micro level, the culturalist approach examines how the demands of a cultural system affect those who must operate within it (Bruner 1996:11). I shall use narrative analysis, inspired by the narrative theory of Bruner (2006), to explore the role of sustainable development in education. Narrative is an important part of culture that shapes human mind and action through creating meaning, possibilities, empathy and agency. The analysis of narratives does not only provide a descriptive account of elements included in that story, but it can also provide an understanding of the meaning of that particular text.

The theory chapter starts from a broad sociological perspective on education's role in society. The process of education is a cultural affair that is crucial in shaping how we think and act towards each other and the environment. One of education for sustainable development's challenges is to balance social cohesion and continuity with social and cultural change (Bourdieu and Passeron 1977). Education plays a vital role in helping young people stake out a sustainable path in today's information society saturated with a multitude of contesting messages (Seidman 2004). Both the social and the natural sciences are struggling to mediate successfully with society on issues related to sustainable development (Delanty 1997). The discussions in the theory chapter aims to provide a framework that enable the subsequent analysis to see education for sustainable development in light of larger social and cultural patterns, and to highlight the importance of narratives in the educational setting.

## 1.3 Methodology

The narrative analysis in this study is based on a selection of qualitative methods: library research, participant observation, qualitative interviews and text analysis. I have chosen a qualitative approach in order to provide an in-depth analysis of the narrative of sustainable development in the educational context. The methods chosen allow me not only to explore the educational narratives in detail, but also to analyze these in the light of their cultural context. To approach my subject, I have explored a number of sources and used a number of research strategies, which included:

1. Library research - to find information on the development of education for sustainable development in Norway. I analyzed policy documents, informational pamphlets, research studies and books to obtain a comprehensive understanding of the background of sustainable development in the Norwegian school system.

2. Text analysis - to find out what kind of stories about sustainable development are dominant in the national curriculum and textbooks.

3. Qualitative interviews - to explore how the story of sustainable development is experienced by those who participate in the educational system. The interviews with individual students lasted about 15 minutes. Interviews with teachers lasted around an hour. I also conducted interviews with public officials and researchers (experts) to back up my library research and to get an updated view of education for sustainable development in Norway. I could have chosen to conduct surveys or questionnaires that would produce more "quantitative" data. This form of collecting information would expose responses from a larger sample of people. However, I chose to use the qualitative form of interviewing because it allowed me to inquire deeper into the material and explore the complexity and richness of the interviewees' opinions and experiences (Yin 2003:90). The interviews were recorded on tape, and later transcribed and analyzed.

I constructed interview guides to make sure that interviewees were asked similar questions for later comparison (See appendices A and B). It was important to me to have a structure and a clear idea of what questions I wanted to get an answer to, but I was also prepared to be flexible if the interview took an unexpected turn that led us to relevant topics outside of the prepared guide. I attempted to create an informal and positive atmosphere to emphasize that my aim was not to scrutinize the interviewees, but that I have a genuine interest obtaining insight from their point of view. I attempted to avoid leading questions to enable the interviewee to emphasize the areas s/he feels are important (Rubin and Rubin 2005).

4. Focus group interview - to get a more varied response. In the interviews with the individual students I felt that my authority as an adult figure limited some of the students' responses, despite my attempts to create a safe and open atmosphere. Answers in the individual interviews were often short and students often gave an impression that they wanted to give the "correct" answer even though they had been informed of their anonymity. These problems were eliminated in the focus group where students were surrounded by their peers, and I was able to acquire a greater depth and detail in opinion. A focus group – highlighting a group discussion on a particular theme that is guided by a moderator (Dürrenberger, et al. 1997) – allows for ventilating differences in opinions, and uncovering a variety of experience which is often blocked at the level of face to face conversation.

5. Participant observation - to listen to the stories told, note the used vocabulary, and observe the communication between the students and the teacher. Due to difficulties in finding schools that taught themes related to sustainable development during the research period, it was only possible to conduct participant observation in two different settings. The first was at a school that had a weekly tradition of bringing newspaper clippings about topics relevant to their subjects. The other was at a school that did a group exercise on global warming. I observed and talked to students during their group work and observed the

conclusion of the project that was a three hours long staged UN-debate on global warming. [4]

## Limitations

The results of my research cannot be rendered representative of the Norwegian school system as a whole, if only because I did not find informants through selecting a representative sample (Lunt and Livingstone 1996). However, the use of a few selected cases enabled me to investigate education for sustainable development by examining a few examples in depth. The case study approach, as opposed to, for example, an experiment, has been valuable for the purposes of this thesis because the phenomenon (education for sustainable development) can be studied in the social context it appears (education or social and cultural norms) instead of laboratory (Yin 2003:13). Thus, even though the findings of the thesis are not representative, I hope my research will contribute to a better understanding of the problems and challenges tied to the education for sustainable development in Norway – and start a debate that is badly needed today.

Another likely limitation to this analysis springs from my own sentiments and preconceptions. As a committed "environmentalist" I often have had to restrain my critical stance while talking to the students and teachers. As will be apparent from my study, environmental education in Norway – although adequate in some cases – leaves much to be desired and calls for a radical rethinking of the sustainability project.

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[4] To make sure that my informants experienced their participation in my project as safe and comfortable as possible, the names of the students, teachers and schools have been held anonymous in order to enable them to speak freely and make sure that the publication of the research would have no harmful consequences for them. All informants, including the experts, were informed about who I was and the topic of my thesis prior to the interview. To make the experience comfortable I straightforwardly told the informants that my intention was not to test their knowledge or engagement, but rather to obtain their insights from real life experiences that could help me create a realistic picture of the status of sustainable development in Norwegian education.

## 1.4  Definitions of Key Concepts

*Culture*, *education* and *narrative* are some of the central concepts of the discussion, and I will here briefly clarify how they are used in this thesis. *Sustainable development* is another essential concept that will be treated in detail in Chapter 3. In a well-known definition Clifford Geertz describes *culture* as

> an historically transmitted pattern of meanings embodied in symbols, a system of inherited conceptions expressed in symbolic forms by means of which men communicate, perpetuate and develop their knowledge about and attitudes toward life (Geertz 1973:89).

The point is that meaning is created in a cultural sphere that is not static, but instead dynamic and changing. While we inherit meanings from the past, our inheritance is changing and acquires new meanings depending on the circumstances. The terms "social" and "society" are often used intermittingly with culture. While these terms are interdependent, society can be seen as a somewhat broader term including systems such as political structures and boundaries, while culture would then refer to the meanings attached to these (Abercrombie, et al. 2000).

Even though the primary focus of this thesis is on formal secondary education, I follow the anthropological practice of distinguishing *education* from schooling (Levinson and D.Holland 1996). While "school" is here seen as a state organized institution, education is a broader term including both formal schooling, but also informal channels of learning. While the school system is a vital factor in knowledge and value formation among young people, they also receive information and impulses from a wide range of other sources such as the media, the Internet, parents and peers. One of the limitations of this thesis is that it only looks at formal schooling, and not at education in a broader perspective.

*Narrative* is another central concept in this thesis. According to a technical definition, a narrative is a text, a piece of connected discourse, larger than a

single sentence, but varying in length from a few sentences (e.g. a joke, an anecdote) to a complex form containing many sections, such as we might find in a novel (Wajnryb 2003:20). A narrative consists of a set of events (the story) recounted in a process of narration (or discourse), in which the events are selected and arranged in a particular order (the plot) (Baldick 1996). This thesis will employ a broad definition of narrative that in addition to the technical definition above sees the sum of statements, facts, pictures and descriptions in a particular context, such as a textbook, as a form of narrative. Narrative is a cultural tool used more or less unconsciously when communicating with other people and has the power to influence our perception of the world we live in (Bruner, et al. 2006).

## 1.5 Thesis Outline

Chapter 2, dedicated to theory, provides an analytical framework that draw links between cultural and social patterns of society at large, and education for sustainable development with emphasis on narrative analysis. In Chapter 3 I will provide a brief account of the concept of sustainable development and central discussions connected to this complex and disputed concept. This chapter also offers a brief account of the history and ideas behind education for sustainable development, and provides an overview of the Norwegian efforts in this field. Chapter 4 examines the role of sustainable development the Norwegian curricula and textbooks. Chapter 5 provides a narrative analysis of the story of sustainable development in the textbooks. In chapter 6 I discuss the findings from my fieldwork. The last chapter draws conclusions from the research and highlights issues that require further investigation.

# 2. Education as Storytelling – Theoretical Inspirations

This thesis is written from a social science and humanities perspective that analyses the role of sustainable development in the Norwegian school system. The thesis will appropriate Bruner's (1996:11) culturalist approach that emphasizes the importance of the larger cultural systems, but also pays attention to the individual outcomes of this system. The theoretical framework stresses the close link between culture and education, and underlines the role the educational narrative has in the shaping of human society both at an individual and societal level. Narrative, a key cultural tool humans use to communicate with each other and make sense of the world, should be scrutinized and appropriated to foster students to take on the challenge of creating a sustainable future. One of assumptions of this thesis is that to achieve sustainable development we also need to cultivate values, attitudes and behavior largely dependent on our social and cultural contexts. Therefore, an analysis of what kind of messages the educational narratives communicate to students is important to determine to what extent sustainable development is a topic students understand, can relate to, and are able to have an opinion about and possibly change.

The first section in this chapter focuses on the challenges of education to balance social reproduction and social change, and to provide a sense of direction in information society. The second section provides a brief discussion on how the social and the natural science struggle to communicate about sustainable development to students and the general public. The third section discusses Bruner's psycho-cultural approach to education and provides insights into the significance of culture and narrative in society as a whole, and in education in particular. Sustainable development is one of the most complex, yet important, issues facing the young today, and one of the educational challenges is to communicate this topic to students in a way they can understand and relate to their own lives. Using Bruner's theories, it is here argued that narrative can be

used as a crucial tool for enabling young people to obtain a balanced and critical view of the world and a sense of agency.

## 2.1 Education: A Vehicle for Social Change or Reproduction?

The theories of French philosopher and sociologist, Pierre Bourdieu, provide valuable insight into the role of education in society. Bourdieu's writings emphasize the reproductive function of education (Grenfell and James 1998). A major challenge for Western societies is the need to balance sustainability and economic growth – the eternal dilemma of sustainable development that needs to be tackled when educating young people. Should schools encourage students to accept the status quo or to challenge the explanations and solutions of the dominant discourse? New global challenges require new solutions. At the same time a certain degree of social cohesion is necessary to implement sound and lasting solutions.

Bourdieu's research on education in the 1960s was the vanguard of the development of a new era of sociology of education. This new approach questioned the post-Second World War legacy that presupposed that natural talent was randomly distributed genetically throughout the population. Bourdieu did not believe in any innate abilities within people. Instead, pedagogical practice had to become sociologically aware so that the process of teaching could engage with people's actual, often culturally determined, capabilities to learn. By outlining the social circumstances which create the educational systems which socially influence our thinking, Bourdieu argued that people can transcend constraining social conditions precisely if they are able to recognize them as such (Robbins 1991).

The identification of social conditions is central to Bourdieu's notion of *habitus*. Habitus refers to how people's perception of themselves and their surroundings is shaped by social factors from the past and the present. But it also

works the reverse way; social conditions are produced by people (Johannesson and Popkewitz 2001). The educational system is an example of how Bourdieu's notion of habitus works. At the same time as students are conditioned by the educational system, this system itself is a product of a particular social condition (Broady and Palme 1985).

Since the 1800s, the educational system has been one of the most important factors for creating social mobility and justice. Bourdieu stresses the social reproductive function of education. This is illustrated in his definition of education: "Education, considered as the process through which a cultural arbitrary is historically reproduced through the medium of the production of the habitus productive of practices conforming with that cultural arbitrary…" (Bourdieu and Passeron 1977:32). In the process of reproducing a cultural arbitrary education is engaging in what Bourdieu refers to as "symbolic violence." Symbolic violence entails being able to make a social order appear as natural without using physical violence, but using more subtle forms of power such as information and societal structures (Wilken 2006:81-85).

The notion of symbolic violence indicating that a small elite consciously plans to indoctrinate its subjects with a particular perception of reality seems like a far-fetched idea in the context of the Norwegian educational system. I believe the Norwegian public sphere consists of a multitude of different impulses, actors and ideas – all of which influence what is taught in school. The Norwegian authorities are of course in a special position to determine the national educational structure, economic situation and curricula, but these authorities exist in a democratic system and must be responsive to voters, the media and civil society. Also, I have a problem with the use of the concept "violence" in this context. A somewhat "frivolous" use of the concept might contribute to losing the meaning of what violence is.

Though the notion of "symbolic violence" is a radical and simplistic perception of how cultural leaders assert their authority, Bourdieu's notion of

habitus is a valuable framework for understanding the Norwegian educational system's role in society. Schools do not exist in bubbles: The norms and values of society are shaping the way that the educational system works and the content of education. Education thereby exerts a reproductive function by reproducing dominant value systems and beliefs. Hence, we need to acknowledge that education takes place in a culturally and politically specific context. Students need to be made aware of the social and cultural constructions around them. Moreover, education must encourage students to evaluate whether the particular context they find themselves in is compatible with a sustainable future.

The need for a recovery of the ideological critique in education is put forward by several educational theorists (Collins 2003:68). The ideological critique in education is an essential inclusion in a world that faces huge environmental challenges at the same time as economic growth acts as the primary development path. One of these theorists is C.A. Bowers who calls for a heightened awareness of how cultural beliefs and practices, passed through by education, relate to the ecological crisis. He maintains that the most fundamental challenge we face in combating current environmental problems has to do with our cultural beliefs, which contribute to the accelerating degradation of the environment. Despite this, the education-culture-environment connection is largely overlooked (Bowers 1993).

Bower claims that educational systems in the West are based on the rational tradition of 17th and 18th century thinkers such as Descartes, Locke and Cassirer. As a result, education perpetuates cultural patterns of individualism, rational thinking and a dualistic worldview that distances man from nature. Bower contends that we need to change fundamental aspects of our belief systems and patterns of social life in order to achieve this goal. That we are still Cartesian thinkers is reflected in the way we frame the ecological crisis as a rationalistic and measurable problem, while references to culture is lacking. The educational system has a special importance in the ecological crisis because the socialization of students involves encountering in a more systematic way the

language and conceptual frameworks that underpin the mainstream culture (Bowers 1993:1-34). Thus, including awareness of one's own habitus could be a valuable contribution to education for sustainable development. This would entail an educational model that questions the dominant belief systems and fosters students to reconsider socially accepted patterns that are incompatible with a sustainable future.

## 2.2 Sustainability and "the Two Cultures"

Today's youth have to navigate in a society characterized by a rapid flow of information and a myriad of different messages and impulses. One of the challenges of education for sustainable development is to speak the same language as young people, and to provide guidance in finding themselves in an information-saturated society. Contributions from both the social and the natural sciences are imperative to providing an accurate and comprehensive education for sustainable development. However, several critics claim that both disciplines have not yet developed their full potential within this field of study (Becker, et al. 1999). Environmental research, as presented in schools, is still suffering from a strong bias towards the natural science, even though there is a growing acknowledgement of the social science to contribute to this field. The main focus of environmental analysis is on monitoring of the physical environment, while societal actions – if they are investigated at all – are formulated primarily in non-social terms, such as "energy use" or "devastation of land." Oversimplified models have boiled down societal impacts on the environment to a mere outcome of population dynamics (Becker, et al. 1999). Thus, environmental analysis seems to be biased towards the natural science perspective, and as a consequence, the human factor is left out or over-simplified. The concept of sustainable development relies heavily on the linkages between the natural and the social world. One-sided environmental analyses pose a challenge to education that aims to provide a holistic story.

Moreover, while much has been written on the social implications of sustainability, scant attention has been paid to investigating and delineating the role of the social sciences more comprehensibly (Becker, et al. 1999). Sociologist Gerard Delanty argues that natural and social sciences are autonomous, but have common concerns. One of these commonalities lies in the area of nature. Unsustainable practices and the environmental consequences of these have given rise to new questions about the democratization of science and technology, and to the broader question of the public role of knowledge (Delanty 1997:136).

Delanty maintains that the future direction of the social sciences points to reconciliation with the natural sciences. He points to the failure of the social sciences to engage with society with regard to public knowledge. Delanty proposes a concept of social science as a "discursive practice" in order to address the question of the mediation of scientific discourse with social discourses. A discursively mediated relationship between the social science and society involves many social actors who define, negotiate and thereby construct problems that are to be the focus of social science. The emancipatory function of the social science is confined to its mediatory role in clarifying the direction of social change (Delanty 1997:135-143). Both the social and natural sciences seem to be having problems engaging people – an objective that is paramount in education for sustainable development. Snow's "The Two Cultures" (1959) is illustrative of the situation in where the two disciplines have not found a common language to engage in constructive dialogue. Paramount for achieving a successful mediation with students, or society as a whole, on issues of sustainable development, is the integration and cooperation of the social and natural sciences. Neither can be successful in finding and analyzing the causes, effects and solutions for global problems facing humanity without the insight from the other discipline.

## 2.3 Education, Narrative and Culture

Culture is constantly in a process of being recreated as it is interpreted and renegotiated by its members. Moreover, a culture is a dynamic *forum* for negotiating and re-negotiating meaning. Education is one of the principal forums in a culture: providing its participants with a role in the constant making and remaking culture (Bruner 1986). In the remaining part of the chapter I will explore a theoretical framework that emphasizes the importance of culture, meaning and narrative in education for sustainable development. We will begin by outlining Jerome Bruner's thoughts on the importance of culture in meaning making, and go on to examine the role of narrative in this process. Lastly, we will link the foregoing with education in order to discuss the use of narratives in education.

Bruner is a well-known psychologist that has made a thoughtful contribution to the field of education in the last half century (Smith 2002). As a contrast to a technical and objectivist approach to psychology, Bruner advocates what he calls "cultural psychology." With this perspective Bruner urges psychology to stop trying to be meaning-free in its system of explanation. Further, the human sciences inherited the old-fashioned fallacy from the nineteenth century that culture is an overlay on biologically determined human nature. Bruner, on the contrary, argues that culture and the quest for meaning within culture are the proper causes of human action. The biological substrate is not the cause of action but, at most, a constraint upon it or a condition for it. The tool kit of any culture can be descried as a set of prosthetic devices by which human beings can exceed or even redefine the "natural limits" of human functioning (Bruner 1990:21). How can the Norwegian education system use this cultural toolkit to overcome the unsustainable challenges of today and tomorrow?

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## 2.3.1　　Narrative

Narrative is an important part of the cultural toolkit. The concept of narrative is hard to define because it appears so naturally in human culture that it is hard to distinguish it from language itself. We use stories from the time we are very young quite effortlessly to further our own needs, and we listen to stories endlessly in our daily lives. It is precisely because we seem to intuitively use narrative without explicitly recognizing the power of this culturally essential tool that Bruner has given so much thought and effort into the issue (Bruner 2002:3-5). The term "to narrate" derives from both "telling" (narrare) and "knowing in some particular way" (gnarus). Knowing and telling are intimately linked and are integral parts of human nature (Bruner 2002:29). The close link between telling and knowing might seem like an apparent fact. However, it is crucial to be aware of this linkage and its consequences when teaching about sustainability. What kind of perception of the world do educational narratives communicate? And is this perception compatible with sustainable development goals?

Narrative provides the least disrupting way of passing on culture and culture's way of knowing (Bruner, et al. 2006:23). Narrative, in all it forms, is a dialectic between what was expected and what came to pass. Stories are extremely sensitive to whatever challenges our conception of the canonical. Bruner maintains that narrative is a culture's coin and currency. A culture's myths, folktales, drama and pageants memorialize both its norms and notable violations of them (Bruner 2002:15). Bruner holds "Through narrative, we construct, reconstruct, in some ways reinvent yesterday and tomorrow. Memory and imagination fuse in the process" (2002:93). Stories are always told from a particular perspective – the victor's tale of triumph is the loser's tale of defeat, though both were in the same battle. The one who gets to tell the story also gets to define reality. A narrative models not only the world but the minds seeking to give its meanings (Bruner 2002:23-27). Stories shape our realities, but we are active participants in our culture through the narratives we share to make sense.

> We 'become' active participants in our culture mainly through the narratives we share in order to 'make sense' of what is happening around us, what has happened, what may happen. We pattern our realities on these narratives and come to live in a world fashioned by them (Bruner, et al. 2006:14).

At the heart of any social change one often finds fundamental changes in our conceptions of knowledge and thought and learning, changes impeded and distorted by the way in which we talk about the world and think about it (Bruner 1986:121).

Hence, culture is determining in creating meaning, and narrative is the primary tool in this constant process of meaning making. Narrative does not only influence our perception of reality, but also our perception of limitations and possibilities of change. The kind of sustainability challenges and solutions students are able to identify depends on the cultural stories that surround them. The discussions below will elaborate on the relationship between culture, narrative and education for sustainable development.

### 2.3.2 Narrative Imagination

Even in fiction, we do not desert the familiar but imagine what might have been or what might be. This fusion of reality and fiction creates possible worlds. The art of the possible entails taking heed of life as we know it, yet alienates us from it sufficiently to tempt us into thinking of alternatives beyond it. It has the power to change our habits of conceiving what is real and what is canonical (Bruner 2002:93-94). Along similar lines, Martha Nussbaum, an American philosopher, argues that arts play a vital role in cultivating the powers of imagination that are essential to citizenship (Boynton 1999). She asserts that students should not be encouraged to simply amass knowledge; we must cultivate a capacity for sympathetic imagination that will enable us to comprehend the motives and choices of people different from ourselves. The arts cultivate capacities of judgment and sensitivity. Moreover, narrative imagination is an essential preparation for moral interaction required for a certain type of citizenship and

form of community; one that cultivates a sympathetic responsiveness to others' needs, and understands the way circumstances shape those needs, while respecting separateness and privacy (Nussbaum 1997:85-90).

In addition to cultivating compassion and understanding, the arts have historically had a central role in challenging conventional wisdom and values. Education must encourage students to read critically: to have a civic and evaluative approach to reading that is both moral and political. Such an approach invites the reader to discuss texts by making moral and social assessments of the kinds of communities that the texts create (Nussbaum 1997:100-101). Hence, narrative art plays a crucial role in shaping the notion of citizenship and compassion at the same time as it cultivates an evaluative and civic approach toward texts. Sustainable development is a global issue that affects different people in different ways. When learning about sustainable development human qualities like compassion and understanding across boundaries (narrative imagination) are vital assets in preparing future generations to understand and deal with the global challenges.

### 2.3.3  Education, Narrative and Social Change

Narratives, both real and fictional, have the power to bring about social change, and are therefore valuable tools in education for sustainable development. I will now outline the some of the most critical challenges faced by the educational system from Bruner's psycho-cultural perspective that emphasizes the relationship between narrative, education and culture.

An "official" education enterprise cultivates beliefs, skills, and feelings in order to transmit its sponsoring culture's ways of interpreting the natural and social worlds, much in line with Bourdieu's argument discussed above. In carrying out this function the educational institution sponsors a certain version of the world. Or it runs the risk of offending some interests by openly examining views that might be taken as the culture's canonically tabooed ones. Bruner

argues that an educational enterprise that fails to take the risks involved becomes stagnant and eventually alienating. Effective education is always in jeopardy either in the culture at large or with the constituencies more dedicated to maintaining a status quo than to fostering flexibility. When education narrows its scope of interpretive inquiry, it reduces a culture's power to adapt to change – and in the contemporary world change is the norm (Bruner 1996:13-15). In a world of rapid change, where new environmental and social challenges face young people, the role of education to challenge canonical narratives and search for new solutions is imperative.

*Intersubjectivity* – the human ability to understand the minds of others, whether through language, gesture or other means – tend to be a well-developed gift among humans. Our Western pedagogical tradition hardly does justice to the importance of intersubjectivity in transmitting culture. Bruner is opposed to a transmission model of teaching where the teacher speaks and the students listen. He proposes an interactive and intersubjective pedagogy that caters to communities of mutual learners (Bruner 1996:19-22). Interaction with others is a crucial part of education, and so is the formation of "Self." Bruner identifies two aspects of selfhood regarded as universal. The first is *agency*, the sense that one can initiate and carry our activities on one's own, which gives a person a sense of her own history and possibilities. Different cultures shape selfhood differently and set its limits in various ways. Narratives are built around, indeed depend on, an agent-Self as a protagonist with her own goals operating in a recognizable setting. *Evaluation* is the second ubiquitous feature of selfhood; we evaluate our efficacy in bringing off what we hoped for or were asked to do. Bruner terms this mix of agentive efficacy and self-evaluation "self-esteem." The management of self-esteem is never simple and settled, and its state is affected powerfully by outside settings such as the educational system. Bruner argues that any system of education that diminishes the school's role in nurturing its pupil's self-esteem fails at one of its primary functions. One of today's fundamental problems is how to cope with the erosion of this function under modern urban conditions. If we want education to be an entry into culture, and not just a preparation for it, then

we must constantly reassess what the school does to young students' conception of their own powers (sense of agency) and their sensed chances of being able to cope with the world both in school and after (self-esteem) (Bruner 1996).

There appears to be two broad ways in which human beings organize and manage their knowledge of the world: logical-scientific thinking and narrative thinking. No culture is without both of them, though different cultures privilege them differently. The importance of narrative for the cohesion of a culture and for structuring individual life is great. Nevertheless, it has been the convention in most schools to treat the arts of narrative – song, drama, fiction – as more "decoration" than necessity (Bruner 1996:39-40). Advocating the importance of narrative does not mean to undervalue the importance of logical-scientific thinking. There is room, and need, for both in the educational system. In summary, a system of education must help students to find an identity through a set of narratives. Without it they will stumble in their search for meaning. Schools must cease taking narrative for granted, and instead emphasize the power of consciousness, reflection, breadth of dialogue and negotiation (Bruner 1996:40-43).

Bruner provides a lucid psychological and cultural insight into how meaning is created and alerts us to challenges of meaning making in education and in everyday life. Education plays a key role in the reproduction of meaning and creation of social change. Challenging the grand narratives and questioning their sustainability are keys to a successful education for sustainable development. Moreover, education can use the symbolic system of a culture to equip students with the evaluative and action-oriented tools of narrative to take an active role in creating their own future.

## 2.3.4  An Example of the Use of Narrative in Education for Sustainable Development

There is a multitude of different models of how narrative learning can be integrated into education.[5] The autopoetic learning approach is an innovative example of how narrative can be used as a tool to further sustainable development in an educational setting (Pauli 2006). The idea of autopoetic learning is to create a method of learning by integrating science, emotional intelligence, arts, holistic thinking and the capacity to implement through exposing children to fables. The method is based on the belief that learning is about more than teaching children what we already know.

Through the telling of fables children are encouraged to use their imagination, discover connections and formulate answers to questions that never were asked before. The fables are constructed to include sound scientific material expressed in the form of narrative accessible to students. The stories do not provide ultimate answers to preset questions. For example, the fable "King of Hearts" informs the students that a whale can pump 1,000 liters blood per pulse with a mere 6 volt. There is no equivalent pump manufactured anywhere else in the world. Curious kids wish to understand how to make electricity with food, knowing that the whale does not eat meat, fruit or vegetables. Children quickly find out that potassium, sodium and calcium is all that is needed to make your heart beat. Experiences from Japan and Columbia demonstrated that the children can make electricity with banana peels and egg shells. Once the children succeeded in making their own bio-battery, it was easy to understand that there is no way you can argue to these children that metal-based batteries are the best. While banana peel and egg shell batteries might not be feasible on the world markets today, this kind of creative and innovative thinking is needed to meet the sustainability challenge of the future. Through the fables children learn about science and its possibilities to solve real life problems without turning to the

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[5] See for example: (Lyons and LaBoskey 2002, Miller 2005, Phillion, et al. 2005).

archaic and disconnected discourse of conventional science education (Pauli 2006).

Through the fables, children are not only exposed to scientific information in narrative form, but they are also exposed to many different characters and situations. This exposure enable the children to handle different inter-human relationships and situations better, as well as becoming increasingly aware of humans relationship with nature. The fables also encourage the students' artistic intelligence and capacity to express innovative and creative ideas in a language that is broadly understood. Lastly, the autopoetic approach aims to provide the children with the capacity to implement solutions. This entails all adults to take a step back and give children a vote of confidence by letting them do what they feel like doing and think as they like to think. Experimentation and field experiences are key to the overall design of education, but time has come to go beyond the mere trials, "time has come to entrust the children with the rights and responsibilities to implement the solutions they dream up themselves" (Pauli 2006:64). If we take children by the hand to "help" and "control" them, the children will only have the options we know and will only be able to repeat the mistakes we have made. Instead, we should create a learning space for children to act as entrepreneurs, capable of imagining new ideas and better solutions.

Today's education system is based on teaching children knowledge we already have. Autopoetic learning is an example of education that fosters creativity and imagination in order to go beyond the obvious and ask inquisitive questions and search of innovative answers. This approach calls for a new role of teachers. Instead of being the gatekeeper of knowledge the teacher must dear to address the unfamiliar by asking creative questions and not always having a ready answer. This example of how narrative can be used to encourage sensitivity, creativity and innovation in education for sustainable development raises several interesting questions relevant to the Norwegian school system. Is science education taught in a way that engages and interests students? Is it easy for students to convert their knowledge and skills from the natural sciences to

real life applications – especially if we keep in mind sustainable solutions? Do the current teaching methods allow for the unfolding of children's creative and innovative abilities? Are students taken seriously and given a fair opportunity to contribute actively by sharing and implementing their ideas?

## 2.4 Concluding Thoughts

The main common feature of the different theoretical approaches discussed above is that human learning, thinking and action is closely connected with our cultural surroundings. In other words, education does not take place in a culture-free vacuum, and at the same time as students have culturally determined capabilities to learn, schools are part of what Bourdieu calls "habitus." Dominant cultural canons influence the form and content of education, and in turn the kind of narratives students are exposed to. While this thesis does not argue that the Norwegian educational system systematically exerts some kind of "symbolic violence" with the intent to program students to become ideal subjects of the Norwegian state, I recognize the importance of scrutinizing the ideological perceptions conveyed through education. I also acknowledge that education has a reproductive function through the format and the kinds of stories it presents to students in order to uphold certain cohesion in society.

Cohesion is a challenge in today's (post)modern societies saturated with a multitude of different messages and massive amounts of information – how do we sort through all this text, how do we find our own place in all this and how do we find the right recipe for a good life and a sustainable future? Searching for meaning in a jungle of contesting messages is a major challenge for the modern educational system. As I will show, both the social and natural sciences are struggling to engage with the public to convey the importance and complexity of sustainable development issues in a meaningful and constructive manner. One of the major challenges in education is to communicate with students in a way that is engaging and relevant for young people.

Through becoming active citizens we have the potential to bring about social change. As a mode of thought and as a vehicle for meaning making, narrative in education can help students create a version of the world in which they can envision a place for themselves. As we saw in the example of autopoethic education mentioned above, the use of narrative in education has the potential to foster reflectivity, creativity and imagination – key skills for young people that face a future of new challenges and possibilities. Narratives are essential in preparing young people for the kind of moral interaction that is required from an active citizen in today's world.

The theories discussed above provide a framework for the analysis of education for sustainable development in Norway. The framework entails seeing education as a social institution that takes part in the negotiation and renegotiating of culture through storytelling. It emphasizes the power of narrative to make sense of the world and create a better future. This background probes the question: Does the Norwegian education system have the right story to foster a sustainable future?

# 3. Education for Sustainable Development

The United Nations, the European Union, national governments and NGOs see education as a key component of innovation and change when it comes to sustainable development (Scott and Gough 2004:2). "Education… should be recognized as a process by which human beings and societies can reach their fullest potential" (UNCED 1992a). This quote from Agenda 21, the action plan published in the wake of the Brundtland Report, illustrates the centrality placed on education in the quest for sustainable development. However, as we shall see, good intentions do not always result in action. This chapter will show that education for sustainable development has not reached its potential in Norway. The first part of this chapter provides a critical review of key elements of the concept of sustainable development. In the second section, a brief background of education for sustainability on the international political agenda is provided. The third section discusses the idea of education for sustainable development and explore some of the central dilemmas associated with sustainable development and learning. The last section will examine the history and current situation for education for sustainable development in Norwegian formal education. The aim of the chapter is to provide the reader with a general background and context for the cultural and narrative analysis of education for sustainable development. I also want to draw attention to the key challenges of education for sustainable development in Norwegian education.

## 3.1 The Concept of Sustainable Development

Education for sustainable development triggers discourses on our relationship with the natural world, about what constitutes social progress, the character of development (both in the North and the South), in the present and in the future. These are essential issues to include in formal education to ensure the ability of future generations to meet sustainability challenges. However, sustainable

development is a contested and, for many, confusing concept that has been both praised and criticized for its ability or inability to synthesize complex issues related to human development and the environment. I will here provide a critical review of the key elements and debates concerning sustainable development in order to discuss the concept in relation to education in this thesis.

### 3.1.1 The Brundtland Definition

I will employ the definition of the World Commission on Environment and Development (often called the Brundtland Commission) from 1987 as starting point for our brief review of sustainable development. We start from here not because this was the first time the term was used[6], but because the Report placed sustainable development firmly on the political arena of international development thinking, and it contributed to wide use of the term outside political and academic circles (Elliott 2006:7-8).

"Humanity has the ability to make development sustainable – to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987:8). The responsibility to meet the needs of the present, but also to ensure that future needs can be met is the core of the Brundtland definition. It is important to note the anthropocentric twist of this definition as it starts with people, rather than putting the emphasis on the environment. Human action and political will are seen as crucial in achieving sustainability. The Brundtland Report argues there should be limits to development, but these are not defined by a set of prescriptive rules. Rather, limits are determined by the technological tools, and the social order of different societies at different periods in time.

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[6] Concern about sustainability can be traced back to Malthus and other eighteenth- and nineteenth thinkers. However, it was not until the 1960s and 70s that the term become more widely used an appeared in publications such as the 1972 Club of Rome report, *The Limits to Growth*. Before the Brundtland Report, sustainable development thinking tended focus on absolute limits to growth and had a distinct environmental focus (as opposed to an anthropocentric focus) (Baker 2006:18).

The Brundtland definition does not only mention limits, but also possibilities for growth and poverty eradication. "Poverty is not only an evil in itself, but sustainable development requires meeting the basic needs of all and extending to all the opportunity to fulfill their aspirations for a better life. A world in which poverty is endemic will always be prone to ecological and other catastrophes" (WCED 1987:8). The attention to the close link between human development and the environment was groundbreaking at the time the Report was published (Lafferty and Langhelle 1995:18). The union between two seemingly contradictory terms – sustainability and development – was a contrast to earlier doomsday prophesies such as Malthus' *Essay in the principle of population* (1798) and the Club of Rome's *The Limits to Growth* (Meadows, et al. 1972) that put forward very pessimistic narratives of the possibility for growth and development. While recognizing limits, growth is a central feature of the World Commission's vision for a sustainable future. This represented an optimistic alternative to earlier environmental thinking that emphasized conservation, limits and restriction.

Learning about sustainable development is more than learning about economic development, social policy and environmental protection. Sustainable development is also about thinking critically about vital issues of humanity and a set of proposed solutions. What kind of sustainable development should we pursue? How can we generate enough wealth to enjoy a good quality of life without depleting the world's natural resources? How do we organize our societies so that this quality of life is available for all, also in the future? In today's world, development is often viewed in terms of economic growth based on industrial expansion (Banerjee 2003, Haque 2000:14, Reed 1996). Critics argue that there is a need for a basic reorientation in the formulation of practical development policies that give appropriate attention to the critical implication of economic growth for environmental conditions (Haque 2000:14). The challenge of education today and tomorrow is to foster students to search for a balance between human development and ecological stability that ensures that people in

all parts of the world and future generations have the possibility to meet their needs. This is the core of the concept of sustainable development.

## 3.1.2  Ambiguity as an Asset?

There seems to be a general perception that sustainable development is a complex and confusing concept, which is constantly being revised, extended and refined (Frazier 1997:182, Soubbotina 2004:8-9). We might ask whether the concept's ambiguity is necessarily a bad thing? Becker, Jahn and Stiess (1999) argue that "rather than a well-defined concept, sustainable development might best be characterized as a contested discursive field which allows for the articulation of political and economic differences between the North and South and introduces to environmental issues a concern with social justice and political participation" (1). Similarly, Redclift (2005) suggests that the power of the concept of sustainable development lies in the discourses surrounding it, rather than in any shared substantive, or heuristic, values it might have (218). Lafferty and Langhelle (1995) recognize that the concept of sustainable development is often considered vague, and has a semantic openness. However, they point to that concepts like democracy and human rights also have this semantic openness and the contents of these terms are not given, but their fruitfulness is linked to the ongoing political discourse about the content and future goal of the concept (33).

In a school setting this semantic openness can lead to a great deal of confusion – depending on the background and training of teachers and students. However, the openness of the concept can be used to stimulate the students' engagement and debate, and to encourage them to think and imagine future sustainable futures. Sustainable development is a topic with the potential to challenge and question the dominant narratives of society. As argued by Bruner (see section 2.3.3), an educational enterprise fails to take the risk of examining the canonical views of a culture becomes stagnant and eventually alienating (Bruner 1996).

### 3.1.3 Normativity and Morality

The normative dimension of sustainable development has been the focus of a series of debates. Critics argue that the concept is flawed because it mixes together the technical characteristics of a particular development path with a moral injunction to pursue it. Furthermore, critics claim most definitions of sustainable development tend to include some moral injunction without any recognition of the need to demonstrate why that particular ethical injunction is better than many others (Wetlesen 1995).

Langhelle argues that it is precisely the normative aspect of sustainable development that gives the concept depth and weight (Langhelle 1999). While some voices argue for a technical interpretation of sustainable development without any normative justification (e.g. Beckerman 1994), the Brundtland Report explicitly rejects such a strategy. The Report rests on an ethic that renders normative and technical issues as inseparable. The question of what is physically sustainable cannot be answered without taking into consideration the question of distribution, social justice and what one actually wishes to maintain and develop (Langhelle 1999:138). Langhelle understands sustainable development as a normative-strategic framework for working towards the necessary balance between physical sustainability, generational equity and global solidarity. In this perspective, sustainable development is not a fixed blueprint for a particular development path. Rather, it is a "set of basically integrated concepts and values pointing in a *genuinely different* alternative direction" (Langhelle 1999:147). In other words, sustainable development is a conceptual tool for solving the complex and global environmental and developmental problems in an integrated manner that stipulates global partnerships.

When learning about sustainable development, it is important to acknowledge and be critical of the normative aspect of the concept. Such awareness guards the sustainability project from becoming a totalitarian regime that imposes a certain worldview and preset solutions. As Langhelle points out,

sustainable development entails making decisions that require both physical and value judgments. Hence, the ethical aspect of sustainable development is an integral part of learning about sustainable development – not in the form of propaganda, but in the form of reflective and critical thinking and awareness.

### 3.1.4 A Sustainability Revolution?

How does sustainable development resonate in today's global world? It is twenty years since the Brundtland Report was published and the world is changing rapidly. While recognizing the world's current unsustainable development path, Andres R. Edwards (2005) argues that we are in the midst of a sustainability revolution. Edwards compares its reach and impact with the Industrial Revolution and claims it affects the economic, ecological and social aspects of societies worldwide. Amid the invasion of SUVs, Wal-Marts and supermarket chains, we see glimpses of this sustainable transformation in the increasing numbers of hybrid cars, wind turbines and solar panels installations; the increasing demand for organic food; the introduction of "ecoliteracy" in some schools; and the building of co-housing projects that restore community ties, to mention a few examples (Edwards 2005:1-3).

Sustainability skeptics are plentiful,[7] however, Edwards provides an optimistic account with examples of alternative cultures and partnerships that find ways to live and act in sustainable manners. "The Sustainability Revolution marks the emergence of a new social ethos emphasizing the web of relationships that link the challenges we currently face" (Edwards 2005:9). Edwards further argues that solutions to pressing problems such as climate and population stabilization already exist, but the lack of political will has made for a slow progress in these areas (Edwards 2005:133). The mix of optimistic and

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[7] Daly argues that global warming, acid rain and the depletion on the ozone layer offer adequate proof that we have already exceeded an acceptable limit in terms of the size and volume of economic activities. Daly contains that a restructuring of the economy is not enough to achieve sustainable development. Instead, there is a need to go further and set absolute limits to economic growth (Daly 1992). The father of the Gaia theory, James Lovelock, also presents a gloomy prediction for the future of the environment and mankind without giving much credit to sustainability efforts (Lovelock 2006).

apocalyptic stories and expectations is characteristic of contemporary society. On one hand, the combination of unique and complex environmental systems and human ingenuity is bound to find a way to survive and thrive. On the other hand, doomsday is approaching because of fragile and exhausted environmental recourses and exploitative human behavior (135). Students are faced with these conflicting messages everyday. Sorting through and relating to these messages is key to reflective understanding and participation in contemporary society.

### 3.1.5 Sustainable Cultures?

The intellectuals and academics forming the Oslo Sustainability Initiative – an effort to revitalize the sustainability agenda twenty years after Brundtland – call for a new paradigm that includes an innovative and shared vision of a better world (Witoszek 2007). They argue the world is not the same as when the Brundtland Report was written. "Never before has humanity been so mobile, and never before has it been confronted with such massive challenges to its own security." The force of identity, culture and religion are challenging national borders and rigid regimes of knowledge. The Sustainability Initiative claims it is precisely this cultural dimension that is missing from sustainability thinking. The driving questions behind the Initiative are: 1) How can we transcend existing cultural, political and economic barriers in such a way as to move culture and enterprise decisively toward a more sustainable future? And, 2) Can we think of synergic models of thought and action which would inspire us, create better political conditions of sustainability, and civilize capitalism in the process?

The members of the Sustainability Initiative see sustainable development as a value-charged story instead of an adventurous policy document. The problem with *Our Common Future* is that it "never became a living document that leapt from the shelves to the easy grasp of ordinary people." Myths of boundless wealth, power and glory have won over the penitential, ascetic story of living a simple life. The Sustainability Initiative calls for a compelling story about sustainability that can capture the imagination of rich and poor alike. This

story should be abound with innovation, creativity, community building and deep humanism. Central to this endeavor is promoting humanism as a vital part of the sustainability agenda – a project that elevates culture and its narratives from being a spare wheel to an "alpha factor" in sustainable development (Witoszek 2007).

This initiative illustrates that there are still unexplored and innovative possibilities to explore sustainable solutions twenty years after sustainable development entered the global political stage. As the Initiative's researchers point out, culture has largely been an overlooked theme within sustainability thinking. Awareness of cultural biases and assumptions is a critical feature when learning about sustainable development. What kind of stories are we feeding the young? Can a culture be unsustainable? If so, does it need to be replaced altogether, or are some cosmetic changes enough to achieve sustainability?

## 3.1.6  Concluding Reflections on Sustainable Development

The brief review above shows that there is not one "correct" notion of sustainable development, but many, and some of these are conflicting. However, our starting point, the Brundtland Report, presents an optimistic view that humankind has the capacity to engage collectively and constructively in bringing about a sustainable future. Furthermore, the Report envisages building a common future on more fundamental processes of change, which involve not just technological and institutional but also social and economic, as well as cultural and lifestyle changes (Baker 2006:22).

There are other crucial aspects of sustainable development that should be taken into account when discussing teaching and learning about sustainable development. One of today's most important challenges of education is to find a balance between economic development and ecological stability. The task for the world's population, especially the young, is to handle a complex range of interrelated challenges in an effective, constructive and just manner in a world

that offers a multitude of solutions and possibilities. The ambiguity of the sustainability concept provokes questions and discussions on how best to achieve sustainability. Discussing possibilities, making decisions and taking actions entail engaging in moral debates and dilemmas. Decisions are rarely taken solely on rational and objectively calculated grounds. Our cultural beliefs and assumptions are essential parts in this process – but these seem to be largely outside of the sustainability story.

The purpose of this brief discussion has not been to establish whether the concept of sustainable development is valid, relevant or to assess its robustness. Rather it has been to emphasize some of the critical aspects that are relevant when learning and thinking about sustainable development. A rapidly changing world with a myriad of new challenges and possibilities facing young people requires a model of education that keep up with these developments. Teaching and learning about sustainable development entails continuously asking questions and engaging in discussions of how best to achieve sustainable development now and in the future.

## 3.2 International Efforts for Education for Sustainable Development

While efforts to include environmental concerns in education can be traced back to before the 19th century, the issue was not on the political agenda until the 1960s after worldwide concern for the environment had been triggered by the publication of Rachel Carson's *Silent Spring* (Palmer and Neal 1994). Since the '60s, environmental education has been the focus of several international conferences and workshops on the issue (for a detailed account of international efforts concerning education for sustainable development see Appendix E). The Brundtland Report is one such international effort that includes an educational component in its pursuit for a more sustainable world. The Report contends that education is a tool to combat poverty and ecological problems and is mentioned

as one of the solutions to how "individuals are to be persuaded or made to act in the common interest" (WCED 1987:46). Moreover, "Environmental education should be included in and should run throughout the other disciplines of the formal education curriculum at all levels – to foster a sense of responsibility for the state of the environment(…)" (113).

The Report does not go into detail on how education for sustainable development should be implemented, but sees education as an interdisciplinary tool that can make individuals act in the common interest in the pursuit of sustainable development. One of the central critiques of the Report's educational approach is that it calls for education to "persuade" people to act in the common interest. We here come back to the normative aspect of sustainable development. If you are to persuade someone to act in a certain way, you must already have preset goals of what you want to achieve. This issue will be discussed further in section 3.3 below.

Agenda 21 was adopted by more than 178 Governments at the United Nations Conference on Environment and Development held in Rio de Janeiro, Brazil, in 1992 (UNCED 1992a). Chapter 36 of Agenda 21 is dedicated to promoting education, public awareness and training and calls for a reorientation of education towards sustainable development. Agenda 21 states:

> Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues(…) It is also critical for achieving environmental and ethical awareness, values and attitudes, skills and behavior consistent with sustainable development and for effective public participation in decision-making. To be effective, environment and development education should deal with the dynamics of both the physical/biological and socio-economic environment and human (which may include spiritual) development, should be integrated in all disciplines, and should employ formal and non-formal methods and effective means of communication (UNCED 1992a:36.3).

Hence, education for sustainable development has a two-fold goal: both to create skills and knowledge to enable people to address the problems and to encourage values of responsible environmental and social behavior. Agenda 21 also

emphasizes the need for using a multidisciplinary approach and drawing on diverse knowledge systems, including science, cultural and social sensitivities.

Scott and Gough (2004), two leading experts in the field of education for sustainable development, claim that international efforts have not given education the attention and weight it deserves. Characteristic of education's role in sustainable development efforts is that it enters the equation only after it has been decided what should be done – in terms of development, health, good governance and so on. Scott and Gough emphasize that the core business of education is learning, and not the promotion of a "contested, and quite possibly transitory," term like sustainable development (252). Hence, critics argue that education has received a "supportive" role in the international sustainable development efforts.

The most recent international effort is UNESCO's "UN Decade of Education for Sustainable Development." The overall goal of the initiative is to integrate the principles, values, and practices of sustainable development into all aspects of education and learning. The aim is to encourage changes in behavior that will create a more sustainable future in terms of environmental integrity, economic viability, and a just society for present and future generations (UNESCO 2007). The initiative, which spans the period 2005-2014, is a valuable contribution to preparing future generations to face current and future challenges. It builds on the principles of previous efforts such as the Brundtland Report, Agenda 21, the Earth Summit of 1992 and the 2002 Johannesburg summit, which all brought up the importance of education in achieving sustainable development. Nevertheless, while emphasizing the vital role of education, the UN Decade does not seem to have provided much new insight into the role of education, nor envisioned a more active role advocated by critics such as Scott and Gough above.

The Norwegian UNESCO Commission's main priorities are currently democracy and participation. The UN Decade of Education for Sustainable

Development is not a priority, and there are no current or planned activities in relation to this initiative in Norway. The general atmosphere among Norwegian education authorities is that so much has already been achieved when it comes to education for sustainable development that to make a special effort within the UNESCO framework is not necessary (Farstad 2007). Norwegian authorities held a conference to celebrate the opening of the UN Decade in 2005, and have provided a strategy document that sums up what Norway is doing to promote education for sustainable development (see section 3.4 below for a summary of the strategy document). Overall, the UN Decade seems to have had little or no effect on Norwegian education efforts in the field of sustainable development.

## 3.3  The Idea of Education for Sustainable Development

There are a host of different definitions of environmental education. Most of these definitions include economic, environmental, and social dimensions (NFPSEE 1996). However, traditionally, environmental education has been dominated by the natural science approach, which places heavy emphasis on knowledge drawn from the traditional science disciplines of geography, geology and biology (Schleicher 1989).  This approach has come under critique because both the problems and solutions are seen from a scientific perspective with a technocratic rationality. This rationality puts its faith in the capacities of science to resolve problems we face, instead of changing our systems of belief and our way of living (Robottom 1993:3).

The general shift from "environmental education" to "education for sustainable development" might be seen as an attempt to include additional factors such as poverty, equality and economy into the equation (Sterling 2004). While critics maintain that the latter term is a conceptual muddle that breeds confusion (Jickling 1992), proponents see it as a pluralistic approach that includes conflicting and complex voices about environmental issues. In contrast, traditional environmental education is based on the belief that certain sets of

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values, knowledge-perspectives and attitudes are better able to contribute to environmentally friendly action. Here, the dominant paradigm is seen as the norm and is not questioned nor challenged (Sandell, et al. 2005:9-10).

All the same, education for sustainable development has come under similar criticism by critics claiming that education should be concerned with enabling people to think for themselves, and education *for* sustainable development is inconsistent with this criterion. From this perspective, "for" suggests a predetermined mode of thinking to which the learner is expected to subscribe to achieve instrumental aims (Rauch 2004:149). In sum, the shift in terminology signifies a growing awareness of the need to include the complexity of the interlocking of human and natural systems. I use the term "education for sustainable development" in this thesis because of its recognition of the complex relationship between humans and nature. At the same time, I recognize the importance of being aware of the difference between indoctrinating young people with information and values and fostering critical thinking and action.

There is a growing agreement among both critical education theorists and various international efforts that the main goal of education for sustainable development is to help people build personal and social capacity. This capacity will enable students, as learners and social actors, to grapple with the issues and relate them to their own lives and work, while at the same time appreciating the perspectives of other individuals and groups in other social contexts and situations (Scott and Gough 2004). In his book *Retrieving Nature: Education for a Post-Humanist Age* Michael Bonnett (2004) argues that sustainability is a frame of mind. Bonnett calls for re-thinking of values and a change in the way of living in West. Students should be able to address causes of and solutions to sustainability challenges rather than to be preoccupied with what are essentially symptoms masquerading as causes (for example measuring pollutant levels and devising scientific "remedies" rather than addressing the underlying motives and conceptions embedded in social practices that give rise to pollution) (Bonnett 2004:134-135). This approach would entail education to include an examination

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of its own implicit assumptions, values, purposes and norms. What is more, students would have to be encouraged to scrutinize their own perspectives and search for new creative solutions.

To sum up, there seems to have been a trend toward the acceptance that learning and sustainable development entail an understanding and engagement with a complex interface between human and natural systems, in addition to a scientific understanding of causes, effects and solutions. Moreover, an instrumental educational model based on the transmission of knowledge aiming at making students behave in a certain way, seems rather outdated. In an article on environmental citizenship, Carlsson and Jensen (2006:238) provide a useful distinction between education aiming at behavior modification, and education aiming at action competence. Whereas the first relies on the transmission of factual information that will lead to a particular kind of behavior, the latter encourages students to actively make decisions aimed at solving problems. The key here is the emphasis on an active and critical role of students – ways of thinking and skills needed to participate as citizens with rights and obligations rather than consumers of knowledge and goods. Educational theorists and experts call for an educational process with maximum openness to creative interplay that will enable young people to handle complex and interlinked social and environmental problems today and in the future. This is an enormous challenge that requires not only precise and extensive knowledge and science, but also reflexivity, creativity and openness to different possibilities of a sustainable future.

## 3.4 Education for Sustainable Development in Norway

Since the publication of the Brundtland Report in 1987, sustainable development has been declared a policy goal by the Norwegian Government. However, the enthusiasm and priority given to sustainable development varies according to the social, political and economic situation. Despite fluctuations in priorities within

the electorate and political system, sustainable development has been developed and integrated into the policy structure. Sustainable development is an integral part of the language and justification of policy and politics in Norway (Langhelle 2000:175).

The educational authorities claim to have taken a systemic approach to sustainable development in line with the goals of the Brundtland Report. This systemic approach attempts "to create an institutional framework which at all levels promotes environmental education and in which environmental education is compulsory and fully integrated into normal activities" (Ministry of the Environment 1994). Actually, the Norwegian Government became inspired by the UN Conference on the Human Environment in 1972 and included environmental education in the curricula for primary and secondary education already in 1974 (*Mønsterplan* 1974). In 1974 a subject called "nature and environmental protection" (*natur- og miljøvern*) was introduced and later changed to "nature and the environment" (*natur- og miljøfag*) (Christensen and Kristensen 1997b). However, these early efforts were often limited to focusing on pollution control and nature conservation, and it was not until the national curriculum of 1987 that the environment was seen as part of the larger social and economic picture (Christensen and Kristensen 1999:18-19).

In 1989, the Norwegian Government issued the White Paper no. 46 "On environment and development" as a response to the publication of *Our Common Future* two years earlier (Ministry of the Environment 1989). A concrete result of the White Paper was the implementation of an obligatory course called "Nature, society and the environment" (*natur, samfunn og miljø*) in teacher training in 1992. The subject was removed in 2002 with little resistance from politicians and bureaucrats. Per Jarle Sætre, a teacher and researcher in the field of pedagogy and environmental education, argues that the painless removal of this comprehensive effort to give a lift to environmental education is a symptom of that the environment has a weak role in primary and secondary education (Sætre 2002). Earlier research shows that lack of knowledge among teachers as well as

scant resources are key challenges to integrating sustainability issues into teaching. The teachers' attitude and interest in the theme, along with variables such as time and economy are also determining factors for why sustainable development and related issues are given small priority (Sæthre 1990).

In response to the UN Decade for Education for Sustainable Development the Norwegian Government issued a document that summarizes the current situation and outlines challenges ahead for education for sustainable development (Ministry of Education and Research 2006). Even though this document is often referred to as a *strategy plan* for sustainable development, it does not spell out a new strategy or path, but provides an overview of the different initiatives taken by the Norwegian Directorate for Education and Training. The initiatives include developing and supporting project-based learning about sustainable development. The document does not provide information on how many schools are involved in these projects. The initiative "Network for environmental learning" and the website www.miljolare.no have existed since 1997. These are meant as a resource for schools during and after projects, and many of the online exercises encourages links between schools and the local community. The document also mentions that the national curriculum should guide education for sustainable development.

In an interview, senior advisor Astrid Sandås at the Norwegian Directorate for Education and Training, explained that incorporating sustainable development into educational strategies has been a challenge. "In the last twenty years it has almost been impossible to consider including environmental concerns in policy planning in Norway. There has been a strong focus on growth and increasing consumption." Sandås had a leading role in developing the strategy document mentioned above. She admits that there are no radical new changes or suggestions in the document, but maintains that the aim is to strengthen the sustainability element in education. The main strategy is to link schools with local communities. The idea to foster schools to be active in society is not new but has not been carried out in practice. This document is not binding for schools

or teachers, but Sandås stresses it can encourage school actors to include more sustainable development in their teaching (Sandås 2007).

### 3.4.1 The National Curriculum

During the past decade "Lærerplan 97" (L97 – Curriculum 1997) has been the guiding document for teaching in primary and secondary education in Norway. In the fall of 2006, L97 was replaced by a new reform and curriculum called *Kunnskapsløftet* (KL07 - "The Knowledge Promotion 2007") (Norwegian Directorate for Education and Training 2006a). The overall organization of the subjects remained the same, except for some changes in the structure of individual subjects and number of hours devoted to the different subjects. The major change is that the new plan provides clearer, shorter and more overarching goals for the education. In addition, the way teaching is organized (what is taught and when) and teaching methods are now in a large degree left up to schools. In KL07 there is also a greater emphasis on basic skills: ability to express oneself orally and in writing, reading and calculation skills, and using digital tools.

In both L97 and KL07, issues related to sustainable development are primarily covered in the subjects: social science (*samfunnsfag*) and natural science (*naturfag* – in KL07 the "environmental" part of the subject's name was omitted). However, in the curricula for the subjects: "Food and Health" (*mat og helse*), "Christianity, Religion and Ethics" (*kristendoms-, religions- og livssynskunnskap*), and "Arts and Crafts" (*kunst og håndverk*), mention sustainability, but it is not a central focus in neither of these subjects (Ministry of Education and Research 2005a). Both the old and the new curricula provide relatively little emphasis on environmental and developmental issues the first seven years, but such issues gain more attention at the secondary level. Chapter 4 will examine the role of sustainable development in the curricula in detail.

RORG, a coalition of Norwegian NGOs, argues that *Kunnskapsløftet* is a step down when it comes the education for a sustainable future. Overall it is the

environmental aspect of sustainable development that receives attention in the curriculum. The NGOs claim that the curriculum is missing a global development focus with attention to issues such as inequality and poverty in an international perspective. Furthermore, the Norwegian authorities' focus on sustainable development and international cooperation seems to be largely absent in the curriculum (RORG 2005). The Prosus researcher Ørnulf Seippel (1997) argues that when it comes to educational reform, documents such as *Our Common Future* and Agenda 21 have had limited effect. Norwegian authorities have few problems accepting the goals presented, but these rarely have a significant effect on existing educational practices. Seippel holds that the UNCED-documents have functioned more as a resting-pillow than as an inspiration and motivator for improvement of education for sustainable development in Norway. He further argues that education about the environment is present in the Norwegian education system, but that development seems to be under-developed and so is the link between the environment and development (Seippel 1997:200-201).

Another critic of the new curriculum is educational researcher Camilla Schreiner who argues that the natural sciences are presented as detached from the social and environmental reality. Schreiner is highly critical of the lack of systematic inclusion of sustainable development in the new plan. In an interview she expressed her frustration:

> The new curriculum is wasting a golden opportunity. We have the whole world, the UN, the millennium goals that intend to create a sustainable future. We have research that tells us that for environmental education to be successful it needs to be obligatory and not rest on an individual teacher. It must be stated in policy, curricula and goals to be successful. In the current situation it is resting on random enthusiasts (Schreiner 2007).

Schreiner further argues that it is imperative to link all subjects to issues related to society and the environment because these are issues that are important to youth. The spirit of today is to be interested in values such as sustainable

development, democracy and social justice (Schreiner 2007). The new curriculum does not provide such an overarching sustainability framework.

## 3.4.2 Shifting Priorities

Several recent education initiatives testify to the tendency to give sustainable development a marginal role in the Norwegian school setting. For example, the White Paper "Culture for Learning" issued in 2003-2004, provides guidelines for how the create a better culture for learning and an improved education system. It mentions sustainable development only once; in relation to how it can contribute to enhance the natural sciences practical orientation (Ministry of Education and Research 2004).

Since the turn of the century there has been a renewed focus on the importance of the natural sciences in Norwegian school system. Poor results in international tests in recent years have been followed by a well of voices calling for more attention to the natural science in primary and secondary education (PISA 2006, TIMSS 2006). It was against this backdrop that Norwegian authorities launched an action plan for strengthening the natural sciences called *Realfag, naturligvis* in 2005 (Ministry of Education and Research 2005b). The main focus in this plan seems to be on repairing Norway's reputation as weak in the natural sciences, and making sure that the national industry is at the technological forefront. The term "sustainable development" is not mentioned in this document. Neither are environmental issues and global developmental concerns.

Through a series of articles based on The Relevance of Science Education project (ROSE), Schreiner and Sjøberg argue that the reluctance of young people, both in Norway and other economically developed countries, to engage with the natural sciences has more to do with the perceived values and images of natural science than a lack of interest and knowledge (Schreiner and Sjøberg 2005b, Sjøberg 2004). The fact that so few of today's young people choose science and

technology subjects might indicate that school science does not succeed in inspiring and exciting them. The authors maintain that science might appear more meaningful to students within a framework that emphasizes that science is still facing huge, unsolved challenges to improve the conditions for life on earth. Such a focus might illustrate that the natural sciences still can provide meaning and relevance for young people in rich, modern societies as well as in less economically developed countries. Hence, a sharp divide between the natural and social sciences, in line with Snow's famous *The Two Cultures* (1959), weakens both disciplines. While the instrumental aspect of the natural science is important in finding solutions to environmental and developmental problems, the social science perspective could contribute to create meaning and interest in the natural science.

Anders Isnes, the head of the Norwegian Centre for Science Education, has extensive in experience working with natural science education and has taken part in creating the new curriculum for the natural sciences. In an interview he agreed that there is a lack of active and overall sustainable development perspective in the new curricula. He expressed surprise that political authorities and the respective ministries did not set any requirements to include sustainable development systematically in the new plans. However, Isnes argued that even though the sustainable development perspective is not systematically integrated into the curriculum, there is ample opportunity for teachers to include this perspective in their teaching (Isnes 2007).

Schreiner maintains that focus on the environment, social engagement and values in relation to sustainable development has been neglected. Instead, the spotlight has been on basic knowledge and the natural sciences in the past few years. Kristin Clemet, former Minister of Education and Research, and her right-wing government (2001-2005) initiated this priority and are also responsible for the new curriculum. However, there has not been a shift in focus from the current the new centre-left government. Current Minister Øystein Djupedal added one component to the curriculum that targeted learning strategies, motivation and

social competence: it did not mention sustainable development (Schreiner 2006). In the summer of 2007, Prime Minister Jens Stoltenberg launched his five-step plan to achieve the lofty goal of making Norwegian schools the best in the world (Aftenbladet 2007). Sustainable development was not included in this plan either.

While the poor results in international science rankings and the need for basic skills have received much attention, the strong areas of Norwegian youth have not (Schreiner 2007). In the Civic Education Study, an international research effort to map young people's democratic skills and civic engagement, Norwegian students score high – but this is not stressed by politicians or especially emphasized in the new curriculum. The average Norwegian student is described as having "good knowledge and skills, and an ability to identify with democratic norms, values and understandings." Furthermore, Norwegian youth feel strongly for equal rights, are supportive of minorities, and values discussion and respectful disagreement in the classroom (IAEEA 2002). And yet, instead of exploiting the strong democratic values and civic engagement in the Norwegian school system, the focus is one-sidedly on basic knowledge – a priority that seems to exclude the sustainable development perspective. This one-sided focus on basic knowledge and the natural science seems to have been created by an artificial divide between the social and the natural sciences.

### 3.4.3 Previous Research

The educational aspect is notably absent from most evaluations of Norwegian efforts to implement sustainable development in the period since the Brundtland Report.[8] An exception, the Nordic cooperation project MUVIN (MiljøUnderVisning I Norden), initiated by the Nordic Council of Ministers, has evaluated project-based environmental education at 206 schools in the Nordic countries in the first half on the 1990s (MUVIN 2002). The findings are limited to environmental education (without developmental emphasis) and are not

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[8] Education is not one of the areas evaluated in such reports (Lafferty, et al. 1997, Lafferty, et al. 2002).

representative to general subject-based teaching (because of the project focus). Nevertheless, some of the findings might help to shed light on critical areas of interest in education for sustainable development.

The idea behind the MUVIN project was to stimulate environmental education to become more than simply environmental protection and pollution control through project-based work that politicized the issues at hand. The results showed that engagement with controversial environmental issues was new to most students and teachers in an educational setting. Teachers were insecure about acting as advisors instead of being knowledge-conveyors, and students experienced frustration over taking responsibility for a larger part of their own learning situation (Christensen and Kristensen 1998).

The evaluation of the MUVIN project revealed that even students that had participated in projects that emphasized conflict and the political dimension of environmental issues, saw pollution as the biggest environmental problem. Recycling and abstaining from throwing garbage in nature were seen as the two major actions the students themselves could take to solve environmental problems. Most students also expressed skeptical optimism as almost all surveyed students believed environmental problems *could* be solved, but only half believed that they *would* be solved (Sætre, et al. 2000). Despite the fact that students find the focus on conflicts of interests in relation to environmental issues interesting, this kind of stimulation was more an exception than the norm (Christensen and Kristensen 1997a). Overall there was a lack of awareness of complexity and the political dimension of environmental issues among students. The students showed an uncritical approach to information by accepting information as facts without questioning the validity and credibility of the source (Christensen and Kristensen 1999:204). What is more, the students distanced themselves from the environmental issues they were working on. They did not see themselves as active participants, but rather as students carrying out schoolwork. The engagement in environmental issues stayed within the school

confines, and most students did not engage further with environmental issues in their out of school activities (Sætre, et al. 1997).

Another and more recent study from 2002 by the ROSE project revealed that while Norwegian students expressed a high level of hope and optimism for the future, 50 percent of the students expressed that environmental problems make the future look bleak and hopeless. Moreover, engagement with environmental issues was relatively low and they showed little interest and curiosity about learning about environmental issues (Schreiner and Sjøberg 2005a).

### 3.4.4 Values, Attitudes and Action

The Norwegian law states that primary and secondary education should provide the students with a "Christian and moral education and aim to develop their mental and physical abilities, and provide them with knowledge so that they can become active and independent humans in their home and society. The school shall promote freedom of speech and tolerance…"(Ministry of Education and Research 1998). In addition to the curriculum for each subject, the educational strategy also consists of a "Core Curriculum" and "Quality Framework" (Ministry of Education and Research 1994). The Core Curriculum elaborates on the values and perspectives that should be the educational foundation, and has remained the same since 1994. Both the Core Curriculum and Quality Framework place emphasis on the importance of providing the students with the abilities to be active and aware citizens. The Core Curriculum maintains that the growth in knowledge demands greater awareness of the values that guide our choices. Furthermore, the young people of today must acquire a broad perspective and knowledge that will enable them to contribute to a global improvement of quality of life – particularly for the world's poor (39). The plan also states "the interaction between the economy, ecology and technology provides contemporary society with scientific and moral challenges to secure a sustainable development. Education must offer broad knowledge about the

connections between humans and nature" (46). Moreover, education must be interdisciplinary, and concrete and factual knowledge must be linked to societal and ethical considerations. Students must learn to look forward and outward to the rest of the world. Education must provoke their belief in solidary action and in common efforts that will solve the major global problems (48).

Do these lofty and ambitious goals translate into educational practice in Norwegian schools? Research and arguments referred to above might indicate otherwise, but we will keep this question in mind when analyzing the findings of this thesis.

## 3.5 Concluding Remarks

Is it really necessary to place such a strong emphasis on sustainable development at an early stage in people's lives? Is not the education Norwegian primary school students receive on sustainable development sufficient? I believe it is more than sufficient to get by in contemporary Norwegian society. However, if we apply the Brundtland Report's consideration for the ability of future generations to meet their needs in addition to an aim to strive for global equity, I strongly believe there is a need to think twice. The authorities claim to have a systemic approach to environmental education, but the attention given to sustainable development seems to be dependent on political priorities. The shifting priorities have resulted in that the sustainable development perspective has been neglected in favor of a focus on basic skills, and the natural science in educational policy documents and in the latest curriculum. The apparent conflict between the "two cultures" of the natural and the social science, is an embarrassment because there is a need for both knowledge and skills on the one hand, and critical and evaluative thinking on the other. Clearly, the Norwegian environmental education has developed from a narrow conservationist perspective to a more inclusive account that incorporates developmental issues. Also, studies show that Norwegian students have a strong civic engagement. This

means that there should be great potential for integrating sustainable development as an integral part of Norwegian formal education. However, there is apparent room for improvement. While different aspects of education for sustainable development are present, the search for, and emphasis on, the story of sustainable development is missing. I will explore the dimensions of this sustainability deficit in the following chapters.

# 4. Sustainable Development in Norwegian Curricula and Textbooks

This chapter will examine the role of sustainable development in the national curriculum and textbooks. Relevant questions for this chapter are: 1) Are developmental and environmental issues part of the curricula and textbooks? 2) Are key elements of education for sustainable development thinking present: critical thinking, evaluative skills, emphasis on connections, empathy with people in other situations, and an understanding of the role of self? 3) How are issues related to sustainable development presented? What kind of worldviews and perspectives are present? What kind of illustrations and examples are used? How is language used to communicate with students? Firstly, I will provide a short overview of the significance of curricula and textbooks in the Norwegian school system. Secondly, the curricula and textbooks in the two subjects where sustainable development is most relevant, natural and social science, will be examined. The discussion of the role of sustainable development in the curriculum and textbooks will provide a basis for the analysis of the educational narrative in the next chapter.

## 4.1.1 The National Curriculum

The national curriculum is the primary source of guidance for teachers. The curriculum instructs the teachers on what topics to teach in each subject at different levels in the education system. Even though the new curriculum *Kunnskapsløftet* provides more leverage to teachers to decide when topics should be taught and with what methods, the curriculum influences what kind of teaching methods are used because content and methods are closely linked (Isnes 2007). Interviews with six teachers of the social and natural science subjects confirm that the curriculum is crucial in determining what and how they teach. Interestingly, most of the teachers did not notice any radical changes in the topics

and methods in the new curriculum, and this also applied to sustainable development.

## 4.1.2 Textbooks

Research on teaching resources shows that textbooks are the foundation of teaching, and the primary source of information in Norwegian primary and secondary schools (Norwegian Directorate for Education and Training 2005). While other resources such as the Internet, hand-outs and reference works are also used, these are seen as a supplement to textbooks. Textbooks constitute a known and familiar frame in the Norwegian educational system – both for students, teachers and parents. The same study, conducted between 2003-2004, found that there is little incentive amongst teachers to diversify the type of teaching material, and that there is a low level of reflection on strong and weak sides of the teaching material. My own research confirms that textbooks are the primary teaching material and an important source of influence in teaching and learning. Teachers and students also said that the Internet is an increasingly popular source of information both in and outside school.

Textbooks do not only contain "factual" knowledge but also assumptions, values and worldviews through the selection of information, stories presented and language used (Bowers 1993:118). At one level, textbooks are changed to take account of what educational authorities and publishers perceive as shifts in public consensus. On a deeper level, however, textbooks reproduce patterns of thinking that extend back to the Industrial Revolution, and beyond, to a substratum of cultural beliefs that change much more slowly (Bowers 1993:122). Hence, not only what stories are told, but how they are told influence the students' learning process. The kinds of words, assumptions and worldviews presented to students shape their perception of the value and importance of different issues.

With the new curriculum outlined in the educational plan *Kunnskapsløftet*, there are new textbooks in most subjects. However, a few months after the new curriculum was introduced (October of 2006), a survey revealed that only three percent of schools had acquired new books in all subjects. Most schools had purchased some new books, while 40 percent had not bought any new books at all (Union of Education Norway 2006).

## 4.2 The Natural Sciences – Nature without Society

### 4.2.1 Curriculum

*Objectives*

The natural science curriculum maintains, "Natural science is the result of human curiosity and our need to find answers to questions about our existence, life and life forms, and our place in nature and the universe, and in this way it becomes part of our culture." Without elaborating on the relationship between natural science and culture, the curriculum argues, "Knowledge on, understanding of and experiences in nature can strengthen the will to protect natural resources, preserve biological diversity and contribute to sustainable development." In addition, the subject aims to help children attain knowledge and form attitudes that will give them a considered view of the interaction between nature, individuals, technology, society and research. The curriculum stresses the importance of both practical and theoretical work, which can contribute to the development of creativity, critical skills, openness and active participation in situations where natural science plays a part. The education aims to provide a solid base for further vocational training and other education, and a lifelong learning in different vocations and in people's spare time (Norwegian Directorate for Education and Training 2006b).

At the same time as creativity, critical thinking and awareness of the relationship between humans and nature are aims of the natural science education; these aims are rather "de-politicized." The curriculum does not specify what the students should be critical towards and, thus, lacks a reflexive dimension. Should children be encouraged to question the foundation of natural science itself, or maybe scrutinize the role of the natural science in contemporary Norwegian society? While the natural science is argued to be part of our culture, the cultural dimension is not given further attention. Questions such as: "How do our cultural norms influence our view of science?" are not addressed. Furthermore, students' role as citizens and decision makers are not discussed.

## Competence Aims

While the objectives constitute the introduction to the 13 pages curriculum for the natural science subject, it is the stated competence aims that tend to be the focal point for teachers (L.L. 2007). The natural science subject is divided into six main areas: The budding researcher; diversity in nature; body and health; the universe; phenomena and substances; and lastly, technology and design – the last one is a brand new addition to the subject. Each of these areas has a set of competence aims. There are competence aims after $2^{nd}$, $4^{th}$, $7^{th}$, and $10^{th}$ grade (Norwegian Directorate for Education and Training 2006b). I have examined the competence aims for students completing the $10^{th}$ grade, and found surprisingly little reference to promoting critical thinking, evaluation and engagement, and to issues related to sustainable development – such as environmental and developmental questions.

In the area of "the budding researcher" one of the competence aims is to "explain the importance of looking for relationships between cause and effect and explain why argumentation, disagreement and publication are important in natural science" (Norwegian Directorate for Education and Training 2006b). This is an important aim, but the approach used focuses on *explaining* instead of *engaging* in critical thinking in the field of the natural sciences. In other words,

the wording of this aim pacifies the learning process instead of encouraging active engagement. The area of "diversity in nature" has seven competence aims, and only one of these is related to environmental and developmental issues. This aim encourages students to observe and provide examples of how human activities have affected nature, and to identify different points of interest, and to suggest actions that can protect nature for the benefit of future generations. The aim has a clear association with the Brundtland definition of sustainable development that stresses the importance of the ability future generations to meet their needs. The aim alludes to the possibility of conflict of interests between different actors use of nature. However, "to suggest actions that can protect nature for the benefit of future generations" is not very innovative, and does not actively trigger questions of who should take these actions, and what is the role of the student herself. In short, the term "protection of nature" creates associations with the traditional approach to environmental education where constraint and limitations are central features.

The third theme, "phenomena and substances," includes an aim to "explain how we can produce electrical energy from renewable and non-renewable energy sources." The remaining three areas do not include goals relating to sustainable development issues and critical thinking and evaluation. Perhaps most striking is the lack of reference to reflection and sustainable development in the new component "technology and design." The area is characterized as interdisciplinary and its purpose is to plan, develop and produce products useful in everyday life.

Overall, the natural science curriculum provides little evidence of the problems of sustainable development and lacks a global perspective. While environmental and developmental issues are mentioned, it is clear that they are far from the main focus of the curriculum. The objectives and the competence aims seem to be more focused on "basic knowledge" and not necessarily on how this basic knowledge can be applied to relevant issues in the real world. Students

are expected be able to explain, elaborate and observe, while encouragement to discuss critically or analyze is lacking.

### 4.2.2 *Tellus* - Natural Science Textbooks

*Tellus* (Ekeland, et al. 2006, 2007) is by far the most popular textbook and is used by 70-80% of all Norwegian students. There are three books in the series: one for each level in secondary education. This analysis will focus on the 2006/7-edition of the book (the new *Tellus 10* will not be part of this analysis because it is not available until the summer of 2008). I shall use the 1997-edition (Ekeland, et al. 1997) as a base for comparison.

### *The Cartesian Worldview*

The design of the chapters in *Tellus* is characterized by a short introduction (a paragraph) attempting to relate the topic to students' everyday lives or to place it in a familiar context. Generally, the bulk of the chapter is presented in a factual and scientific manner. All chapters end with exercises, activities, experiments and suggested areas to be explored. It is clear that an effort is made to integrate the technological aspect of science in the 2007-edition. This is an official area of priority as expressed in the natural science strategy document *Realfag, naturligvis* mentioned in the previous chapter and in the new curriculum *Kunnskapsløftet*. The books communicate optimism and belief in the importance and potential of science and technology. "The natural science experienced explosive development during the 20th century. It laid the foundation for modern technology, that makes the world look pretty different today than just 100 years ago"[9] (Ekeland, et al. 2006:21). Even though the text recognizes that this development has had some adverse consequences, the main focus is on science as the precursor of modern progress.

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[9] My translation. All subsequent translations from textbooks are mine.

Characteristic of the content of the books is the rational science approach. While some of the chapters attempt to link the factual information with the "real world" of social, economic and cultural concerns, several of the chapters fail to make this link completely. For example, in *Tellus 8*, "Chapter 2: Measurements," and in *Tellus 9*, "Chapter 4: Electricity," provide examples of practical applications of the concepts and ideas, but there are no links to how the subject matter relates to the society as a whole. The lack of linkages between the scientific knowledge presented and its societal consequences is symptomatic for the *Tellus* series. The critical approach to the subject matters discussed is weak. How the development of science has effected the social, economic and cultural foundation of our own and other societies is largely left untouched.

Moreover, the story of scientific progress is told by basing its explanations and assumptions on the "scientific method" (Ekeland, et al. 2006:12). The books have assumed a rational scientific approach, with little room for moral and metaphysical reflection. For example, in "Chapter 3 Earth – the living planet" in *Tellus 8* the narrative of how the earth came to be, its development and its current status is presented in a factual manner based on scientific evidence with reference to Darwin's evolutionary theory. No alternatives to the Western mode of thinking are presented, and this setting works as a backdrop for the rest of the books. Critical comments and questions do appear throughout the books, but it seems to be symptomatic that these, together with sustainable development concerns, take the back seat and are not part of the dominant framework.

## Textbooks and the Reproduction of Knowledge

Little or no attention is paid to how science and technology is linked to our consumption patterns and how this affects the environment. For example, in *Tellus 9,* there are two chapters on electricity. The first is a purely technical chapter that explains electric circuits, tension, and resistance. The second has a more hands-on approach and is called "Our electric world – useful energy and fantastic electronics." The main story in the chapter is how dependent we are on

electricity and technology. It mentions that Norway has the world's highest electricity use per capita. The book does not pose critical questions about high consumption patterns. Instead it explains that the reason for the high use is access to cheap electricity. The book then provides the 10 popular enøk-measures[10] to save energy, because in this way "most Norwegian families can in fact save thousands of kroners each year" (Ekeland, et al. 2007:137). The book's environmental approach focuses on saving money. It does not to a significant extent encourage the students to reflect on their own lifestyle choices and how these effect the environment and people in other places or times. This is an example of how a neglected theme in the public discourse is reflected, and consequently also neglected, in the educational discourse.

In a similar fashion, Norway's extraction of oil and gas is framed in a positive and adventurous light. "Chapter 6: Oil and gas – a treasury outside the Norwegian coast" does mention negative environmental effects of this industry, such as emissions that contribute to global warming and acid rain, damage to the seabed near oil platforms and oil spills during transportation. However, by presenting oil and gas as a national treasury already in the title of the chapter, the book indicates that the wealth extracted from these resources is more important than the environmental consequences. The narrative used in the introduction of the chapter further frames the "oil adventure" (which is one of the subheadings) in a positive light. For example, finding oil on Christmas Eve in 1969 was the "biggest Christmas present ever" (Ekeland, et al. 2007:173). The chapter proceeds by explaining technical issues such as how oil is made, brought to the surface, produced, transported and used as an energy source. It is not before the latter half of the chapter that the environmental consequences are mentioned. In terms of solutions to these problems the book discusses different methods of dealing with oil spills and advises the reader to recycle plastic products because it takes a long time for this material to break down (187). In other words, the

[10] Enøk is a campaign initiated in the 1980s to encourage Norwegian people to save electricity through simple measures in their home or everyday life. It has been drilled into every schoolchild ever since.

narrative of oil and gas does not include a discussion of whether one should consider using other energy sources or how students, or the society they live in, can reduce their consumption of oil and gas and associated products – an approach that appears to be a mirror of the common discourse in Norway.

## *It's a Small World After All*

The *Tellus* books highlight the importance of the electronic revolution and communication technology. A new section on this topic is included in the most recent edition of the books. Nevertheless, linkages between the topics discussed and global concerns are strikingly lacking. When creating a context for the different themes, the three books consistently refer to historical events or developments in our Western history. This preference for the Western narrative is exemplified in Chapter 1 about the scientific history and context and in Chapter 4 about the universe in *Tellus 8*. The scientific narrative started four hundred years ago in Europe when microscopes were invented and when the scientific revolution began. Historical figures mentioned in this narrative are Galilei, da Vinci, Newton, Darwin, Einstein and Curie. There is no mention of "alternative" scientific achievements from other parts of the world. For example, the narrative of the universe tells the stories of Copernicus, Galilei and Newton, solely based on the Eurocentric way of looking at the universe without mentioning that there are alternative interpretations of this perception.

In addition, even more concrete and current topics such as energy resources and ecology have a distinct Norwegian or European focus. There is very little or no mention of the global situation. For example, *Tellus 10* (note: old edition) discusses different energy sources exclusively in a European context. There is no mention of the energy sources and consumption on other parts of the world even though global warming is mentioned. The lack of global focus is symptomatic for the *Tellus* trilogy.

## Sustainable Development as an "Extra"

The lack of linkages between scientific concepts and society at large is particularly critical in relation to sustainable development. The natural sciences have come a long way since the early '70s, when the subject consisted more or less of a collection of scientific formulas (Isnes 2007). Environmental and developmental concerns are integrated into the natural science curriculum and also into the *Tellus* books. However, in the grand narrative of acids and bases, the universe, electricity and energy sources, the concept of sustainable development is an extra at best.

Firstly, while the environmental aspect is integrated into some parts of the books, it is absent from a majority of the chapters. The upgraded 2007-edition of *Tellus* does not seem to have a heightened focus on the environment compared to the 1997-edition. Chapters called "Nature use," "Fossil fuels – energy source and environmental foe," "The water environment where you live," "Human subsistence requirements – what now Tellus?" and "Renewable energy sources" are removed in the new edition of the textbooks. Some of the content of these are probably worked into the remaining text and into the new chapter at the end at the last book: "Biological diversity" (which will be published in 2008). It is clear that the environmental focus has not been the guiding principle when writing the textbooks. This is further illustrated by the fact that the environmental aspect is often mentioned at the very end of the chapter (if it is at all included), and that the chapters dedicated to environmental issues are placed at the very back of the book (which is the case in both *Tellus 8* and *Tellus 10*).

Secondly, while environmental concerns occasionally appear throughout the books, the text rarely links these to what consequences they have for humans and the planet as a whole. For example, in *Tellus 8*, in Chapter 4 on different materials such as metals, glass, wood and textiles, the only reference to the environmental impact these materials have is a brief mention of teak. It is argued that teak is a popular type of wood and therefore large areas of rainforest had to be cut down. "This is the reason why many people no longer buy teak" (Ekeland,

et al. 2006:99). There is no discussion of why cutting down the rainforest is a bad thing, or what consequences it has for the local and global environment and communities. Another example is to be found in the last chapter of *Tellus 8* called "Ecology – links in nature." Instead of alerting the reader to the critical link between humans and the environment, this chapter provides a descriptive account of how an ecosystem functions. The lack of linkages equates the textbooks' environmental approach more to traditional environmental protection than to sustainable development thinking. For example, in the two chapters on electricity in *Tellus 9*, the only reference to the environment is found in the argument that building dams to produce hydroelectricity might interrupt the local ecosystem. Other concerns, such as what would be the economic and environmental consequences of importing electricity instead of using hydropower are not part of this narrative. In other words, the developmental aspect is largely missing in this story. What consequences different scientific or technological solutions have for humans and their environment, which is the key aspect of the concept of sustainable development, is this narrative's blank spot.

## Too Little, too Late?

Both the curriculum and the textbooks bear evidence that sustainable development is not the defining perspective. Rather, sustainable development obtains a periphery role – it takes the back seat both in terms of: 1) Content: environmental and developmental issues do not appear often, and when they do, the link to social, economic and cultural consequences is weak at best. And 2) Placement: Sustainability issues are not part of the defining framework, instead it they appear at the back of the book or chapter. In short, the textbooks fail to link the topics to societal patterns and global concerns that ought to be highly relevant to young people. The narrative provided by the *Tellus* trilogy has a distinct natural science approach that is more descriptive than critical and analytical – an approach that mirrors the curriculum. The developmental perspective is missing, and can be linked to a lack of global focus – environmental problems are seen in a European context and not linked to issues such as economic growth or poverty.

Topics are discussed from a Western perspective, and alternative worldviews, solutions, and situations are strikingly absent. In conclusion, the sustainable development focus assumes a shallow and peripheral role in the natural science curriculum, and in the textbooks used by 70-80 % of Norwegian children.

## 4.3 The Social Sciences – Civic Engagement without Nature

### 4.3.1 Curriculum

*Objectives*

The objective of the social science subject is to "help create understanding and belief in fundamental human rights, democratic values and equality, and to encourage the idea of active citizenship and democratic participation" (Norwegian Directorate for Education and Training 2006c). The social science curriculum acknowledges that humans communicate through languages and forms of expressions colored by the culture they originate from. The curriculum further states, "As a political individual, a person can influence his or her surroundings. As a moral individual, a person is responsible for the consequences of his or her actions." The subject is meant to foster the desire to think freely, with an understanding for different perspectives, and to be tolerant and critical. It aims to further the students' ability to discuss, resonate and solve problems in their society. The social science subject also seeks to stimulate and understanding of the relationship between humans and nature. It wishes to place focus on how human activities influence the possibilities for sustainable development (Norwegian Directorate for Education and Training 2006c).

In short, the curriculum has lofty aims to encourage critical, evaluative and active engagement with societal issues. Environmental and developmental questions are described as an important part of the subject.

## *Competence Aims*

The social science subject consists of three parts; sociology, history, and geography. The competence goals for the sociology component include a host of highly relevant skills for a sustainability minded student. Goals include:

> find and present relevant societal issues; describe how the consumption patterns have developed and explicate consumer rights; discuss possibilities and challenges in multicultural societies; present political institutions in Norway and compare them to other countries; understand and discuss democracy; describe main features of the Norwegian economy, and; list basic rights and discuss the value of respecting these (Norwegian Directorate for Education and Training 2006c).

Environmental issues are not mentioned and neither are developmental challenges such as unequal distribution of wealth and poverty on a global scale.

The history part has several competence aims that are relevant for critical thinking. Among these are: knowledge of different ideologies; discussion of human worth, racism and discrimination; and understanding of technological and societal changes resulting from the industrial revolution. However, the competence aims do not mention sustainable development, environmental issues, and the focus on historical development limited to the Western context. There is little explicit reference to active engagement, and to the students' own role in the historical picture (Norwegian Directorate for Education and Training 2006c).

The competence aims for geography includes:

> the ability to discuss relationships between nature and society; assess the use and misuse of resources, consequences this might have for the environment and society, and conflicts this can create locally and globally; explain and discuss inequality, and; discuss and elaborate on premises for sustainable development (Norwegian Directorate for Education and Training 2006c).

The environmental and global focus missing in sociology and history, is present in geography. However, the competence aims for geography lack encouragement to take direct action and think critically. While "analyze" and "discuss" do appear, "tell," "explain," "describe," and "asses" are the words most frequently used to characterize the actions students should have taken before they graduate from secondary school.

In general, while the social science subject raises a range of societal questions, possibilities and challenges, it lacks focus on environmental and developmental issues. Overall, the curriculum aims to educate critical and reflecting students, but not in relation to sustainable development.

### 4.3.2 *Underveis* – Social Science Textbooks

The social science textbooks series *Underveis* has a market share on about 50% (Gyldendal Undervisning 2007). Similarly to the natural science textbooks *Tellus*, *Underveis* was published in an updated edition in the advent of the new curriculum *Kunnskapsløftet*. As mentioned above, the social science subject is divided into three sections (sociology, history and geography) and so are the textbooks.

*Social Science with an Environmental Deficit*

In contrast to the geography and history books, the three years of social science text is compiled into one book called *Underveis 8-10: Samfunnskunnskap* (Strand and Strand 2006). The book has a thoroughgoing reflexive and inquiring approach to the topics it discusses. For example, in "Chapter 1: The good society" students are presented with rules and procedures for meetings. In addition to listing the rules of debate, the book fosters students to think about the importance of respecting others' right to speak in a discussion by questioning why we need to have such rules (15-16). The text provides information wrapped in social, economic, cultural context relevant to young people. The book refers to

popular culture familiar to students, but it also assumes that young people are global citizens interested in issues beyond their immediate sphere.

*Underveis 8-10: Samfunnskunnskap* extensively uses personalized narratives to turn potentially dry material into interesting information to students. Chapter 9 on "Constitutional government and court of justice" starts with 15-year-old John that takes a punch in the face. Through the rest of the chapter we follow the story of a pair of youths suspected of this violent crime through the judicial system. The book uses narratives of both fact (see textbox "Deep throat – the media as a watchdog" p. 140) and fiction (see excerpt on crime from the sarcastic comedy novel *Populærmusikk i Vittula* p. 169) in order to relate and illustrate the topics discussed.

The sociology textbook applies a global perspective, not only evident in the chapter "The multicultural society." The textbook consistently uses a mix of Norwegian and foreign names in narratives and examples, and it frequently refers to and compares domestic issues with the situation in other parts of the world. "Chapter 6: The local society" explains how the local municipality (*kommune*) works. An excerpt from a story about a young boy growing up in poverty in Zimbabwe provides a perfect illustration of the importance of the sewage system, free schooling and access to pens and paper – basic necessities taken for granted by most school children in Norway. The text occasionally takes a compassionate approach attempting to give students an insight into other realities. When discussing the topic of human trafficking students are encouraged to "imagine that you are 18 years old, you live in a poor African country and your opportunity to get an education or a somewhat decent job are equal to zero(…)" (Strand and Strand 2006:78). The book also includes "alternative" perspectives. In the section on "Consumption, economy and globalization" includes an excerpt from a speech by the great Indian Chief Seattle about the strange idea that someone should own the land, the water and the air (203).

The development aspect is well represented in this book. Strong links are made between factual information and how it relates to human development. Connections are made between colonization, industrialization and the global economy on the one hand, and to poverty and unequal distribution on the other (See Chapter 14). Consumption in the Western part of the world is linked to poverty and exploitation in other parts. The book is filled with topics important to pursue a sustainable future such as identity, culture, multiculturalism, democracy and power structures, the media and its influence, international laws, consumption, and the global economy. However, strikingly little attention is given to environmental concerns. In sum, *Underveis 8-10: Samfunnskunnskap* provides a good background for the reflexive, compassionate, knowledgeable, and analytic student ready to pursue sustainable development – but the lack of environmental aspects is a major drawback.

## *History without Nature*

The history part of the social science subject is materialized through three books (one for each grade) in the *Underveis* series (Skjønsberg 2006, 2007). The third and last book will be published in 2008, and the previous edition of *Underveis 10: Historie* (Skjønsberg 1999) will be used as a complimentary source. Even though the title of the three books is "History" it might as well have been "European history" – much in line with the competence aims of the curriculum. The books do indeed include parts of the history from other parts of the world as well, but in a distinctive European context. South American, Asian and African histories are told in relation to their colonial past and its aftermath. Hence, non-Western histories are part of the text (often the last section of a chapter, or the last chapter in the book), but the Western narrative is the dominant framework. The books' chapters are divided into commonly agreed upon important historic events in Western history such as the French Revolution, the American Civil War, Second World War and so on. Exceptions are a few short chapters on themes in particular time periods such as "Education, newspapers and moving pictures" in *Underveis 8: Historie*.

The history textbooks provide linkages between historical events and the social, economic, political and cultural effects - though not as systematic as the *Underveis 8-10: Samfunnskunnskap* (Strand and Strand 2006). "Chapter 4: The Great Depression" in *Underveis 9: Historie* does not only explain the economic context that brought about the Great Depression, but also the hardship it caused ordinary people in different parts of the world. The text goes into depth on the effects of the Great Depression in Norway and includes an account of what it was like to be unemployed and that there was bitterness between different social classes in society due to inequality and unequal distribution of wealth (Skjønsberg 2007). Each chapter has a narrative introduction and occasional personal stories, and excerpts from fictional works. Nevertheless, the main text follows a typical textbook style of writing – pedagogical and factual, though with a language appropriate and understandable to students at secondary level.

In conclusion, the *Underveis: Historie* trilogy provides an analytical account of European history. While also including elements of world history, the text assumes a distinctive European perspective. The choice of perspective is important to obtain a sense of one's own place in history. However, it seems odd that the global perspective is so weak in a world that becomes increasingly globalized. The human development aspect in terms of unequal distribution of wealth and the reasons behind this is well covered. However, also here the environmental issues are neglected. There are hardly any references to humans' interference with the environment throughout the three books. Even in part two of *Underveis 8: Historie* dedicated to how the Industrial Revolution changed human life there is no mention of the adverse affects on natural environment (Skjønsberg 2006). This is an example of a topic where there is ample opportunity to include the environmental aspect, and still it is excluded.

## Geography

The environmental aspect missing in the history and social science textbooks can be found in *Underveis 8 -9: Geografi (Birkenes and Østensen 2006, 2007)*. I am

also here examining the old edition of *Underveis 10: Geografi* (Birkenes and Østensen 1999) in lieu of the last book in the trilogy, which will be published in 2008. While the environmental perspective is not the dominant framework, and environmental references are not part of all chapters, these books frequently make reference to the relationship between humans and the environment – an improvement from the previous edition. In some chapters, the environmental references are weak or totally lacking. Examples are chapters on secondary industry, population and population increase. *Underveis 9:Geografi* contains a description of all European countries that includes factual information and nice touristic images, but excludes information and analysis of economic development and environmental issues. Overall however, the books systematically relate factual information to human development and thereby enable the reader better to understand how humans influence the environment and visa versa.

While Norway obviously is the focal point, the textbooks provide a global context to the issues at hand, and give a great many global examples. An example of a global context is the introduction of the section on weather, climate and vegetation in *Underveis 8: Geografi.* The introduction is a discussion of how the weather forecast influences what Norwegian people do in their spare time in the next few days. This is contrasted to the fact that there are still many people who are living in close relationship with nature and a shift in weather for them can mean hunger and disease (Birkenes and Østensen 2006:79). The same book provides an example of how rainfall affects millions of people during the monsoon in Southeast Asia: "Foods are part of life in Bangladesh. The biggest flood in the last 100 years was in 1998. It lasted for three moths. Two thirds of the country was under water. 22 million people were homeless, and 100 kilometers of road were destroyed" (100). Environmental phenomena are linked to human development on a global scale.

Hence, the development perspective is integrated into the geography textbooks. Environmental concerns are well represented, but often takes the back seat (at the end of a section, chapter or book) and is not *the* defining perspective.

## *Underveis – Well on the Way, but not Quite There*

The sociology, history and geography textbooks in the *Underveis* series provide a good starting point for young world citizens facing challenges of sustainable development now and in the future. The series clearly reflects the goals stated in the curriculum. As a whole the books offer sound analyses of how the factual material it presents links to human development. Historical events, societal structures and institutions and natural phenomena are placed in a human context and provide a reflective and knowledgeable narrative. The global linkages are partly integrated, but are particularly weak in the history curriculum and textbooks. The books use a mix of facts and fiction (with most weight on the former) to foster compassion and understanding for the situation of other people.

The analytical, reflective, and empathetic skills mentioned above are all crucial in understanding, thinking and acting towards a sustainable future. The environmental perspective is an apparent weak point in the social science textbooks and curriculum. The geography books have made an effort to include environmental issues, but there is still some way to go before sustainable development is a cross-curricular theme high on the agenda in the social science subject. The *term* "sustainable development" itself receives little attention in both the natural science and the social science textbooks. It is not used actively in the text. Sustainable development is only mentioned once in passing in the *Underveis 8-10: Samfunnskunnskap* (and once in this books extra material at the back). It is mentioned twice in the geography books: *Underveis 9: Geografi* provides a brief definition without further discussion of the concept (98), and *Underveis 10: Geografi* mentions the term once in passing (12). The history and the natural science books do not mention the term sustainable development.

The findings in this chapter suggest that there is a double fragmentation when it comes to the sustainable development narrative in the Norwegian curriculum and textbooks. Firstly, there is a *disciplinary* fragmentation. Sustainable development is declared a cross-disciplinary theme, but more often than not it has the role of a spare-wheel in both the natural and social sciences.

Secondly, there is a *narrative* fragmentation. The narrative fragmentation refers to the fact that in secondary education textbooks fail to provide an engaging and comprehensive narrative of sustainable development. Sustainability issues are presented in fragments, and there is a lack of a narrative framework to help students make sense and identify with sustainability challenges. Chapter 5 will elaborate on the narrative fragmentation and analyze what kind of messages about sustainable development the textbooks convey.

## 4.4  Geography at an International School

Part of my research included interviews with a geography teacher and students at an international school. I will not provide a detailed analysis of the textbook used, but rather a brief discussion for comparison with the Norwegian textbooks. The geography book used at this school is called *The New Wider World* (Waugh 2003) and is made for General Certificate of Secondary Education (GCSE) that is used by the British education system for students aged 14-16. The International school teaches the international version of GCSE. *The New Wider World*'s perspective is systematically international with constant use of global examples and illustrations of the topics discussed. Also, the developmental perspective is thoroughly integrated – both as separate chapters and sections (such as Migration, Urbanization in developing countries, and World development and interdependence) and in topics where development is not as obvious (such as in Tourism, Plate tectonics, and Drainage of basins and rivers). The social *and* natural science information is well integrated in this book. Factual information about physical phenomena is systematically presented in a social context throughout the book. The text is abounds in real-life examples both from Britain and other parts of the world. Similarly to the Norwegian geography books, environmental issues are included, but do not act as the main framework. In contrast to the systematic development aspect, environmental issues are neglected in certain chapters (for example chapters on population and migration).

Analogically with the Norwegian geography textbook, we see similar tendencies in that the human development aspect is well integrated. Furthermore, the environmental concern is present but not included in a systematic manner and it is not *the* main focus. However, while the Norwegian book provides global examples, it cannot match the integration and scope of the international examples and illustrations in *The New Wider World*. Interestingly, the international focus seems more adapt to addressing sustainability issues. Even though sustainability is not the framing perspective, global developmental and environmental problems becomes an integral part of most of the topics discussed.

# 5. Sustainable Development – The Missing Story

The previous chapter established that there is a *narrative* and a *disciplinary* fragmentation, and this narrative deficiency in the story of sustainable development is the focus of analysis in this chapter. Another conclusion in the previous chapter was that the concept of sustainable development has a marginal role, and that elements of the concept (such as environmental and developmental issues) are present – though at a varying degree. With these findings in mind, I wish to find out what kind of story of sustainable development students are faced with.  By using a Brunerian approach, I will scrutinize sustainable development as an educational story in two of the most used textbooks series in the natural and social sciences in secondary education (*Tellus* and *Underveis*). Narrative is the primary tool for meaning making and the negotiation and renegotiation of culture. In education, narrative, as a mode of thought and as a vehicle for meaning making, can help children to create a version of the world in which they can envision a place for themselves (Bruner 1996:40-43). Narratives are here seen both as concrete stories in the text, and as larger narrative structures made up of characters, models of action, descriptions, sets of concepts, assumptions and worldviews.

The objective of this chapter is to analyze the narratives of sustainable development that students encounter in social and natural science textbooks in Norwegian secondary education. The ten textbooks cover several disciplines (natural science, sociology, history and geography) and each discipline has its own focus and perspective. The narratives presented sometimes convey divergent and conflicting messages. I will here analyze the texts as a whole, search for general narrative structures, and interpret what kind of messages these narratives communicate to students. The analysis will focus on how two key components of sustainable development (development and environment) are conceptualized, and how these contribute to sustainable development as a concept and programme in

school. Finally, I will discuss the educational story in light of the Norwegian nature tradition.

## 5.1 The Story of the Environment as a Natural Resource

A closer examination of assumptions, facts, stories, lines of reasoning and the choice of words in the Norwegian textbooks at hand reveals that the environment is most often constructed as a *natural resource* – a term full of cultural assumptions. The term "natural resource" refers to a substance or material found in nature that can be exploited for economic gain (Soanes and Stevenson 2005). In the sociology and history textbooks there are few references to the environment. When mentioned, the environment is treated as a natural resource. For example, the introductory sentence in the chapter on the Norwegian economy in *Underveis 8-10: Samfunnskunnskap* states, "The economy consists of different values, and among a country's values are the natural resources." The sentence is followed by a description of Norway's natural resources such as fish, rivers, water falls and oil (Strand and Strand 2006:119). Similarly, in "Chapter 6: Rural life is changing" in the history textbook, Norwegian nature is described in terms of natural resources. "Only three percent of Norway's land can be cultivated," but when it comes to fish the situation is completely different: "For a long time Norway has been one of the leading fishery nations in the world" (Skjønsberg 2006:101). These examples illustrate that the Norwegian nature is discussed in terms of its qualities as a natural resource. The text induces students to emphasize the economic value of the environment rather than its intrinsic or spiritual value.

A second cultural assumption underlying he concept of the environment is that as a natural resource it belongs to states. This is illustrated by the phrase: "Norway's natural resources" mentioned above. Thus, the history books tell the story of how the British had problems extracting iron from ore due to a lack

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wood coal during the Industrial Revolution. "To obtain one ton of wood coal they must cut down three tons of wood, and the problem was that the British had too little forest. This retarded the iron production significantly." In the 1780s the British managed to use coal to extract the iron. "Then it did not matter that there was little forest in Great Britain because the country had enough coal" (Skjønsberg 2006:110). Statements such as "The British had too little forest" implicitly assumes that states should feel ownership of their natural resources within their national borders and that they should exploit these in a manner so that it remains a "valuable industry also in the future." The ownership-of-nature debate is well known and often associated with the theory "the tragedy of the commons." This theory is based on the dilemma between personal gain from the use of a natural resource, and the degradation of common access to that resource due to the exploitation by individuals. (Hardin 1968). The "tragedy of the commons" debate is more relevant today than ever due to an increasingly globalized world where the ecological crisis force countries to think and act beyond their own borders. Critical awareness of the global reach of responsibility for the environment is an important part of education for sustainable development. Ownership of natural resources is therefore a theme that requires critical reflection and attention.

Lastly, when looking at nature as a natural resource, the main objective for making it sustainable becomes ensuring the possibility of economic growth in the future. For example, the textbook *Underveis 8-10: Samfunnskunnskap* argues that there is ample opportunity for increased growth in the fishing industry in Norway. However, such a growth "entails that we manage to exploit the fish-resources in a good and constructive manner that makes fishing a valuable industry also in the future" (Strand and Strand 2006:220). Fish is discussed and valued only in terms of its role to supply resources to the industry. The model of action in this narrative is focused on possibilities for economic growth, and neglects incorporating the intrinsic and aesthetic values of the environment in the story. Surely, anthropocentric considerations are at the heart of the sustainable development project. However, awareness of its own cultural assumption can

make possible education that encourages students to relate to nature in other ways than solely treating it as a natural resource to be exploited for natural gain. Education for sustainable development entails having a reflective relationship to nature that enables students to make educated decisions on how to treat nature.

The previous chapter drew attention to the Cartesian approach used in the narrative of the natural science books (*Tellus*). In fact, the story of the Western world's triumphant instrumental control over nature constitutes the main narrative framework of the *Tellus* books. The control-over-nature perspective lends legitimacy to viewing the environment as a natural resource. When framing the story of natural science, the text explains that the discipline developed as a result of a need for new knowledge and technology to exploit and put the natural elements into a rational system. For example, the section "From hunting to farming – a need for new knowledge and technology" explains that "humans began to crave to know when to sow and harvest, and it became important to keep track of the seasons and how many days there were between floods" (Ekeland, et al. 2006:9). Human progress is here linked to systematizing and controlling the natural elements. The book maintains that in earlier times humans believed in gods and myths to explain natural phenomena.

> The Greeks and Romans believed that the god Zeus caused thunder and lightning when he was angry with humans and wanted to punish them. People at that time must have been frightened of thunder and lightning. Such explanations that we no longer believe in we call myths (Ekeland, et al. 2006:9)

Natural science is presented as the only valid and trustworthy model of explanation without providing plausible alternative ways of thinking about nature. Natural science thus obtains the monopoly of defining what is the *truth* about nature.

At the same time as nature is framed as a "natural resource," in tune with a rational scientific mode of thinking, the story of the environment recognizes the ecological crisis. This is especially evident in the *Underveis* geography books where the adverse effect of human's interference with nature is highlighted.

"Flood disasters, meaning the consequences of flooding, have become greater as more people have settled in flood-prone areas" (Birkenes and Østensen 2006:66). Thus, nature's role goes beyond being a natural resource. The geography text stands out from the other textbooks because it provides narratives with alternative perceptions of nature. Nature here obtains an independent role: "… the earth has its own powers that neither humans nor animals have control over" (Birkenes and Østensen 2006:25). This is a contrast to the rest of the textbooks that almost exclusively refer to nature as a resource exploited for economic profit. Admittedly, the geography textbooks include some alternative narratives of natural phenomena (for example the Greek legend about Hefaistos, the God of fire that lived inside the volcano Etna on Sicily). However, these narratives are on marginal to the main story, and in general most statements and assumptions are based on scientific reasoning.

In sum, the story of the environment as a natural resource is the leading narrative in the social and natural science textbooks. The story is told using a rational and scientific approach that recognizes that the exploitation of natural resources has adverse effects on both the environment itself and on humans. Even though the negative consequences of human exploitation of nature are part of the story, the instrumentalist approach to the environment does not to a significant extent stimulate students to think of alternatives to an exploitative relationship to nature. Nature as a spiritual and aesthetic value with religious or philosophical meaning is not part of the textbook narratives. I am not attempting to argue that students should stop seeing the environment as a natural resource and instead live in the forest and value its spirituality. Rather, sustainable narratives aiming at inspiring students rarely include whole range of concepts, assumptions and models of action attached to the environment. The current textbooks present scientific instrumentalism as the natural mode of thinking without problematizing and questioning the meaning and consequences of this line of reasoning. The educational story of sustainable development does not present nature in a way that fosters respect for and reflection about the moral underpinnings of the students' cultural predispositions in dealing with the

environment. There is need for a story that would encourage students to be open to other cultural interpretations and perspectives in order to cultivate creative and innovative responses to the sustainability challenge.

## 5.2  The Story of Development as Modern Progress

The story of development in all the textbooks clearly follows a schema of understanding based on the Western modernity project. Development is seen as a progressive expansion of human possibilities: personal freedom and individual advancement, control over life-threatening situations, power to solve problems and direct the course of consumption (Bowers 1993:11). The story presented in the Norwegian history books *Underveis* is a prime illustration of this. The history trilogy starts with the American Revolution. Equality, rights, democracy and individual freedom are key concepts that follow the historical narrative throughout the books. George Washington, Thomas Jefferson and Benjamin Franklin are portrayed as heroic figures that contributed to the advancement of the modern project. Thus, "The next time you experience thunder and lightning, and you are sitting safely in your house, you can send Franklin a grateful thought, because it was he who invented the lightning diversion" (Skjønsberg 2006:20). The message of this half-joking remark is serious enough. In addition to emphasizing the ideals of modernity such as individual autonomy and equality before the law, the historical narrative also promotes the belief in the efficacy of science and the ethos of cognitive rationality as the key components of human development. This is not to criticize the achievements of the modern era, but the negative effects Western societies have had on their respective habitats, are given a marginal role in this historical account. Modern ideals of individualism, economic growth, and scientific progress are largely left unquestioned. If science and rational thinking are to contribute to a sustainable future, the educational system needs to ensure that students have the kind of narratives and cultural understanding to assess the sustainability of this mode of thinking.

Students are faced with a story of development fuelled by science, industry and technology – the true vanguards of human progress. In the section "Industry changes people's lives" students are presented with the wonders of modern science such as progress of the medical science, expansion of railway and new ships, and the extraction of different metals for use in industry (Skjønsberg 2006:83). Recently, technology has become a prioritized area by Norwegian authorities, and was added as a new section in the natural science curriculum. The new edition of *Tellus 9* has a brand new chapter called "Technology and design – from idea to finished product." The mantra of the chapter is that technology is a vital part of *your* life and that "technology is about developing tools or systems we use in our everyday lives – in transport, industry, medicine, communication and space travel" (Ekeland, et al. 2007:224). Technology is given the role of a tool whose purpose is to help humans to progress further. There are no references to sustainable development or the environment in the chapter on technology. Development and technology are intertwined in this story whose main focus is Western progress – consequences for the environment and people in other parts of the world, is largely left out.

Consumption is another concept that is linked to development. In "Chapter 12: Consumption society" in the *Underveis 8-10: Samfunnskunnskap* book, the adverse effects of consumption are part of the story (Strand and Strand 2006:205-218). However, in most instances where the consumption of goods and services is discussed, it is linked to positive stories of the development of technology and to economic growth. For example, the development of the scooter Vespa in Italy after Second World War is presented as a story of success. Enrico Piaggio invents a motorized bicycle in an economically devastated post-war Italy, and it immediately becomes a hit. "Technology and design is in a large degree about finding solutions to small and big practical problems, at the same time as we give these solutions a design that makes them user-friendly and inspiring" (Ekeland, et al. 2007:223). The Vespa story is an illustration of consumer romanticism. The story does not incorporate any critical discussion of technological progress and the legitimacy of the consumption culture. Was the

production of the Vespa a sunshine story without any negative consequences? Small motorized vehicles are a great source of air and noise pollution in Italy. Also, how technology can be used to improve the situation for people in deep poverty, or help reduce the adverse human effect on the environment is largely left unexplored.

The modern ideals of the story of development function as the ideological framework for the textbook narratives. Alternative perceptions of development are occasionally included, but they remain in textboxes as digressions from the main story. For example, in the story about the American Revolution, the attention is on the noble ideals and hard work of the white settlers. The natives of that land, the Indians, are mentioned, but their perspective on development is not. Alternative paths of development are silenced or sidetracked, and are not part of the main narrative framework. By using the evolution of democratic institutions, technology and science as symbols of progress and development the textbooks do not only legitimize the Western mode of thinking, but it also contribute to creating a set of prejudices that discourage students from assessing what values, skills and knowledge traditional, and more bio-centric cultures can contribute to a sustainable future. One of the pillars of education for sustainable development is to create open-minded, critical and creative students that are aware of, and able to assess and change unsustainable practices. This does not necessarily mean to adopt a traditional Indian lifestyle, but an acknowledgement that other perceptions of development exist could contribute to critical and inventive students.

Moral questions and reflection on how human values and beliefs have contributed to the ecological crisis, and the role of these in solving the crisis is an area of neglect in the textbooks. There are several examples of what happens when humans exceed the carrying capacity of an ecosystem, but the explanation stops short of suggesting that the root of the problem can be traced back to cultural beliefs and values. For example, students are made aware that consumption has adverse effects on the environment and that some of the

products they buy could be manufactured by exploited workers in other parts of the world (even though consumer rights seem to have more priority) (Strand and Strand 2006:205-218). However, the textbooks do not question the moral basis of the consumption and the value of the consumption culture itself. Students are not invited to reflect on consumption as a cultural phenomenon that carries with it a certain set of values and beliefs – are these compatible with sustainable development?

If we merge the stories of the environment and development, the narrative that emerges is a story about the rational and scientific conquest of nature based on empirical evidence. The environment is a natural resource that must be exploited in a manner that ensures possibilities for economic growth also in the future. The model of action is to use the rational instruments of science to modify nature to further the modern project. While recognizing that the environment is vulnerable to human exploitation, science and technology (along with some recycling) are constructed as the tools for understanding and acting on these problems. The hero of the story is the dualist western man, often in the shape of an inventor or a conqueror. The environment and people in poor areas of the world often end up as the losers in this story. In the rational account of causes and effects, the cultural backdrop is a blank spot. Questions such as: "Are our cultural beliefs and moral judgments compatible with sustainable development?" are never asked. Is this the story that will foster students to envision and create a sustainable future? The narratives students are exposed to in the social and natural science textbooks today presents mixed messages about the supremacy of technology and science in creating progress at the same time as the ecological crisis is a fact. The key sustainability dilemma between development and environment, continue to be an unsolved problem and there is a lack of direction in the narrative presented.

## 5.3 What Happened to the Norwegian Nature Tradition?

The discussions above illustrates that in order to provide an effective educational story that mobilize students' engagement for sustainable development, this story needs to have a clear direction and keen awareness of its own cultural assumptions. But what kind of cultural assumptions should be promoted in such an educational story? Cultural historian Nina Witoszek argues that the Norwegian "nature tradition," based on traditional ideas and beliefs reaching back to Edda, contains narratives conducive to the sustainability project. "Keep measure, don't over-reach" is the ecological codex of Håvamål, a poem in the ancient Poetic Edda. Witoszek compares the central trope of Håvamål: "Thou shall not think (or show) thou art anybody special" to the ethos of Arne Næss' philosophy of deep ecology: "We human beings should not think that we are special in the universe" (Witoszek 1999:453). Reed and Rothenburg see deep ecology a way of thinking that questions the current values and ways of living, and giving nature value in itself. The values of moderation and respect for the natural elements have been incubating for centuries in Norwegian culture, and has been an integral part of literature, politics, lifestyle, leisure activities, art, and way of thinking (Reed and Rothenburg 1993). In the nineteenth-century, Norway largely consisted of rural communities held together by religion, tradition, and the struggle against the natural elements. Overshadowing formal class and sex distinctions was the struggle for survival and daily life followed the rhythms of the sea, the soil and the sun. The popular tradition of knowledge was based on a direct experience of nature and fostered its own heroes and exemplary models of action (Witoszek 1997:220-221).

Witoszek argues that the nature tradition is very much present in today's Norwegian culture. She uses the fairytale about Askeladden, familiar to all Norwegian children, as a testament to a contemporary *codex natura* that is part of the national ethos and models of action. Askeladden is a rural lazybones that manages to win the daughter of a peasant king without sweat and tears, but through his own resourcefulness and with nature's support. The story of

Askeladden is exceptional in the way it presents an ecological protagonist (a comic survivor) and a corresponding code of action. As a narrative epitomizing the essence of national role models and action patters, Askeladden an anarchic, but also highly pragmatic figure whose success depends on the Taoist *wu wei*, i.e. "action in inaction," or action in accordance to the laws of nature (Witoszek 1998:83-92). Witoszek argues that this national folklore illustrates the national mantras of modesty, respect and closeness to nature, as well as a holistic picture of humans in nature.

The Norwegian nature tradition was strong in the nineteenth-century, and Askeladden is an example of its contemporary presence. However, Norway is no longer characterized by isolated and rural communities whose subsistence is dependent on nature. While many people still live in rural areas, hunting, farming and fishing are now associated with leisure rather than subsistence. Norwegian people no doubt are eager mountain trekkers, but I would like to question how strong the nature tradition is in a society where the separation from the natural elements is an established part of everyday life (electric heating, food from the supermarket, high consumption of luxury goods). Nevertheless, despite the fact that Norwegians' relationship to nature has changed, the values of the nature tradition are an important part of the national history and identity. One of the tasks of education would be to pass on this history and to foster students to find their own identity in relation to past and present realities.

The paradox is that Norwegian nature tradition does not have a prominent role in the educational story. True, none of the textbooks encourage students to rampage nature, but through a strong focus on economic growth and nature as a natural resource, the story of the Norwegian nature tradition is significant by its absence. There is a blindness to one's own precious legacy. The Askeladdian tradition, as a meaning-making story, is not used in the Norwegian education for sustainability. If Askeladdian stories of dissent and alternative modes of thinking evolved from being digressions to becoming serious considerations in the dominant narrative, they might contribute to a more reflective and creative

perspective on sustainability issues. No matter what perspective is chosen, writing such a story entails consciously making decisions about what kind of worldview, cultural assumptions and moral judgments are to be included in the story. The current story fails to provide a sense of direction for sustainable development, and the search for the right story to solve a set of challenges that is constantly changing requires both cultural sensibility and vigor to mobilize students.

# 6.  Fieldwork Analysis

I carried out interviews with five teachers and nine students, and I conducted participant observation at two secondary schools.[11] The schools and teachers (referred to by pseudonyms) include:

1. **Oslo school 1** is situated about 10 minutes outside downtown Oslo. Students come from middle to high-income families, and most of the students are ethnic Norwegian.
   - **Teacher L.L.** teaches social science, religion and English, and is passionate about sustainable development. She holds a master degree and is engaged in several committees and initiatives related to sustainable development outside of school.
   - I conducted **interviews** with three students (A, B, C) and did **participant observation** at the weekly "bring newspaper clippings" session.
2. **Oslo school 2** is private and situated downtown. About 50% of the students belong to a visual minority. The school follows the national curriculum.
   - **Teacher C.C.** does not have formal teacher training, but holds a degree from a business school and will start a new job outside the school system in the fall 2007. He teaches natural science, math and physical education.
   - I conducted a **focus group interview** with four students and did **participant observation** at their global warming project.
3. **The International school** is situated 20 minutes outside Oslo and hosts 500 students, many with an international background. The secondary

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[11] Sample interviews can be found in appendices C and D.

education has its own course guidelines based on IGCSE guidelines (International General Certificate of Secondary Education).

- **Teacher K.K.** has written her master thesis on a topic related to sustainable development and uses this term in all her teaching. In addition to teaching geography she teaches CAS (creativity, actions and service) which is a community service that is part of the school's educational program.
- I conducted **interviews** with two students (D, E).

4. **Northern school** is situated in a town in northern Norway. It's a public school in a town of around 5000 people, and students come from different economic backgrounds. Though some students represent ethnic minorities, most students are ethnic Norwegian.

- I had a short interview with **Teacher H.H.** at the start of the work on the thesis to get a general idea of the teaching situation in relation to sustainable development. H.H. teaches natural science, math, and physical education.
- **Teacher D.D.** teaches social science and natural science. In addition to teacher training, he has a degree in chemistry.

In this chapter I will present my findings and draw conclusions from my fieldwork based on inputs from students and teachers, and from my own observations.

## 6.1 Mixed Enthusiasm

All in all, I contacted 20 schools (all but one in the Oslo area) about interviewing a teacher and possibly a few students about teaching and learning about themes related to sustainable development.[12] Out of the 20 schools, I received a positive

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[12] The standard method of approach was to send an email to an inspector/vice principal/person in charge of secondary education with my request and then I contacted this person by phone a few days later to follow up.

answer from only four schools. Some of the schools said they did not have time to talk to me – I contacted the schools from the beginning of April and many were busy preparing for exams. Other schools answered that they did not teach sustainable development – nor related themes such as environmental and developmental issues. One particular school had movement and art as guiding themes and advised me to contact other schools that might focus on sustainable development. A few schools had taught related themes about a year ago, and were not willing to spend time on talking to me because it was not relevant for the current teaching situation. I contacted one school that has its own curriculum and promotes values such as creativity and self-development strongly. To my surprise the inspector at this school revealed that they did not teach sustainable development at all – nor topics related to the environment or development. The only exception was a project on bio-fuels at the high school level.

At the schools that did welcome me I met enthusiastic and engaged teachers that saw sustainable development as an integral part of their teaching. The Oslo school 1 teacher was engaged with sustainable development also outside school, and made it an integrated part of her teaching (L.L. 2007). At Oslo school 2 the teacher had initiated a school project on global warming (C.C. 2007). At the International school the teacher had written a master thesis on a topic related to sustainable development and she also integrated it into teaching (K.K. 2007). The Northern school, situated in the north of Norway, is a bit different because I already knew my informants and I was able to interview them despite that they did not have a particular interest in the topic. The informants at this school were not particularly interested in sustainable development, but they felt it was an important topic (D.D. 2007, H.H. 2006).

Both the informal contact with inspectors and the interviews with teachers showed that while some schools and teachers are enthusiastic and integrates sustainable development into their teaching, most are not. I detected a certain reluctance to participate in my fieldwork at many of the schools. Sustainable development was not a topic of high priority at these schools, and in

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consequence, not something inspectors and teachers were willing to talk about. The process of finding informants revealed that sustainable development is not a well-integrated and prioritized topic at most of the schools that I contacted. This also indicates that the sample of teachers is not representative of the Norwegian teacher population, and I will analyze my findings in light of this.

## 6.2 Sustainable Development – at the Centre or on the Margin?

Teachers C.C. and D.D., at the Northern school, do not use the term sustainable development in their teaching. However, without using the term itself, both of them teach about environmental and developmental issues, and the linkages between human actions and the environment (C.C. 2007, D.D. 2007). C.C., at Oslo school 2, initiated a project on global warming that emphasized the links between human activity and the climate very much in the spirit of sustainable development. He does not use the term sustainable development when teaching. Both teachers L.L., at Oslo school 1, and K.K., at the International school, have had previous experience with sustainable development through their own education and use the concept frequently in their teaching. Both had made handouts/posters specifically on the meaning of the concept and used it actively in most parts of their teaching. K.K. uses the concept as a red thread in her teaching, even though it is not specifically mentioned in the curricula of the International school (K.K. 2007). L.L. and K.K. expressed that sustainable development was not a complicated issue to teach, and the interviews with their students mirrored this view.

Several teachers mentioned the lack of interdisciplinary integration of sustainable development into different subjects. Teacher L.L. expressed "I wish it could have been a cross-curricular project, cooperation, effort – or whatever you wish to call it…" Teacher D.D. said that sustainable development is not interdisciplinary: it is only mentioned in the natural sciences. The feedback from

the students confirmed the teachers' concern: when asked about which subjects dealt with sustainable development-related topics such as environmental and developmental issues, the students answered the subject the teacher I was interviewing taught. When I asked follow-up questions some of the students were able to mention one (in a few cases two) other subject they had learnt about related topics.

Teachers L.L., D.D. and C.C. stated that the part of sustainable development teaching that has to do with cultivating attitudes, opinions, and asking moral questions was a weak point. When asked about whether she believes values and attitudes are an integrated part of sustainable development teaching, L.L. said: "I do not think the common teacher sees it. I believe teachers have become mechanically obsessed with the [new] competence aims. I have given courses for students and teachers on assessment, and many see the competence aims as a 'tick-off-list.'" She elaborated to explain that many teachers became more focused on ticking off a list of competence aims instead of going deep into the material and seeing the linkages between different issues. D.D. also expressed that the ethical aspect receives low priority when he is teaching about sustainable development.

Hence, the two teachers that had a special interest in sustainable development used the term actively in their teaching. The rest taught about environmental and developmental issues, but did not apply the concept of sustainable development. The teachers expressed that sustainability is not a cross-curricular theme. Furthermore, what aspects of sustainable development are given attention seem to be left up to the teacher – the value aspect seem to be an area of neglect.

## 6.3 Teaching Resources for a Sustainable Future

All teachers I interviewed said that the curricula and the textbooks were the primary sources of reference in deciding what to teach and how to teach it. In addition, the Internet was a source of information used to complement the textbooks by all teachers. None of the teachers placed importance on the Core Curriculum that deals with cultivating moral and identity-related questions. Teachers L.L., D.D. and H.H. all agreed that the textbooks did not cover the topic of sustainable development sufficiently. Teacher C.C. at Oslo school 2 felt that topics related to sustainable development were covered well in the natural sciences in terms of the number of pages, but that the information in the textbooks was outdated. This is a particularly pressing point when it comes to environmental issues that are constantly changing, he said.

Teachers L.L., C.C. and D.D. emphasized that there was a need for further education for teachers on the theme of sustainable development. According to L.L., especially many of the older teachers feel insecure about the meaning and scope of sustainable development, and how it relates to their subject. She emphasized that sustainable development is more than just environment: "It is a bigger whole. It is about citizenship, caring for each other, and creating knowledge and attitudes. It has many aspects." Teacher D.D. from the Northern school stressed that the financial situation of the school limited teachers' ability to attend courses. He said that teachers rarely were able to attend courses on topics related to their subjects. Teacher K.K. at the International school said she attended courses and conferences quite frequently, and she uses the Internet whenever she felt that the resources at hand were inadequate.

In addition to a lack of further education for teachers, the subject "natur, samfunn, og miljø" ("nature, society, and the environment") was removed from formal teacher training, as mentioned in Chapter 3. This, together with equivocal messages about sustainable development in the curriculum and textbooks, might help explain why schools give low priority to sustainable development.

## 6.4  What Can We Do?

When asked what is required to make sure that sustainable development is well integrated into teaching all teachers mentioned the importance of interested and engaged teachers. They also emphasized that it is very much up to the individual teacher to decide how much attention will be given to sustainable development and how it is taught. C.C. argued that teachers must make sustainable development themes relevant and engaging for students. "They [students] should not experience it as a school project, but a project about values and choices." C.C. also contended that while the knowledge-base is important, the teacher does not need to strive to be a perfect encyclopedia. Instead, "I believe one should trust the students more. Even if everything isn't 100%, you have to emphasize awareness. Everything does not have to be by the book, but it is all about creating enthusiasm and giving room, and to give few restrictions and to let the students decide."

Both the teacher (L.L) and the four students I talked to at Oslo school 1 argued that cooperating with external actors and seeing the topics in a broader context would help make sustainable development more relevant and interesting in school. C.C. also expressed concern that many topics related to sustainable development easily become very theoretical and boring in students' eyes. He proposed more use of group work to circumvent this problem. Students in the focus group at Oslo school 2 asked for more focus on sustainability related issues in education. The also proposed that older students should teach younger students about the danger of global warming to make it more relevant to young people. They would also like to interact with research centers, and proposed advertising as a possible solution to create more awareness of global warming.

Teacher K.K. at the International school meant that it is important that sustainable development should have a big role in the curriculum. She also felt that the Norwegian textbooks had a distinct European focus, and she would like

to see more of a global approach because this is crucial when learning about sustainable development – especially from a developmental aspect.

## 6.5 Student Engagement - Skeptical Optimism

I interviewed students at three different schools, and conducted participant observation at two. In terms of engagement one of the schools stood out. At the time of the interviews and participant observation, Oslo school 2 was carrying out a global warming project. Students there were divided into groups, and each group was to represent different parts of the world. The students had to research the causes and effects of global warming in their allocated part of the world. The project ended with a mock-UN panel on global warming. I witnessed heated debates and lots of investigative questions among the students, both during the group work an in the mock-panel. They conducted most of their research on the Internet and they were forced to see this global problem from a different perspective. The debate itself was also quite heated and a multitude of relevant dilemmas came up. Examples are:

> If you increase the price of petrol to limit emissions from transport you might create a sharper divide between rich and poor; Who shall pay for free public transport?; Bio-fuel and electric cars are a good solution, but poor countries that cannot afford this technology are left out; The poor countries cannot just sit on their asses and wait for the rich countries to help them; The rich countries have created most of the environmental problems, therefore they should help the poor countries; Some countries are so poor they cannot do anything; All arguing between countries needs to vanish and everyone must cooperate.

Even though all suggested causes, solutions and linkages may not have been based on scientific or logical proof, the students showed understanding for different perspectives, dilemmas, linkages and challenges relevant to global warming issues. The focus group reinforced this impression. The four students were eager to tell about their newly acquired knowledge about what effect global warming has in the Andes mountains and for the yellow frogs. Moreover, they expressed shock and concern about what they had learnt about global warming.

The students had watched Al Gore's *An Inconvenient Truth* (Guggenheim 2006) as a teaser for the project. Two of the students expressed their concern: "I am a little scared of what will happen in the future, because we are the future. I hope it is possible to do something" and "It is going to become warmer and warmer, and then it will be harder to live. It was 52 degrees in Pakistan and many people died. If it becomes like that all over the world it will be no fun." The students argued that before the project they had not been aware of the grave consequences of global warming and they saw a strong need to educate people – especially young people. The group believed that poor countries are unaware of the causes of global warming and needed to be educated to prevent it from getting worse (Focus group 2007).

The students I interviewed at the two other schools (Oslo school 1 and the International school – both of which had teachers that consciously used sustainable development systematically in their teaching) could tell me what sustainable development was (a term unfamiliar to three of four students in the focus group) and felt it was an important topic (Student A 2007, Student B 2007, Student C 2007, Student D 2007, Student E 2007). However, when asked if this was a topic that interested them and whether they thought/talked about it outside school, most students expressed only moderate interest. While important, it was not a topic that was close to their minds on their spare time. Nevertheless, at Oslo school 1, I observed a weekly lesson where the students brought newspaper clippings about topics relevant to the themes talked about in one of their subjects. Of the 11 clippings, 7 were related to environmental and developmental issues relevant to sustainable development. Among the headlines were: Developing countries have reduced emissions; Glaciers are melting due to global warming; and Brundtland is doing an environmental comeback. That over half of the clippings were relevant to sustainable development themes shows that students are aware of the importance and topicality of these issues.

All students were posed questions of whether they believed it is possible to solve the *environmental* (such as global warming, deforestation) and

*developmental* (such as poverty and hunger in parts of Africa) problems we are facing today. All students believed it was possible to solve the environmental problems, although some expressed that while it was possible it depends on human willingness to implement the changes needed. The students were more skeptical about solving the poverty problems. A few students did not know. One student said it is not possible to solve, but improve.

The interviews and observations indicate that sustainable development is a theme students are interested in. However, the stimulation they received in school seemed to be determining whether the interest stayed at a low or moderate level, or whether it managed to make students engaged and passionate. Without explicitly using the concept of sustainable development, the work on global warming managed to excite students. Students were enthused to search for new knowledge and apply it in debates that highlighted conflicts of interest at a global scale. They expressed personal concern because they could see themselves in this picture. Students from the other schools had a better theoretical understanding of the concept of sustainable development. But it seemed as if the more ordinary classroom activities had a limited effect on their engagement with sustainability.

## 6.6 Agency

Students were also asked how we can achieve sustainable development, and if there is anything *you* can do? Use public transport, recycling, use less energy, use cleaner energy sources, encourage free trade instead of aid, support NGOs and influence parents to buy "green" cars were mentioned as solutions to environmental and developmental challenges. Surprisingly, changing their own lifestyles or consumption patterns were rarely mentioned, and when asked about whether they thought twice before buying something, students expressed skepticism. Students felt that their consumption behavior would not make a big difference because "it is just the way it is," as one student put it (Student B 2007). The focus group also expressed ambiguity about changing their

consumption patterns. Even though they acknowledged the unfairness of unequal access to goods and products in rich and poor countries, they could not see how changing our consumption patterns could change this. However, one girl provided the following suggestion when discussing whether it is possible to solve the poverty issue: "If all kids in Oslo below 20 donated their iPods, we could probably have saved a country." When I asked the group if they believed that all kids under 20 would be willing to sacrifice their iPods for this cause, they laughed and said no. One girl said: "Many people are not so engaged in this. But if they hear more about it, I think they might be willing to give up their iPod. If they know they can stop something." The focus group students emphasized that providing people with information about the state of the climate is imperative to make people become engaged with the issue (Focus group 2007). A common understanding among all the students I talked to was that everyone need to be aware and take action. But many of the students were concerned because they believed many people do not care.

The students expressed confusion and skepticism when faced with questions that challenged their own responsibility that went beyond recycling and using public transport. Discussing the moral aspect of their own consumption patterns was an unfamiliar topic.

## 6.7  Conclusions

The findings above illustrate that many teachers are engaged, interested and put in a lot of hard work to make sustainable development a relevant and appealing topic to students. However, sustainable development is just one of many topics that demand attention from students and teachers. Because of a lack of systematic inclusion in curricula and textbooks, and the lack of competence among teachers, it receives low priority in many instances. Whether issues related to sustainable development are taught, and how they are taught, depends very much on the individual teacher. It is likely that many teachers teach environmental and

developmental topics in a "random" fashion without stressing the linkages and the global and future dimensions. As discussed in Chapter 3, when learning about sustainable development it is important to think about one's own role, ethical considerations, both local and global impact of human development and the use of nature. It is also crucial to understand links between human development, poverty, wealth, and the environment. Several of the teachers said ethics was a weak point in their teaching on sustainable development and that it was not treated as an interdisciplinary issue. This begs the question as to how teachers with little interest in the topic present it to students?

My participant observation and interviews with students illustrated that using the term "sustainable development" is not necessarily a prerequisite for cultivating interested and engaged youth. The students with the greatest engagement and best understanding of problems and linkages between human actions and the environment, were unfamiliar with the concept itself. The conclusion I draw from this is that an understanding and concern for sustainable development does not necessarily mean memorizing the definition of the concept, but rather challenging students to engage with material that they can relate to and understand. The most engaged students were those who saw global warming as a complex story full of dilemmas, actual consequences of human action and links that reached over generations and continents. Students and teachers called for updated teaching material, links to "the real world," supplements to the teacher as the sole source of information, and further education for teachers in order the create a better learning environment for sustainable development.

The students from the global warming project expressed shock at the "climate awakening" they had experienced. The students at the other schools felt that global warming, poverty and other issues related to sustainable development were important – especially in light of the recent media focus on climate change – but did not show any particular personal engagement in these issues. While being aware of the facts (how deforestation and $CO^2$ emissions effects global

warming, causes and effects of the ozone layer, etc.), there seemed to be little reflection on how their own actions or lifestyles fit into the global picture of environmental and developmental challenges. Some students expressed that it was hard to relate to things that happened in India or Africa. All students stated that it was possible to solve the earth's environmental problems, but were more skeptical about the possibilities to solve the developmental problems such as poverty facing many in today's world. Despite this mixed optimism/pessimism the students showed interest and enthusiasm about discussing ethical dilemmas and possible solutions. The proposed solutions tended to cohere with the traditional environmental protectionist agenda, especially in the interviews, but in the group work on global warming, innovative and creative alternatives popped up and were passionately discussed.[13]

In conclusion, the way topics related to sustainable development are presented in schools varies and are largely dependent on the engagement of a particular school or teacher. Some schools do not prioritize environmental and developmental issues at all. Because there is little direction in the curriculum, outdated and inadequate attention in the teaching material, and lack of teacher training, the ability of the story of sustainable development to engage students is likely to vary considerably in Norwegian classrooms. In order to motivate knowledgeable, engaged and reflective students, the story of sustainable development cannot depend on the random engagement of especially interested teachers. The result of a lack of priority and focus on sustainable development is a fragmented narrative that makes it difficult for students to see the connections and find their own role. If sustainable development is a national aspiration, it needs to be taken seriously in the educational system. Students must be allowed to access relevant and updated information, be challenged to face real moral dilemmas that exist in the real world and participate beyond answering the teacher's questions and completing exams.

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[13] For example, creating underwater cities or using a plastic shield to protect against heat rays from the sun were discussed as solutions for global warming problems.

# 7.  Concluding Remarks

Sustainable development is a multilayered concept that links social, cultural, economic and environmental issues together at a global scale. Learning about sustainable development does not only entail understanding these linkages, it also includes engaging in ethical dilemmas, thinking critically, making informed and sympathetic decisions and not least imagining possibilities and creating change. In the following I will draw conclusions from the discussions in previous chapters to answer the four research questions posed in the introduction of the thesis. The conclusions aspire to create a debate about the state of sustainable development in the educational system, and to provide some suggestions for how to strengthen the theme in the educational setting.

## 7.1  Sustainable Development – the Missing Story

The promise of sustainable development is evident at both international and national levels.[14] The importance of sustainable development being a cross-curricular theme where knowledge, beliefs and attitudes are integral elements of learning, seems undisputed.  However, the promise of sustainable development has failed at the level of implementation in Norwegian secondary education. Sustainable development is not prioritized systematically in formal secondary education. Evidence of lack of commitment to sustainable development can be traced in educational policy documents, curricula, teacher training, textbooks and classrooms. Norwegian students are faced with a fragmented educational narrative that provides equivocal messages about sustainability and the *story of sustainable development* is missing. My research shows that while relevant

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[14] International documents include *Our Common future* (WCED 1987); Agenda 21 (UNCED 1992a); the Rio Declaration on the Environment and Development (UNCED 1992b); and the Johannesburg Declaration (UNCED 2002). National documents include White Paper 46: Norges oppfølging av Verdenskommisjonens rapport (Ministry of Environment 1988-89); White Paper 58: Miljøvernpolitikk for en bærekraftig utvikling (Ministry of the Environment 1996-97); National Strategy for Sustainable Development (Ministry of Foreign Affairs 2002); and Norway's Action Plan for Sustainable Development (Ministry of Finance 2003).

environmental and developmental issues are included in secondary education, the amount of attention it receives and how it is presented is largely unsatisfactory. Firstly, the lack of enthusiasm at most of the twenty schools I contacted, the narrative analysis of the curriculum and textbooks, along with observation and interviews at schools, suggest that sustainability issues have a marginal role in secondary education. Surely, dedicated teachers can place the topic on the agenda, but they receive few incentives to do so. Secondly, teacher training, the curriculum and textbooks do not provide sufficient guidance to obtain a sustainable development perspective that emphasizes linkages, dilemmas, global perspective and agency. Hence, the answer to the first research question: "Does sustainable development have a prominent role in Norwegian secondary schooling?" is that while environmental and developmental issues are present in the Norwegian school system, sustainable development does not have a prominent role. In other words, the educational story that stresses sustainable development as a narrative framework is missing.

## 7.2  A Captivating Story?

All students and teachers I interviewed easily agreed that sustainable development is important. The students were particularly interested in global warming and followed the relevant news coverage. However, in two of the three schools I visited students felt that sustainable development was important, but seemed disengaged at a personal level. Students felt that global warming, and other topics related to sustainable development were more associated with schoolwork than their personal lives. One of the teachers expressed that it was hard to get students in this age group engaged with school topics because they were more interested in "the opposite sex and the latest within fashion" (L.L. 2007). The students that participated in the global warming project expressed a far more personal concern. Through the school project they identified different, and often conflicting perspectives on global warming, and were faced with the ethical dilemmas of rich and poor countries in dealing with climate change.

Students had to negotiate with representatives from different parts of the world about whom to blame for global warming and discuss different solutions in a role-play simulation. The students expressed shock that they had not previously been aware of the far-reaching consequences of global warming, and called for more attention to this in school.

One of the challenges for Norwegian schools and teachers is to present sustainable development in a way that encourages students to become engaged and active citizens. Research question two asks: "Is the story of sustainable development told in a way that is empowering and accessible for students and teachers?" Sustainable development is a fuzzy concept that describes an interconnected and dynamic reality. My research reveals that the term "sustainable development" is rarely used in textbooks, and it appears as if only especially interested teacher apply it in their teaching. Observation and interviews with students showed that using the term is not necessarily the most conducive strategy to create engagement and interest among students. However, the most engaged students were those who were challenged to explore the multifaceted aspect and linkages between human development and the environment – crucial elements of sustainable development. Hence, the key here is to treat sustainable development as a topical, critical, and interactive theme, rather than discussing it in purely theoretical terms. The story is not accessible if it simply rehearses the concept itself. The reluctance to apply the concept that appears nebulous and complicated for most people, is a barrier to creating an accessible and empowering story of sustainable development. However, by using the concept as a narrative framework to discuss and find solutions to relevant issues of today, sustainable development might become a story that is both accessible and empowering for students.

## 7.3 Cultural Reproduction or Social Change?

Schools are part of the continent of culture and society. What kind of material and how this material is presented in school is to a large extent a mirror of society at large (Bourdieu and Passeron 1977). The recent public debate surrounding what to do about climate change has a strong focus on market and technological solutions. This technical debate about $CO^2$ quotas, green certificates, and thorium diverts attention from issues related to value judgments and the way we live our lives (Bonde 2007). The tendency of the public discourse to focus on technical explanations and solutions is mirrored in the educational discourse. The construction of the *environment* and *development* in the textbooks reinforces a view of the world in which the environment is a natural resource to be managed using science and technology. Development equals modern progress, and students are rarely challenged to reflect critically on how their own values and lifestyles affect the environment and people in other parts of the world. The Western worldview is taken for granted, and alternative perspectives are at the margins.

Bruner argues that if an educational enterprise fails to take the risks of offending the dominant culture, it becomes stagnant and it reduces a culture's power to adapt to change (Bruner 1996). Research question three inquires whether textbook representations of development and the environment are conducive to promoting a sustainable future. The construction of the environment and development in the Norwegian educational story does not take the risk of "challenging the dominant culture." The story builds on the modern project, without challenging the moral and cultural context of this project. A strong narrative on sustainable development could contribute to creating a healthy debate on our own ethical responsibility and widen the range of possible solutions to sustainability challenges.

## 7.4 The Need for a Story

The media frenzy over poor Norwegian ratings in international science tests prompted political action that resulted in an intense focus on basic knowledge and strengthening natural science. Innovation and technology became key priorities for educational authorities. At the same time, sustainable development remains the last chapter of the book – both metaphorically and in practice. An obvious weak area of the sustainability education in Norway is the *disciplinary* fragmentation. Sustainable development fails to be a cross-curricular theme. Especially illustrative of this is the forced antagonism between the natural and the social sciences. Natural science is struggling to keep students' attention with a scientific narrative lacking of references to current social issues. At the same time, building upon updated and accurate scientific evidence is key for a successful social science approach to sustainable development. The second major weakness is the *narrative* fragmentation. The educational narrative lacks a framework for viewing all topics from a sustainability perspective. Without a deliberate narrative, sustainable development remains a nebulous and untackled concept at the margins of the main story.

What are the strong areas of the Norwegian education for sustainability? The Norwegian education system has come a long way from when environmental issues were presented as factual information and likened with environmental protection. Environmental and developmental themes *do* appear in the curriculum and textbooks. Also, Norwegian students are strong in areas such as critical thinking and social engagement (IAEEA 2002). The curriculum and textbooks in the social science subject place strong emphasis on active citizenship and democratic participation. Hence, the basic elements of education for sustainable development are there: knowledge of human development's adverse effects on the environment and other humans possibilities to meet their needs, as well as critical thinking and civic engagement. The challenge is to build on this and to make sustainable development an integral part of all subjects. An educational narrative on sustainable development that accentuates the strong

areas, and is used as a framework to bridge the disciplinary and narrative fragmentation, could help to solve the sustainability deficiency in Norwegian schools.

## 7.5 Possible Futures

I have tried to argue that the missing story of sustainability results first of all in poor mobilization for sustainability. The ambiguity and lacking direction in education for sustainable development fosters equivocal messages on how to deal with global challenges such as poverty, global warming, and deforestation, to mention a few. The key dilemma of sustainable development, how to reconcile economic growth and sustainability, lingers as an unsolved question in the background. A sustainability narrative, as I see it, would not give a blueprint for thought and action, but it can act as a framework for approaching sustainability challenges, and as a stimulant for action. Such a narrative can be used as a tool to navigate in the jungle of information and conflicting messages, which is characteristic of today's global society. In particular, the aim of such a narrative would be to mobilize engagement for sustainable development among young people. For the narrative strategy to be successful it must gain support at all levels of the educational hierarchy: policy making, teacher training, national curriculum, textbooks, schools, teachers, and students.

The conclusion that the current educational story does not have the power to captivate and mobilize students and teachers for a sustainable future, leads me to call for a debate on the role of education in pursuing a sustainable development path. More research and discussion are needed on how to inspire young people to become engaged and active in the field of sustainability, and action must be taken to ensure a solid presence of sustainable development in schools. This thesis argues that a strong sustainability narrative can help to solve the challenges of integrating the sustainable development perspective. This does not entail reinforcing the role of sustainability as a spare wheel of the natural and

social science subjects. Rather, it entails making the sustainability narrative a central element of all subjects in the Norwegian school system. For such a narrative to be effective its shape and direction require a broad debate with inputs from a range of voices such as educational authorities, researchers, social scientists, natural scientists, teachers, parents, environmentalists, representatives from different businesses and industries, artists, and not least students.

The search for an educational story on sustainable development should not only incorporate a range of voices, but also be open to different perspectives, interpretations and ways of thinking about human development and the environment. The quote "The best way to predict the future is to invent it" reminds us that educational institutions take part in the negotiation and renegotiation of culture (Edwards 2005:123). The challenge for the Norwegian educational system is to create a culture in which students become trained in critical holism – seeing the connection between humans and the environment and between the environment and development strategies. Education for sustainability should make them feel included and empowered, teach them to question conventional values and knowledge. But most of all, an educational narrative should train them to imagine better futures – and better stories.

# Bibliography

**Interviews**

C.C. (2007): Interview with natural science teacher at Oslo school 2, June 16, Oslo.

D.D. (2007): Interview with natural and social science teacher at Northern school, June 11, North of Norway.

Farstad, H. (2007): Interview with education officer in the Norwegian UNESCO commission's secretariat, June 6, Oslo.

Focus group (2007): Focus group interview at Oslo school 2, June 6, Oslo.

H.H. (2006): Interview with natural science teacher at Northern school, December 20, North of Norway.

Isnes, A. (2007): Interview with head of the Norwegian Centre for Science Education, June 1, Oslo.

K.K. (2007): Interview with geography teacher at International school, June 14, Oslo.

L.L. (2007): Interview with social science teacher at Oslo school 1, May 10, Oslo.

Sandås, A. (2007): Interview with senior advisor at the Norwegian Directorate for Education and Training, June 19, Oslo.

Schreiner, C. (2007): Interview with post-PhD and researcher, June 20, Oslo.

Student A (2007): Interview with student A at Oslo school 1, May 10, Oslo.

Student B (2007): Interview with student B at Oslo school 1, May 10, Oslo.

Student C (2007): Interview with student C at Oslo school 1, May 10, Oslo.

Student D (2007): Interview with student D at International school, June 14, Oslo.

Student E (2007): Interview with student E at International school, June 14, Oslo.

**Textbooks**

Birkenes, J. and U.E.S. Østensen (1999): *Underveis 10: Geografi - Samfunnsfag for ungdomstrinnet.* Oslo: Gyldendal Undervisning.

Birkenes, J. and U.E.S. Østensen (2006): *Underveis 8: Geografi - Samfunnsfag for ungdomstrinnet.* Oslo: Gyldendal Undervisning.

Birkenes, J. and U.E.S. Østensen (2007): *Underveis 9: Geografi - Samfunnsfag for ungdomstrinnet.* Oslo: Gyldendal Undervisning.

Ekeland, P.R., O.-I. Johansen, O. Rygh and S.B. Strand (1997): *Tellus 10: Natur- og miljøfag for ungdomstrinnet.* Oslo: Aschehoug.

Ekeland, P.R., O.-I. Johansen, M.M. Strand and O. Rygh (2006): *Tellus 8: Naturfag for ungdomstrinnet.* Oslo: Ascehoug.

Ekeland, P.R., O.-I. Johansen, M.M. Strand and O. Rygh (2007): *Tellus 9: Naturfag for ungdomstrinnet.* Oslo: Achehoug.

Skjønsberg, H. (1999): *Underveis 10: Historie - Samfunnsfag for ungdomstrinnet.* Oslo: Gyldendal Undervisning.

Skjønsberg, H. (2006): *Underveis 8: Historie - Samfunnsfag for ungdomstrinnet.* Oslo: Gyldendal Undervisning.

Skjønsberg, H. (2007): *Underveis 9: Historie- Samfunnsfag for ungdomstrinnet.* Oslo: Gyldendal Undervisning.

Strand, M.M. and T. Strand (2006): *Underveis 8-10: Samfunnskunnskap.* Oslo: Gyldendal Undervisning.


**Other sources**

Abercrombie, N., S. Hill and B.S. Turner (2000): *Sociology (4).* London: Penguin.

Aftenbladet (2007): "Wants the best school in the world." *Aftenbladet.* Retrieved July 26, 2007 from http://web3.aftenbladet.no/magasin/utdanning/article485942.ece

Baker, S. (2006): *Sustainable Development.* London: Routledge.

Baldick, C. (1996): "Narrative." *The Concise Oxford Dictionary of Literary Terms.* Oxford Reference Online. Retrieved August 12, 2007 from

http://www.oxfordreference.com/views/ENTRY.html?subview=Main&entry=t56
.e638

Banerjee, S.B. (2003): "Who Sustains Whose Development? Sustainable
Development and the Reinvention of Nature." *Organization Studies* 24(1): 143-
180.

Becker, E., T. Jahn and I. Stiess (1999): "Exploring Uncommon Grounds:
Sustainability and the Social Sciences" in E. Becker and T. Jahns (eds.):
*Sustainability and the Social Sciences – A Cross-Disciplinary Approach to
Integrating Environmental Considerations into Theoretical Reorientation,*
pp. 1-22. London: Zed Books.

Beckerman, W. (1994): "Sustainable Development: Is it a Useful Concept?"
*Environmental Values* 3: 191-209.

Bonde, A. (2007): "Politisk klimapine." *Morgenbladet* Nr. 21(May 25. - 31.): 4-5.

Bonnett, M. (2004): *Retrieving Nature: Education for a Post-Humanist Age.*
United Kingdom: Blackwell Publishing.

Bourdieu, P. and J.-C. Passeron (1977): *Reproduction: In Education, Society
and Culture.* London: Sage Publications.

Bowers, C.A. (1993): *Education, Cultural Myths, and the Ecological Crisis:
Toward Deep Changes.* New York: State University of New York Press.

Boynton, R. (1999): "Who Needs Philosophy? A Profile of Martha Nussbaum."
*The New York Times Magazine.* November 21. Retrieved April 13 2007 from
http://www.robertboynton.com/articleDisplay.php?article_id=55

Broady, D. and M. Palme (1985): "Skolan" in D. Broadys (ed.): *Kultur og
Utbilding - Om Pierre Bourdieus sociologi,* pp. 59-77. Stockholm:
Universitetets och hogskoleambetet FoU enhet.

Bruner, J. (1986): *Actual Minds, Possible Worlds.* Cambridge: Harvard
University Press.

Bruner, J. (1990): *Acts of Meaning.* Cambridge: Harvard University Press.

Bruner, J. (1996): *The Culture of Education.* Cambridge: Harvard University
Press.

Bruner, J. (2002): *Making Stories - Law, Literature, Life.* Cambridge: Harvard
University Press.

Bruner, J., C.F. Feldman, M. Hermansen and J. Molin (2006): *Narrative Learning*

*and Culture.* Copenhagen: New Social Science Monographs.

Carlsson, M. and B.J. Jensen (2006): "Encouraging Environmental Citizenship: The Roles and Challenges of Schools" in A. Dobson and D. Bells (eds.): *Environmental Citizenship,* pp. 237-262. London: The MIT Press.

Christensen, K.G. and T. Kristensen (1997a): *Interessekonflikter i bruk av naturressurser - en utfordring i miljøundervisningen.* Rapport nr. 1 fra MUVIN 2 i Norge. Retrieved May 1, 2007 from http://www-bib.hive.no/tekster/muvin/

Christensen, K.G. and T. Kristensen (1997b): *Miljøundervisning i grunnskolen – hvordan har skolene møtt utfordringen som den nasjonale satsingen innebærer?* Retrieved May 25, 2006 from http://www-bib.hive.no/tekster/hveskrift/rapport/1997-1/del1.html

Christensen, K.G. and T. Kristensen (1998): *MUVIN prosjektet: Erfaringer fra fase 2. Rapport nr. 4 fra MUVIN 2 i Norge, Rapport 8/98.* Tønsberg: Høgskolen i Vestfold. Retrieved April 29, 2007 from http://www-bib.hive.no/tekster/hveskrift/rapport/1998-8/index.html

Christensen, K.G. and T. Kristensen (1999): *Fra naturfag til politikk: Et paradigmeskifte i miljøundervisningen? Forskningsrapport fra MUVIN 2 i Norge.* Statens utdanningskontor i Vestfold. Retrieved May 2, 2007 from http://www-bib.hive.no/tekster/muvin/

Collins, M. (2003): "Critical Theory and Educational Research" in J. Swann and J. Pratts (ed.): *Educational research in practice: making sense of methodology.* London: Continuum.

Daly, H. (1992): *Steady-State Economics.* London: Earthscan Publications.

Delanty, G. (1997): *Social Science - Beyond Constructivism and Realism.* Minneapolis: University of Minnesota Press.

Dürrenberger, G., J. Behringer, U. Dahinden, Å. Greger, B. Kasemir, C. Querol, R. Schüle, D. Tabara, F. Toth, M.v. Asselt, D. Vassilarou, N. Willi and C. Jaeger (1997): *Foucus Groups in Integrated Assessment. A Manual for a Participatory Tool.* ULYSSES Working Paper: 2.

Edwards, A.R. (2005): *Sustainability Revolution: Portrait of a Paradigm Shift.* Gabriola, BC: New Society Publishers.

Elliott, J.A. (2006): *An Introduction to Sustainable Development (3).* London: Routledge.

Frazier, J.G. (1997): "Sustainable development: modern elixir or sack dress?"

*Environmental Conservation* 24(2): 182-193.

Geertz, C. (1973): *The Interpretation of Cultures.* London: Fontana Press.

Grenfell, M. and D. James (1998): *Bourdieu and Education.* London: Falmer Press.

Guggenheim, D. (2006): *An Inconvenient Truth.* Paramount Classics and Participant Production.

Gyldendal Undervisning (2007): "E-mail confirming market share of *Underveis*." Received July 4, 2007.

Haque, M.S. (2000): "Environmental Discourse and Sustainable Development: Linkages and Limitations." *Ethics and Environment* 5(1): 3-21.

Hardin, G. (1968): "The Tragedy of the Commons." *Science* 162(3859): 1243-1248.

Hellevik, O. (2002): "Beliefs, Attitudes, Behaviour towards the Environment" in W. M. Lafferty and H. A. Aakres (eds.): *Realizing Rio in Norway,* pp. 7-19. Oslo: Prosus.

Hellevik, O. (2006): "Verdier og bærekraftig utvikling" in K. A. Armann and M. B. Nakkeruds (eds.): *Synlige mål, synlige skritt,* pp. 12-13. Oslo: Stiftelsen Idebanken.

IAEEA (2002): *Civic Education Study Norge.* International Association for the Evaluation of Educational Achievement. Retrieved July 14, 2007 from http://www.ils.uio.no/forskning/avsluttede-prosjekter/civic/rapporter/rapporter2.html

IPCC (2007): "Climate Change 2007: Impacts, Adaptation and Vulnerability." Working Group II Contribution to the Intergovernmental Panel on Climate Change. Retrieved April 16, 2007 from http://www.ipcc.ch/

Jickling, B. (1992): "Why I don't want my children educated for sustainable development." *Journal of Environmental Education* 23(4): 5-8.

Johannesson, I.A. and T.S. Popkewitz (2001): "Pierre Bourdieu" in J. A. Palmers (ed.): *Fifty Modern Thinkers on Education: From Piaget to the present,* pp. 229-234. London: Routledge.

Kristensen, T. (1977): *Miljø- og naturvernundervisning i ungdomsskolen.* Pedagogisk seminar i Oslo.

Kristensen, T. and K.G. Christensen (1993): *Studie av miljøundervisningen i*

*Vestfold.* Foreløpig rapport fra Vestfoldundersøkelsen. Senter for lærerutdanning og skoletjeneste. Universitetet i Oslo.

Lafferty, W.M. and O. Langhelle (1995): *Bærekraftig utvikling – Om utviklingens mål og bærekraftens betingelser.* Norway: Ad Noram Gyldendal.

Lafferty, W.M., O. Langhelle, P. Mugaas and M.H. Ruge (1997): *Rio+ 5: Norges oppfølging av FN-konferansen om miljø og utvikling.* Oslo: Tano Aschehoug.

Lafferty, W.M., M. Nordskag and H.A. Aakre (2002): *Realizing Rio in Norway: Educative Studies of Sustainable Development.* Norway: Hippotamus.

Langhelle, O. (1999): "Sustainable Development: Exploring the Ethics of *Our Common Future.*" *International Political Science Review* 20(2): 129-149.

Langhelle, O. (2000): "Norway: Reluctantly Carrying the Torch" in W. M. Lafferty and J. Meadowcrofts (ed.): *Implementing Sustainable Development: Strategies and Initiatives in High Consumption Societies,* pp. 174-208. Oxford: Oxford University Press.

Levinson, B.A. and D.Holland (1996): "The Cultural Productioin of the Educated Person: An Introduction" in B. A. Levinson, D. E. Foley and D. C. Hollands (eds.): *The Cultural Production of the Educated Person: Critical Ethnographies of Schooling and Local Practice,* pp. 1-56. New York: State University og New York Press.

Lovelock, J. (2006): "The Earth is about to catch a morbid fever that may last as long as 100,000 years." *The Independent.* 16 January. Retrieved May 20, 2007 from http://comment.independent.co.uk/commentators/article338830.ece

Lunt, P. and S. Livingstone (1996): "Rethinking the focus group in media and communication research." *LSE Research Online.* Retrieved July 15, 2007 from http://eprints.lse.ac.uk/archive/00000409

Lyons, N. and V.K. LaBoskey (2002): *Narrative inquiry in practice advancing the knowledge of teaching.* New York: Teachers College Press.

Malthus, T.R. (1798): *An essay on the principle of population.* London: Pr. for J. Johnson.

Meadows, D.H., D.L. Meadows, J. Randers and W.W. Behrens (1972): *The limits to growth.* New York: Universe Books.

Miller, P.C. (2005): *Narratives from the classroom: an introduction to teaching.* California: Sage Publications.

Ministry of Education and Research (1994): *Læreplan for grunnskole, videregående opplæring og voksenopplæring - generell del.* Retrieved April 25, 2007 from http://www.utdanningsdirektoratet.no/templates/udir/TM_Artikkel.aspx?id=533

Ministry of Education and Research (1998): *Lov om grunnskolen og den vidaregåande opplæringa (opplæringslova).* Retrieved April 10, 2007 from http://www.lovdata.no/all/nl-19980717-061.html

Ministry of Education and Research (2004): *Kultur for læring.* St.meld. nr. 30 (2003-2004). Retrieved April 25, 2007 from http://www.regjeringen.no/en/dep/kd/Documents/Bills-and-white-papers/stmeld/20032004/Stmeld-nr-030-2003-2004-.html?id=404433

Ministry of Education and Research (2005a): *Læreplan i mat og helse.* Kunnskapsløftet. Retrieved April 25, 2007 from http://www.utdanningsdirektoratet.no/templates/udir/TM_UtdProgrFag.aspx?id=2103

Ministry of Education and Research (2005b): *Realfag, naturligvis.* Retrieved May 29, 2006 from http://odin.dep.no/kd/norsk/publ/handlingsplaner/045051-990020

Ministry of Education and Research (2006): *Bærekraftig utvikling: Utdanning for bærekraftig utvikling.* Utdanningsdirektoratet. Retrieved April 25, 2007 from www.utdanningsdirektoratet.no/ templates/udir/TM_Tema.aspx?id=1466

Ministry of Environment (1988-89): *Miljø og utvikling. Norges oppfølging av Verdenskommisjonens rapport.* White Paper 46. Oslo.

Ministry of Finance (2003): *Norway's Action Plan for Sustainable Development.* Oslo.

Ministry of Foreign Affairs (2002): *National Strategy for Sustainable Development.* Oslo.

Ministry of the Environment (1989): *Miljø og utvikling.* Norges oppfølging av Verdenskommisjonens rapport. St.meld. nr. 46 (1988-89).

Ministry of the Environment (1994): *Environmental education in Norway – A Systemic Approach.* Oslo: Falch Fargetrykk.

Ministry of the Environment (1996-97): *Miljøvernpolitikk for en bærekraftig utvikling. Dugnad for framtida.* White Paper 58. Oslo.

MUVIN (2002): "MUVIN i Norge." Retrieved April 29, 2007, from http://www-lu.hive.no/muvin/

NFPSEE (1996): "Education for Sustainability: An Agenda for Action." National Forum on Partnerships Supporting Education about the Environment. Retrieved October 29, 2006 from http://www.ffof.org/pcsd/

Norwegian Directorate for Education and Training (2005): *Kartlegging av læremidler og læremiddelpraksis.* Retrieved May 16, 2007 from http://www.ramboll-management.dk/nor/sites/pubarr/it/kortlaegningavlaeremidler.htm

Norwegian Directorate for Education and Training (2006a): *Kunnskapsløftet - kultur for læring.* Retrieved May 23, 2006 from http://www.kunnskapsloeftet.no/

Norwegian Directorate for Education and Training (2006b): *Læreplan i naturfag. Kunnskapsløftet.* Retrieved May 4, 2007 from http://www.utdanningsdirektoratet.no/templates/udir/TM_UtdProgrFag.aspx?id=2103

Norwegian Directorate for Education and Training (2006c): *Læreplan i samfunnsfag. Kunnskapsløftet.* Retrieved May 4, 2007 from http://www.utdanningsdirektoratet.no/templates/udir/TM_UtdProgrFag.aspx?id=2103

Nussbaum, M.C. (1997): *Cultivating Humanity: A Classical Defence of Reform in Liberal Education.* London: Harvard University Press.

Palmer, J. and P. Neal (1994): *The Handbook of Environmental Education.* UK: Routledge.

Pauli, G. (2006): "Autopoetic Learning - The Age-Old Learning through Fables combined with Modern Day Systems Design Design" in W. L. Filhos (ed.): *Innovation, Education and Communication for Sustainable Development,* pp. 41-65. Frankfurt am Main: Europaisher Verlag der Wissenschaften.

Phillion, J., M.F. He and F.M. Connelly (2005): *Narrative & experience in multicultural education.* California: Sage Publications.

PISA (2006): *Nasjonale Rapporter.* Programme for International Student Assessment. Retrieved May 29, 2006 from http://www.pisa.no/dok_nasj.html

Rauch, F. (2004): "Education for Sustainibility: A Regulative Idea and Trigger for Innovation" in W. Scott and S. Goughs (eds.): *Key Issues in Sustainable Development and Learning,* pp. 149-151. London: RoutledgeFalmer.

Redclift, M. (2005): "Sustainable Development (1987-2005): An Oxymoron Comes of Age." *Sustainable Development* 13: 212-227.

Reed, D. (1996): *Structural Adjustment, the Environment, and Sustainable Development*. London: Earthscan.

Reed, P. and D. Rothenburg (1993): *Wisdom in the Open Air: The Norwegian Roots of Deep Ecology*. Minneapolis: University of Minnesota Press.

Robbins, D. (1991): *The Work of Pierre Bourdieu*. Buckingham: Open University Press.

Robottom, I. (1993): "The role of ecology in education: an Australian perspective" in M. Hales (ed.): *Ecology in Education,* pp. 1-10. Cambridge: Cambridge University Press.

RORG (2005): "Kunnskapsløftet – et dårlig løft for bærekraftig utvikling?" RammeavtaleORGanisasjoner. Retrieved May 21, 2006 from http://www.rorg.no/Artikler/539.html

Rubin, H.J. and I.S. Rubin (2005): *Qualitative Interviewing: The Art of Hearing Data (2)*. London: Sage Publications.

Sandell, K., J. Ohman and L. Ostman (2005): *Education for Sustainable Development: Nature, School and Democracy*. Sweden: Studentlitteratur.

Schleicher, K. (1989): "Beyond environmental education: the need for ecological awareness." *International Review of Education* 35(3): 257-281.

Schreiner, C. and S. Sjøberg (2005a): "Empowered for action? How do young people relate to environmental challenges?" in S. Alsops (ed.): *Beyond Cartesian Dualism - Encountering affect in the teaching and learning of science,* pp. 53-68. Dordrecht: Springer.

Schreiner, C. and S. Sjøberg (2005b): "Science education and young people's identity construction - two mutually incompatible projects?" in D. Corrigan, J. Dillon and R. Gunstones (eds.): *The Re-emergence of Values in the Science Curriculum*. Rotterdam: Sense Publishers.

Schreiner, K. (2006): "Kunnskapsløft uten bærekraft." *Bedre skole* 3: 40-47.

Scott, W. and S. Gough (2004): *Key Issues in Sustainable Development and Learning*. London: RoutledgeFalmer.

Seidman, S. (2004): *Contested Knowledge - Social Theory Today (3)*. Cornwall: Blackwell Publishing.

Seippel, Ø. (1997): "Kunnskap, verdier og deltakelse" in W. M. Lafferty, O. S. Langhelle, P. Mugaas and M. H. Ruges (ed.): *Rio+5: Norges oppfølging av FN-konferansen om miljø og utvikling,* pp. Oslo: Tano Aschehoug.

Sjøberg, S. (2004): *Naturfag som allmenndannelse - en kritisk fagdidaktikk.* Oslo: Gyldendal.

Smith, M.K. (2002): "Jerome S. Bruner and the process of education." *The Encyclopedia of Informal Education.* Retrieved January 13, 2007 from http://www.infed.org/thinkers/bruner.htm

Snow, C.P. (1959): *The Two Cultures.* Cambridge: Cambridge University Press.

Soanes, C. and A. Stevenson (2005): "Natural resources plural noun." *The Oxford Dictionary of English.* Oxford Reference Online. Retrieved August 10, 2007 from http://www.oxfordreference.com/views/ENTRY.html?subview=Main&entry=t14 0.e51289

Soetaert, R. and A. Mottart (2004): "The Contact Zone: Whose Nature? Whose Sustainability?" in W. Scott and S. Goughs (ed.): *Key Issues in Sustainable Development and Learning: A Critical Review,* pp. 52-56. London: RoutledgeFalmer.

Soubbotina, T.P. (2004): *Beyond Economic Growth: An Introduction to Sustainable Development.* Washington: The World Bank.

Sterling, S. (2004): "The Learning of Ecology, or the Ecology of Learning?" in W. Scott and S. Goughs (eds.): *Key Issues in Sustainable Development and Learning: A Critical Review,* pp. 68-70. London: RoutledgeFalmer.

Sæthre, E. (1990): *Miljøundervisning i grunnskolen.* Hovedoppgave. Norges Landbrukshøyskole, Institutt for biologi og naturforvaltning.

Sætre, P.J. (2002): "Natur-samfunn og miljøfaget i lærerutdanninga er en saga av blott!" *Norsk pedagogisk tidsskrift* Nr. 05: 395-402.

Sætre, P.J., T. Kristensen and K.G. Christensen (1997): *Å arbeide med et problem det ikkje finst løysing på: interessekonflikter i bruk av naturressurser som tema i miljøundervisningen.* Rapport nr 3 fra MUVIN 2 i Norge. Retrieved May 1, 2007 from http://www-bib.hive.no/tekster/muvin/

Sætre, P.J., T. Kristensen and K.G. Christensen (2000): *Hør på oss! Elevenes syn på miljøundervisning og miljøspørsmål.* Rapport nr. 5 fra MUVIN 2 i Norge. Retrieved May 2, 2006 from http://www-bib.hive.no/tekster/muvin/

TIMSS (2006): *TIMMS-rapporter.* Trends in International Mathematics and Science Study.  Retrieved May 29, 2006 from http://www.timss.no/r_3_publ_rapport.html

UNCED (1992a): *Agenda 21.* United Nations Conference on Environment and Development.  Retrieved May 21, 2006 from http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21toc.htm

UNCED (1992b): *Rio Declaration on Environment and Development.* United Nations Conference on Environment and Development.  Retrieved August 15, 2007 from http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=78&ArticleID=1163

UNCED (2002): *The Johannesburg Declaration.* United Nations Conference on Environment and Development.  Retrieved August 15, 2007 from http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POI_PD.htm

UNESCO (2006): "Education for Sustainable Development: Concepts." Retrieved October 21, 2006 from http://portal.unesco.org/education/en/ev.php-URL_ID=23292&URL_DO=DO_TOPIC&URL_SECTION=201.html

UNESCO (2007): "United Nations Decade for Education for Sustainable Development." Retrieved April 23, 2007, from http://portal.unesco.org/education/en/ev.php-URL_ID=27234&URL_DO=DO_TOPIC&URL_SECTION=201.html

Union of Education Norway (2006): "Venter med nye lærebøker i grunnskolen." Retrieved May 15, 2007 from http://www.utdanningsforbundet.no/

Wajnryb, R. (2003): *Stories: Narrative activities in the language classroom.* Cambridge: Cambridge University Press.

Waugh, D. (2003): *The New Wider World (2).*  Cheltenham: Nelson and Thornes.

WCED (1987): *Our Common Future.* World Commission on Environment and Development. UK: Oxford University Press.

Wetlesen, J. (1995): "En global bærekraftig etikk?" in W. M. Lafferty and O. Langhelles (eds.): *Bærekraftig utvikling: Om utviklingens mål og bærekraftens betingelser,* pp. 41-58. Oslo: Ad Notam Gyldendal.

Wilken, L. (2006): *Pierre Bourdieu.*  Fredriksberg: Roskilde Universitetsforlag.

Witoszek, N. (1997): "The Anti-romantic Romanitcs; Nature, Knowledge, and Identity in Nineteenth-century Norway" in M. Teich, R. Porter and B. Gustafssons (eds.): *Nature and society in historical context,* pp. 209-227. Cambridge: Cambridge University Press.

Witoszek, N. (1998): *Norske naturmytologier: Fra Edda til økofilosofi.* Oslo: Pax Forlag.

Witoszek, N. (1999): "Arne Næss and the Norwegian Nature Tradition" in N. Witoszek and A. Brennans (eds.): *Philosophical dialogues: Arne Næss and the progress of ecophilosophy,* pp. 451-465. Lanham, Md: Rowman & Littlefield.

Witoszek, N. (2007): *Sustainability for the 21st century: A humanist agenda.* The Royal Minstry of Foreign Affairs of Norway. Oslo.

Yin, R.K. (2003): *Case Study Research: Design and Methods.* London: Sage Publications.

# Appendix A – Interview Guide, Teachers

**Intervjuguide: lærere**

Ved intervjuets start informerer jeg kort om meg selv og prosjektet. Bakgrunnen for intervjuet er at jeg ønsker innspill fra lærere og elever om hvordan de opplever utdanning for bærekraftig utvikling. Jeg vil også se på undervisningsmateriell, men innspill fra folk i skoleverket er en verdifull kilde for informasjon og innsikt. Jeg poengterer at intervjuet er frivillig og anonymt, og hvis det er spørsmål de ikke kan eller vil svare på så kan de la være.

1. Hvilke fag underviser du og hvilke klassetrinn?

2. Hvilke retningslinjer bruker du i undervisning om bærekraftig utvikling?

- læreplan?

- tekstbøker?

- generell del, prinsipper for undervisning av læreplanen?

- andre kilder?

3. Hva mener du om måten bærekraftig utvikling er vektlagt i undervisninga på ungdomsskolen?

- Er målene i lærerplanene ambisiøse nok/realistiske?

- Er dette et tema som går igjen i samme/forskjellige fag og prosjekter?

- Får lærerne nok opplæring og veiledning på temaet?

4. Hvilke hjelpemidler har du tilgjengelig når du underviser om bærekraftig utvikling?

- Syns du tekstbøkene dekker temaet på en tilfredsstillende måte?

5. Hvilke utfordringer møter deg og elevene når du underviser om bærekraftig utvikling? (Temaets kompleksitet, tverrfaglighet, tidsbegrensning o.l. er mulige elementer for oppfølgningsspørsmål)

6. Utdanning for bærekraftig utvikling inkluderer gjerne både faktakunnskap og holdningsdanning i forhold til temaer knyttet til miljø og utvikling. Er dette noe du er bevisst på når du underviser temaet? Syns du det er viktig/riktig i skille mellom disse to komponentene?

7. Er bærekraftig utvikling et tema som engasjerer deg? Hvorfor eller hvorfor ikke?

8. Virker det på deg som om bærekraftig utvikling er et tema som engasjerer elevene? Hvorfor og hvorfor ikke? Og på hvilken måte?

9. Har du noen kommentarer eller forslag til hvordan man kan forbedre utdanning for bærekraftig utvikling? Hvordan kan man sikre at dette er et tema som lærere kan føle seg sikre på og være engasjert i? Hva kan man gjøre for at elever skal interessere seg og være engasjert i temaet?

10. Har du noen andre spørsmål eller kommentarer du vil legge til?

# Appendix B – Interview Guide, Students

**Intervjuguide: elever**

Ved intervjuets start informerer jeg kort om meg selv og prosjektet. Bakgrunnen for intervjuet er at jeg ønsker innspill fra lærere og elever om hvordan de opplever utdanning for bærekraftig utvikling. Jeg poengterer at intervjuet er frivillig og anonymt, og hvis det er spørsmål de ikke kan eller vil svare på så kan de la være.

1. Hvilken klasse går du i?

2. Kjenner du til begrepet "bærekraftig utvikling"? Kan du forklare meg hva det betyr for deg?

3. Kan du huske hvilke fag (eller prosjekter) dere har hatt om bærekraftig utvikling?

4. Et det et tema du syns er lett eller vanskelig å forstå?

> - Syns du det er et interessant tema?
>
> - Er det noe du tenker mye på, eller er bærekraftig utvikling noe du bare tenker på i forbindelse med skolen? Hva med miljø- og utvikling generelt (global oppvarming, forskjellene mellom rik og fattige)?

5. Det snakkes mye om at vi har store miljøproblemer som for eksempel klimaendringer og regnskoghogst. Tror du at vi kan finne løsninger på disse problemene slik at dine barn og barnebarn kan ha det lite godt som oss?

> - Det er også mange sosiale problemer i verden som for eksempel forskjeller mellom fattige og rike, og i områder i Afrika er det mye sult og nød. Tror du vi kan finne løsninger på disse problemene?
>
> - Tror du elevene her på din skole, i din klasse, kan bidra på noen måte til å løse disse problemene? Hvordan?

6. Hvor har du fått informasjon eller diskutert om bærekraftig utvikling? Har du meninger om hvordan undervisningen eller tekstbøkene legger frem bærekraftig utvikling?

7. Har du noen kommentarer eller forslag til hvordan bærekraftig utvikling kan undervises i skolen på en måte som engasjerer og interesserer elevene?

8. Har du noen andre spørsmål eller kommentarer?

# Appendix C – Sample Interview, Teacher

**Intervju med lærer ved Ris ungdomsskole torsdag 10. mai 2007 kl. 09.30**

**Hvilke fag underviser du og på hvilket trinn?**

I år underviser jeg samfunnsfag, KRL og engelsk på niende trinn.

**Når du underviser om bærekraftig utvikling, hvilke retningslinjer bruker du?**

To ting der. Det er eksplisitt sagt i lærerplanen for niende trinn at bærekraftig utvikling skal være del av fem fag – noen utrykker det litt mindre eksplisitt. Dette er i den nye lærerplanen. Men så er det slik at vi har gamle bøker etter den gamle læreplanen. Vi valgte i år å se hele geografiboken som grunnlag for undervisningen om bærekraftig utvikling: naturressurs, fornybare- og ikke fornybare ressurser osv. og ta det under bærekraftig utvikling paraplyen. Jeg har laget et ark til elevene – som jeg ikke fikk tid til å ta med – der jeg prøvde å gi dem en oversikt hva som ligger i begrepet bærekraftig utvikling, hva bærekraftig utvikling involverer. Jeg skulle ønske at det hadde vært et tverrfaglig prosjekt, samarbeid, opplegg - hva men velger å kalle det - og det uttrykte jeg når vi hadde en oppsummering hva vi har gjort har gjort i niende klasse og en erfaringsvurdering til åttende klasse som vil bli niende til neste år. Der har de et såkalt reklameprosjekt, som jeg initierte i min tid, da det forrige lærerplanen kom. Jeg er også inne på at lærerplanen bør være bærekraftig og man må fornye den til en hver tid og fornye seg selv til en hver tid slik man underviser bærekraft i forhold til samfunnet vi har i dag. Jeg mener at reklame og markedsføring er et element i en større sak og vil gjerne se dette under paraplyen bærekraftig utvikling. Det tror jeg ble hørt, og jeg tror det kan gjøres veldig mye ut av det. Jeg er selv i den stillingen at jeg har hatt mye input på det. Jeg tok en master i 2004 og jeg har siden vært på en del konferanser når det gjelder citizenship og det er skal vi se, jeg husker ikke forkortelsen på dette nettverket. Jeg kan maile deg hvis du er interessert. Det er høyskolen i Hedmark som er aktiv på det området. Det er Viktoria Thoresen som er primus motor for dette arbeidet i Norge. Familie og forbruk departementat lønner henne delvis på det området og hun blir brukt internasjonalt. Nå er det noen få land som har dratt det lasset økonomisk, jeg vet ikke om de skal gjøre det videre. På den måten har jeg fått input og også gjennom en annen internasjonal organisasjon som heter International Federation for Home Economics som feirer 100 års jubileum neste år i Sveits som har overtatt det ene milleniums målet til FN om bærekraftig utvikling. De har også tatt det inn i sin 5 års plan og videreført det i relasjoner med familier og ernæring i det perspektivet.

**Så du har fått input ikke bare fra skolesystemet, men også fra nettverk og konferanser?**

Ja, og nå sitter jeg i en komitee som skal lage en konferanse for barne- og familie departementet og vi skal lage en konferanse som retter seg mot lærerutdannere. Jeg ivrer litt for å få med de som utdanner seg for førskolelærere innen bærekraftig utvikling i oktober.

**Hvordan syns du opplegget er for lærere nå i forhold til temaet bærekraftig utvikling? Er det nok vektlagt i lærerplaner og tekstbøker? Spesielt i forhold til lærere som ikke er like engasjert som deg?**

Overhodet ikke godt nok. Mange lærere ser det nok, og spør hva er det, og hopper bukk over det inntill videre. Det som jeg også vet gjennom Landsforbundet for lærere at det i forhold til faget "mat og helse" etterspørres veldig. De ønsker etterutdanning, og kunnskap på området bærekraftig utvikling. De vet ikke hva det er, hvordan de skal tak i dette, hvordan det relaterer i faget. Spesielt for eldre lærere.

**Hvilke retningslinker bruker lærere i dag og hvilke ressurser har man tilgjengelig for å forberede undervisning om bærekraftig utvikling?**

Det er kompetansemål for bærekraftig utvikling. Hvis vi drar dette videre i et etisk perspektiv og i et overlevelses perspektiv. Det å kunne ta vare på seg selv og forsørge seg selv perspektiv. Spesielt med tanke på narkomane, at det er ikke bare det medisinske fysiske men det er også caring. Det er et dannelsesideal som ligger inne i hele planverket og i kunnskapsløftet. Ikke bare kompetansemålene. Hvis vi tenker i et større perspektiv så går jo dette under bærekraftig utvikling dette også.

**Ja, jeg tror det er viktig at man innser at bærekraftig utvikling ikke bare er ressurssforvalting etc men også dannelse og måten man setter seg selv inn i bildet. Informasjonsdelen om miljø og utviklingsproblemer virker å være ganske godt på plass. Men hva med den andre delen som har med holdninger og verdier? Er den vektlagt i bærekraftig utvikling? Hvordan eleven passer inn i bildet? Vestlige samfunns rolle?**

Jeg tror ikke den vanlige lærer ser det. Jeg syns at lærere blir mekanisk opptatt av kompetansemålene. Jeg har kurset lærere og elever på vurdering og mange ser kompetansemålene som en smørbrødliste som de kan hake av etter hvert. Det som jeg ser, jeg har hatt et engasjement i utdanningsdirektoratet på vurdering og det jeg jobbet med der var å ta kompetansemålene og sette de sammen i klusters og se sammenhengen her. Hva er det de egentlig skal utdanne barn i? Hva vil dannelsen i dette faget være? Det er nesten som det blir en positivistisk tankegang blant mange lærere for å nå kompetansemåene. Nå er det jo fra departementets side annonsert at de kommer med en storsatsing på vurdering slik at jeg håper det kommer en litt annen forståelse inn på kompetanse del for lærerne.

**Den generelle delen av lærerplanen som snakker om verdier og dannelse. Tror du dette er en viktig del av hvordan lærerne legger opp undervisningen?**

Nei, jeg tror det glemmes dessverre. Særlig i ungdomsskolen. Kanskje de stedene der det er veldig fagrelatert og jeg ser elevene vil gå etter planen. Jeg flytter mye på KRL og samfunnsfag. Elevene blir veldig forvirret. Jeg liker å trekke på perspektiver.

**Tverrfaglighet og bærekraftig utvikling – hvordan opplever du det?**

Jeg må snakke ut i fra det jeg kjenner til. Hittil er det veldig lite.

**Har du merket forskjellig vektlegging av bærekraftig utvikling i den gamle og nye lærerplan?**

Det er mye mer eksplisitt i den nye lærerplanen. Men det har det jo blitt i samfunnet i helhet. Hvis du hører etter i media. Jeg er redd for at bærekraftig utvikling skal bli en floskel og et slitt utrykk for det blir brukt på veldig mange ting og arenaer og oppmerksomheten rundt det kan bli borte.

**Tidligere nevnte de at du brukte konseptet bærekraftig utvikling spesifikt i undervisningen og du hadde laget materiale for å gjøre det klarere for elevene. Tror du andre lærere bruker konseptet eller tror du man underviser om relaterte temaer uten å nevne selve teamet eller ideen om bærekraftig utvikling?**

Det kan jeg ikke generalisere. Jeg tror det er store variasjoner hvis jeg skal synse om det. Den gamle boka synliggjør bærekraftig utvikling når vi snakker om det så snakkes det mest om naturresurs og forvalting. Så jeg er veldig spent hva elevene vil svare for vi hadde om bærekraftig utvikling i høst.

**Syns du tekstbøkene dekker temaet nok og på en bra måte?**

Nei, ikke i forhold til slik vi står nå. Det har ikke et slikt fokus, kunnskapsgrunnlaget er ikke nok, det har ikke henvisninger og det er veldig mye som mangler.

**Når du underviser om bærekraftig utvikling: Bruker du da tekstboka som hovedgrunnlag? Bruker du andre ressurser?**

Ja, jeg bruker mest tekstboka. Vi bruker også nettsteder. I boka var det veldig lite om bergverk og der skjer det mye i Norge. Så jeg fant jeg et bilag ett eller annet sted om bergverk. Det som var så flott var at det var delt opp slik at jeg kunne synliggjøre ulike roller i bergverksindustrien – alt fra HMS og miljø. Vi delte opp i grupper og fremførte for foreldre.

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**Er bærekraftig utvikling og relaterte temaer som utvikling og miljø – temaer som du opplever at elevene syns er interessante?**

Jeg tror at det er viktig å se på disse avisartiklene. Jeg vil ikke være en profet. De kommer med veldig mange artikler om miljø. Jeg stiller spørsmål og de fremfører artiklene sine. Det er ikke bare miljø for de skal også se på temaer i forhold til engelsk og KRL. På denne måten kan de relatere det teoretiske til virkelige hendelser. Andre elever kan også stille spørsmål.

**Virker det som disse temaene engasjerer?**

Jeg synes egentlig at dette er denne klassen jeg øyner minst engasjement gjennom tidene. De er veldig sportslig interessert. Noen er bare interessert i moter, gutter og fest. Jeg syns de begynner nå å forbedre seg. I høst var det veldig ekstremt. Nå begynner hormonene kanskje å legge seg litt. Klart jeg drar meg dette til neste år.

**Tror du utvikling og miljø blir oppfattet som kjedelige og gammeldagse temaer blant elevene?**

Nei, det tror jeg ikke. Vi hadde et stykke i engelsk som jeg gjorde litt utav og trakk videre. Det fikk på en familie som reiste til en annen planet og og forlot alt bak seg. Jeg tok sitater fra teksten og stilte spørsmål. ”Why did he burn everything?” ”Does he want to start a new life?” To make them think.

**Er miljø og utikling temaer elevene liker å diskutere?**

I forhold til andre klasser er det ikke akkurat noe som bobler.

**Hvis du også tenker på andre klasser du har undervist, er utviklings- og miljøtemaer oppfattet som tørt og kjedelig i forhold til andre temaer?**

Nei, jeg tror ikke det. Men jeg hadde forventet meg større engasjement. Men jeg tror de er opptatt av det. Men det blir sånn ”å global warming – det er forferdelig.” De har noen tanker men de er ikke gode på en forklarings rekke og det jobber jeg med dem på. Med å få til en logisk forklaring. De er klar over $CO_2$ og global warming, bilkjøring - jeg har satt noen ting i relasjon til hverandre. Jeg skulle ønske det var større engasjement. ”Stakkars isbjørn det er ingen isflak.” Blant de som ikke har de store kunnskapene vekker i hvert fall det engasjement. Det er om å gjøre å få ulike inputs.

**Du nevnte at du er redd for at bærekraftig utvikling skal bli utvannet. Det er et veldig komplisert konsept, og mange er uenige hva det betyr. Når du underviser føler du det er vanskelig i formidle hva det betyr?**

Nei, det syns jeg ikke. Jeg syns egentlig at når vi holdt på med det så gikk det hjem. Jeg underviste det på en enkelt måte.

**Har du noen kommentarer eller forslag til hvordan man kan gjøre bærekraftig utvikling, samt miljø og utviklingsproblematikken mer relevant og interessant for elevene og et sterkere teama i skolen? Du nevnte tverrfaglighet.**

I åttende klasse har de hatt et samarbeid med CICERO som medspiller og det vil de forsette og utvikle videre. Jeg håper at det kommer et sterkere bidrag særlig fra prosjektarbeid og eksterne samarbeidspartnere. Jeg tror på at elevene kommer inn i reelle situasjoner i samfunnet utenfor skolen og at de kan velge ut enkelte områder der noen har tatt tak i bærekraftig utvikling og andre ikke – og ha komparative sammenligninger.

**Hva syns du om lærerutdanning og bærekraftig utvikling?**

Det burde absolutt forsterkes der. Det tror jeg det er et veldig stort behov for. Etterutdanning også. Det er et helt nytt område. Det her omfatter mer enn bare miljø. Det er et større hele. Det handler om medborgerskap, citisenship, ta vare på hverandre, holdningsskapende arbeid også. Det har så mange sider. Språk og språkbruklære er også viktig. IKT er også kommet inn som et kompetansemål. Man kan også utveksle erfaringer med folk i andre land i forhold til bærekraftig utvikling. Det fins mange muligheter og det er viktig å se det fra forskjellige sider. Det må ikke bli en kjedelig greie og en tvangstrøye som tar fra dem måten å leve livet på, utfoldelsen. Det må ikke bli en sånn trist sak. Det må være livgivende.

**Slik at man ser muligheter, isteden for begrensinger. Da tror jeg tiden vår er over. Har du noen siste kommenterer?**

Det er sikkert mye mer som kunne vært sagt, men jeg kommer ikke på mer akkurat nå.

**Takk for at du tok deg tid til å være med på dette i en travel tid på året.**

# Appendix D – Sample Interview, Students

**Fokusgruppe med 4 elever fra 9. klasse på Oslo skole 2, 15. juni 2007**

**Har dere hørt om begrepet bærekraftig utvikling før?**

- Jeg tror jeg har hørt om det, men jeg har ikke peiling på hva det er.
- Jeg har aldri hørt om det (3stk).

**Jeg kan forklare kort. Bærekraftig utvikling er at man ikke bruker opp ressursene man har, men at man sørger for at man lever på en måte som gjør at folk i andre verdensdeler og fremtidige generasjoner har mulighet til å møte deres behov.**

**Kan dere kort forklare hva det prosjektet dere har om global oppvarming i naturfag går ut på?**

- Vi er delt inn i forskjellige grupper og vi har fått tildelt en verdensdel eller et land. Og så skal vi finne ut hva som skjer med det landet eller verdensdelen og hva som er effekten av global oppvarming.

- Og så skal vi komme med tiltak for hva vi kan gjøre for at verden blir bedre globalt sett.

**Hvilke land eller verdensdeler er dere?**

- Jeg er Norge.
- Vi er Sør-Amerika (2 stk).
- Jeg er Midt-Østen.
-

**Dette er i naturfag, kan dere huske om dere har hatt om miljø eller utviklingstemaer i andre fag?**

Samfunnsfag.

**Det med global oppvarming – hvordan det fungerer, hvordan det oppstår, hvilke konsekvenser det har og hva man kan gjøre – er det et komplisert tema?**

- Det er jo komplisert. Du må jo sette deg inn i det.
- Ja, for det er jo veldig mange tiltak som kan gjøres for at det kan bli bedre og det er mange som ikke er sikre på om de virker i det hele tatt.
- Litt vanskelig å forstå. Sånne teknologigreier.

**Temaer som har med miljø og global oppvarming  - er det temaer dere tenker på utenom skolen også?**

- Ja
- Det er ikke noe du bare kan glemme. Du må liksom engasjere deg litt.
- Og man kan føle det her og nå. Det er så varmt nå.
- Ja, det var sånn tropevarme i begynnelsen av juni. Det var det varmeste siden metrologisk institutt hadde begynt å måle.

## Er dette noe dere er bekymret for?

- Ja, litt. Vi vil jo ikke at verden skal gå i oppløsning.
- Og så er jeg litt redd for hva som skal skje i framtiden for det er jo vi som er framtiden. Jeg håper det går an å gjøre noe.
- Det kommer jo bare til å bli varmere og varmere og da blir det jo vanskeligere å leve. Det var 52 grader i Pakistan og mange som har dødd. Hvis det blir sånn over hele verden er det ikke noe gøy.

## Du nevnte at vi må engasjere oss, gjør dere det?

- Vi prøver.

## Hvordan da?

- Å følge med på det som skjer og det prosjektet vi har nå.
- Resirkulering.
- Den filmen "En ubehagelig sannhet" der tar de opp. De fleste engasjerer seg jo ikke for det.
- Ja, den filmen "En ubehagelig sannhet" den fikk meg virkelig til å tenke.

## Hva syns dere egentlig om den filmen?

- Den var bra.
- Var det han presidenten?
- Nei, han prøvde å bli president, men så klarte han det ikke.
- Han sa faktisk mye som er sant og som er et sjokk for mange. Og det er mange som helst ikke vil tro det for det er noe som ikke passer så godt nå siden det er fattigdom og krig og dette blir enda en ting å tenke på – global oppvarming.
- Ja for det er jo de fattige som lider først. Vi har jo råd til å kjøpe vifter og alt mulig rart, men det har jo ikke de.

## Den filmen – ble dere skremt og overveldet eller fikk dere en følelse av at dette kan vi gjøre noe med?

- Jeg ble litt sjokkert. Noe av det er ganske skremmende. Oi, det skjer virkelig nå.
- Ja!

- Det med at isen og snø smelter. Det er ganske skummelt da.
- De viste sånne bilder som var sjokkerende å se på. At vi faktisk bidrar til at snøen smelter.

**Hvilen følelse satt dere igjen med etterpå?**

- Han sa jo noen ting som vi kunne gjøre også da. Det var det som var en lettelse da. Han sa det på slutten.

**Dere nevnte at der hører mye om miljøproblemer i media. Tror dere det er mulig å finne løsninger på disse store globale problemene innen vår generasjon?**

- Det er jo mulig å finne en løsning på det, for eksempel de miljøvennlige bilene. Men de gjør de jo så dyre. Hvis de kunne gjøre de billigere.
- Men det er jo vanskelig da for da må alle sammen engasjere seg. Og hvis de ikke engasjerer seg idet hele tatt må de komme med helt desperate løsninger. For eksempel plante falske trær som tar opp mer CO2.
- Det der fotosyntese greia.

**Så det er mulig å finne løsninger, men da må alle sammen være med på det?**

- Ja, vi kan jo ikke bare være noen. For det går ikke. Vi bidrar jo alle til global oppvarming. For eksempel å kjøre biler og kaste søppel.
- Og så ender det jo med at de som egentlig ikke burde gjøre noe med det gjør noe med det. For det er så mange som tenker ja, ja vi kan gjøre det senere.
- Ja, eller hvis det er bare jeg som gjør det så gjør det sikkert ikke noe. Men det er mange som gjør det.
- Også fabrikker og sånn. Hvis de slutter å forurense. Siden de er en stor del av forurensingen. De burde bruke penger for å finne nye måter å lage teknologi på.
- Ikke nye måter å lage TV-er på.
- For at det ikke skal bli for mye teknologi.
- Men det er jo bra med teknologi da. For da kan de finne nye måter å beskytte jorda og naturen på. For eksempel hvis de finner opp nye biler som går på hydrogen
- Ja, det er jo bra.
- Men det er sånn bra teknologi.
- Biler, fly og transportmidler er en av de tingene som forurenser mest i verden.

**Så det finnes med andre ord både bra og dårlig teknologi? (Enstemmig ja). Dere sier at vi må finne teknologiske løsninger og at alle må være med på det. Tror dere folk er innstilt på det?**

- Jeg tror ikke alle folk bryr seg.
- De tenker mest på sitt eget liv.
- Men jeg tror kanskje folk kommer til å innse det når vi blir desperate nok. Da må vi faktisk gjøre noe med det.
- Jeg tror ikke de gjør så mye nå siden vi ikke ser det så godt.


**Når kommer dette sjokket tror dere?**

- Om noen år.
- Det er ikke så lenge til.
- Varmen stiger fort.
- Det er nesten ekkelt så varmet det er. På mandag så var det 20 grader kl. 11 på kvelden og da er det varmt. Det er ekkelt.
- Så var det 30 på fredag jeg kunne nesten ikke puste inn lufta.
- I fjor var det 40 i Berlin og da var det ikke mulig å være ute da måtte du være på et sted med air condition.


**Er det noe dere kan gjøre for å løse miljøproblemene?**

- Ja, det første er vel kanskje å engasjere seg i det.


**På hvordan måte da?**

- Vi kan få folk til å innse at det er global oppvarming.
- Hvis alle kunne slutte å bruke teknologi. Å slutte å bruke tv.
- Men det er jo bra å utvikle teknologi da.
- Hvis man lærer barna om det. Det ville forandre mye. Det er vi som er framtiden og det er vi som kan forandre mye.
- I første klasse kunne du lære om global oppvarming.
- Hvis folk hadde fått mer kunnskap om det.
- Det var en god ide, å få mer kunnskap.


**Hvordan er det i skolen nå, syns dere at dere får nok informasjon om dette?**

- Det er egentlig ganske nytt.
- Vi lærte kanskje noe i 6. klasse.
- Men det er først nå at det har kommet opp.
- Det skjer mye mer i år fordi det begynner å stige og derfor kommer det mer opp. Vi burde ikke vente til det kommer for langt opp for da er vi fortapt.

**Så undervisning om dette burde begynne tidligere?**

- Ja, så de innser hvor farlig dette er.

**Er det andre ting dere kan gjøre for å løse miljøproblemene?**

- Sparedusj, resirkulere.
- Spare energi, solcellepanel isteden for strøm.

**Hva med måten vi lever på - hvis jeg kjøper meg en ny genser, burde jeg da tenke på det to ganger før jeg kjøper den?**

- Jeg vet ikke jeg.
- Det er litt vanskelig å tenke på. Hvis du har en skrivebok. Jo fortere du skriver den ut jo flere trær må vi hogge ned. Man burde tenke noen ganger. Men hver gang man kjøper noe... Noe trenger man jo.
- Hvis færre kjøper ting fra regnskogen tror jeg ikke de kommer til å fortsette å gjøre det. Siden da tar de sikker en annen løsning.

**Så hva vi kjøper er ikke så viktig?**

- Jo.
- Nei, på en måte, men på en annen måte ikke.
- Det er masse ting man kjøper som man ikke trenger. Vi bor jo i Norge som er et rikt land og vi har mange ting som "er godt å ha".
- Jeg har sikkert like mye klær som en hel familie i et slikt land. Noen ganger når jeg ser på slike reportasjer på tv, får jeg veldig dårlig samvittighet når jeg går bort og sløser bort pengene mine på en is. Så man må jo tenke litt på hva vi kjøper.
- Men jeg syns også ofte når vi tenker på klima så burde vi tenke på hele verden. Hvis vi bare tenker på Europa, hva skjer med Afrika og alle de ulandene?
- Ja for de kommer til å blir rammet også.
- For det er en fellesting som alle burde få nytte av.

**Når det gjelder fattigdomsproblemer og sult. Er dette problemer dere tror kan løses innen vår generasjon?**

- De som har mye makt plasserer for eksempel oljebedriftene sine i andre land og tenker at de får penger ut av det. Men et som skjer er at det forurenser vannet og selve landet.

- Det blir jo vanskelig da. Å bli kvitt all fattigdom i verden. Jeg tror de rike må dele litt selv.
- Vi tar det for gitt at vi har så mye. Vi må dele.
- Hvis alle ungene i Oslo under 20 som hadde en Ipod kunne man sikkert ha reddet et land.

**Men tror dere alle unge i Oslo er villige til å gi opp sin Ipod?**

- Nei det tror jeg ikke. Haha.
- Nei, men altså det hadde nesten vært litt greit.
- Det som er  at det er ikke alle som er så engasjert i dette her. Men hvis de får høre mer om det så tror jeg kanskje de er villig til å gi opp den Ipoden. Hvis de vet at du kan stoppe noe.

**Men hvorfor er det sånn at folk ikke er villige til å gi opp en liten Ipod som kanskje betyr ganske lite i forhold til at samme beløp kunne ha reddet noen fra en veldig enkel sykdom i et fattig land?**

- Jeg tror ikke de tenker så veldig mye på det.
(usikkerhet)

**Det er kanskje vanskelig å forestille seg det?**

- Ja.
- Isteden for å kjøpe en dyr bukse kan man gi penger og være SOS fadder.

**Tror dere det er vanlig blant ungdom i dag?**

- Jeg vet ikke.
- De gir jo penger til organisasjoner da.
- Det er dumt at ikke flere engasjerer seg. Det er vi som er fremtida og skal gjøre noe med dette her.
- De som er eksperter dør jo om noen år.

**Hvor har dere fått informasjon om global oppvarming, miljøproblemer og utviklingsproblemer?**

- På internett.
- Klimaløftet.
- TV.
- Media.
- Det pleier å være sånne dokumentarer på TV. Hvis man følger med på TV får man med seg ganske mye.

**Får dere mest informasjon om disse temaene på skolen eller utenfor skolen?**

- Vi får ikke så mye på skolen.
- Vi må finne det ut selv.
- Men det er på en måte litt nylig nå da. Siden alle begynner å forstå hvor alvorlig dette er.
- Men det er de som er litt oppi årene som forstår dette her. Søsteren min på 9 år forstår ikke dette her. Hun vet at global oppvarming er en dårlig ting, men hun vet ikke om alle konsekvensene bak det.
- Det er litt skummelt.


**Er dette et tema dere syns er viktig?**

- Ja, det er det. For det berører jo fremtiden vår. For når vi skal tenke på at jeg har lyst til å bli lege når jeg blir stor, så kan det jo hende at jeg ikke kan bli lege i det hele tatt hvis global oppvarming forsetter. Da kan det hende jeg ikke har noen fremtid i det hele tatt.


**Har dere noen forslag til hvordan man kan ta opp slike temaer i skolen som har fått unge folk til å syns det var interessant og fått dem til å engasjere seg?**

- Vanskelig.
- Det fins jo mange forskersentere som driver med dette. Det er jo mye mer interessant å gå på sånne senter isteden for å sitte i timen å høre på læreren og bare lese og lese.
- Ja, man kan se på det selv.
- Barna burde ha sånn foredrag der de forteller deg så kanskje de får litt mer innblikk hos barna isteden for at en lærer gjør det. De burde lære seg selv slik som vi gjør.
- Ta det på reklame, gjør de det?
- De burde ha reklame, jeg har ikke sett det.
- Bare sånn om biler.
- Man burde ha reklame om global oppvarming, ikke bare et engangblikk på nyhetene.
- Jeg skal ikke si noe dumt om de som ikke engasjerer seg, men det er nesten litt teit hvis de bare ignorerer det. Det handler om hvor mye du tar til deg og tenker på det isteden for å gå å snakke om artister.


**Er dette noe dere snakker om med venner?**

- Egentlig ikke (latter).
- Jeg er sikker på at mange kommer til å snakke om det etter den debatten vi skal ha etterpå.

- For nå har vi lært veldig mye om det og vi innser at oi, det er global oppvarming.
- Dette er et tema vi burde ta opp flere ganger (stor enighet). Ikke bare en gang. Vi får jo mer kunnskap etter hvert. Å holde seg oppdatert er viktig.
- Vi burde ha en time i uka der vi bare snakket om ....
- Men da må de gjøre det mer morsomt slik at vi skal forstå det. Jeg vet ikke, ikke at læreren bare forteller det. De må gjøre noe for at man skal få lyst til å høre på det og bli engasjert.

## Er dette prosjektet et eksempel på en undervisningsstrategi som får dere til å bli mer engasjert?

- Ja!
- Det som er bra med dette prosjektet er at til vanlig tenker man bare på karakteren. Men nå er karakteren allerede satt, så da tenker man ikke på karakteren.
- Men vi kommer til å gjøre det etterpå også å få karakter. Når jeg får karakter må jeg fordype meg inn i det, så tenker jeg mye mer på det.
- Det er litt bra at vi snakker med hverandre om det slik at vi skjønner det mer.

## Er det noe dere snakker med foreldrene deres om?

- Ja, det er det.
- Jeg snakker ikke så mye med foreldrene mine om det.
- Ikke jeg heller, jeg er litt sånn stille når....
- Når varmen kommer begynner vi å snakke litt om det.
- Jeg hadde en liten debatt med mamma i dag om teknologiske metoder. Jeg hadde hørt at det var en forsker som sa at vi kunne ha glasskjermer utenfor jorde som skjermet vekk 2% av sola vekk. Og det gjør at jorda ikke er så varm. Mamma syns heller at vi burde gjøre det på en mer naturlig måte, for hvis vi plutselig gjorde det slik at jordas temperatur sank da vet vi ikke helt hva som vil skje for det er ikke naturens gang.

## Det er jo en ganske interessant diskusjon: skal vi bruke teknologiske metoder eller må vi forandre måten vi lever på?

- Jeg tror vi kommer til å bruke teknologiske metoder hvis vi er desperate nok.
- Hvis vi bruker for mye teknologi så kan det bli et problem. Jeg syns at vi skal bruke det naturlige, at man selv skal gjøre noe.
- Ja, først.

- Ja, men man må på en måte. En av problemene er at man bruker for mye teknologi. Man burde slutte å bruke for mye teknologi, strøm og tv og sånn.
- Men man burde selvfølgelig utvikle teknologi. Istedenfor å bruke det bare på tv.
- Det er forskjell å se på Simpson og se på National Geographic (enighet).

## Hvordan syns dere slike temaer er tatt opp i lærebøkene deres?

- Jeg syns ikke det er nevnt i det hele tatt. For det er noe som folk har engasjert seg i, men det er nå det virkelig har blitt relevant. De som lager lærebøkene nå kommer sikker til å skrive mye om det. Men nå er det nesten ingenting.
- De snakket om ozonlaget i 6. klasse, men ellers så står det ikke så veldig mye.
- Det er mest på nettet at man finner noe.
- Det er sånn at læreren tvinger oss til å lese og snakke om det. Også får vi karakter så de tenker mye på det.
- Det er bedre å engasjere seg frivillig enn å gjøre det på grunn av karakteren.

## Nå har vi snakket om både miljø og fattigdomsproblemer og linken mellom disse. Er dette noe som blir tatt opp i deres skolehverdag?

- Jeg syns egentlig ikke vi har jobbet så mye om global oppvarming før nå jeg.
- Vi har ikke jobbet med det så lenge.
- Jeg håper vi kommer til å jobbe mer med det.
- Det er nå mange begynner å innse alvoret. Jeg har aldri innsett alvoret i det hele tatt, jeg har bare tenkt at ja, ja det går kanskje over. Jeg visste ikke så mye om det men nå som jeg vet om det ser jeg alvoret i det.

## Har dere noen kommentarer eller spørsmål til slutt?

- Dyrene i regnskogen, de sjeldne dyreartene, kommer til å dø ut. Siden klimaet endrer seg blir de svakere. Skinnet deres er skikkelig sensitivt og de blir svakere og svakere og kanskje de vil dø ut og bli syke. Fabrikkene tar opp røyk. Og røyken fører til regn. Også regner det i elevene og plantene, når dyrene drikker eller bader blir de syke.

## Det skader på en måte hele økosystemet – fra vann og dyr og planter?

- Ja, for regnskogen den tar opp $CO_2$ i fotosyntese. Den balanserer $CO_2$ og atmosfæren i hele verden.

- Også stiger havet 1.8 m hvert år. I hvertfall utenfor Brazil.
- Siden sola skinner sterkere blir det sterkere sånn omkrets... hva heter det?
- Fordamping... Vannkretsløp.
- Jeg hører på radioen hver dag. Stor skogbrannfare. Det er jo fuktig i regnskogen men det kan jo brenne rett opp.
- Hvis ikke dyrene har noe sted å være vil de forsvinne.
- Ja, fordi mange plantearter har ikke blitt funnet og de kan helbrede sykdommer og noe som man ikke vet om i det hele tatt men som kan gjøre noe bra for samfunnet.

**Det er mange globale problemer som foreksempel regnskogen i Brazil som har konsekvenser for resten av verden og oss her i Norge. Er det vanskelig å forholde seg til ting som er langt borte, er det vanskelig å engasjere seg i det når det er ting i Brasil.**

- Ja.
- Det er jo langt unna, men vi kan jo i hvertfall gjøre noe her.
- Kanskje de ikke er like engasjert som vi her i Norge.
- Ja, fordi har ikke så mye kunnskap om global oppvarming. De vet ikke hva de gjør når de hogger ned et tre der for eksempel.

**Har vi rett til å be folk i fattige land om å ikke forurense og utnytte naturressurssene for å utvikle seg og blir rikere?**

- Vi kan jo si at de skal ha lover slik at hver gang de hogger et tre skal de plante et nytt et?

**Hva hvis de ikke har råd til det?**

- Vi kan jo la være å kjøpe. For da tror jeg de slutter å gjøre det eller finne en annen løsning. Eller la være å bruke regnskogen for å gjøre dem rike og finne noe annet. Det er jo utvikling, og de bruker alt de kan.
- Hva skal de gjøre da?

**Hvis regnskogen er den eneste ressursen de har. Og produkter derfra er veldig populære, kan vi allikevel be dem om ikke bruke sine naturressurser selv om vi bruker og har brukt våre til å bli rik?**

- Nei.
- Jeg er sikker på at hvis jeg har bodd i Brazil ville jeg også ha ignorert det for jeg ville også bli rik slik som de i nord. Og det er kjempe dårlig gjort.
- Vi kunne ha hjulpet dem i stedet da.
- Ja, vi kunne ha gitt dem penger i stedet for å bruke mer på olje.
- Og det kunne få dem i gang.

- De tenker bare på pengene nå for å få seg opp. Men hvis de for eksempel får noe hjelp tror jeg det går bedre.

**Andre kommentarer eller spørsmål?**

- Du vet Andesfjellene? Mange mennesker er avhengige av dem også nå som snøen smelter og pluss global oppvarming så kan det hende at det tørker ut også. Menneskene er avhengige av drikkevannet og elektrisitet som fører til alt det der.
- Veldig mye av vannet der drikker folk. For da får de ikke ordentlig vann og det er farlig.
- Og siden Sør-Amerika og Afrika er veldig tørre land blir det enda tørrere med global oppvarming.
- Noen av vennene mine fortalte meg; Oprah er et kjempe populært program, tenk på hvor mange som ser på det bare i uka. Noen skal bygge en kjempe stor tv-stasjon nede i regnskogen – verdens største – for å få sendt enda mer tv. Altså, Oprah gjør veldig mange bra ting – hun gjør jo det – hun er jo kjemperik og alt mulig, men folk bruker så mye strøm for å se på tv.
- I regnskogen?
- De må jo bygge veier og sånn uansett hvis de skal ha en tv-stasjon der.
- National Geographic.
- Det liker vi.
- Det de tar opp der er veldig viktig. De tar opp veldig mange ting.
- Hele kanalen er viktig.
- Ja, hele kanalen. Hvis andre land får vite litt mer om hva som foregår utenfor, om de fikk sjansen...

**Mens vi snakker om TV, tenk hvis alle som bor i Kina eller India skulle få seg tv. Da må man bruke veldig mye energi.**

- Da burde de bare lære det på skolen.
- Tenk om alle bare så på ett tv-program hver dag. Da ville man spare kjempe mye.

**Tenk hvis de hadde sagt det til oss: at vi ikke burde se på tv, men få informasjonen vi trenger på skolen. Hva hadde dere sagt da?**

- Jeg vet ikke jeg.
- Noe er jo greit.
- Det de har kan de beholde.
- Men det er viktig å gi kunnskap om global oppvarming til de som ikke kjenner til det.
- Bare gi kunnskap, på en eller annen måte. Som de har råd til.
- Det er ikke alle som går på skolen.

- Det er sant. Da må vi bygge noen skoler.

## Så utdanning er viktig?

- Ja, kjempe viktig.
- Burde ha global oppvarming første time.
- En gang i uka.
- Hver dag.
- En gang i uka er nok. De gidder ikke å høre samme teori hele tiden.
- Vi må jo oppdatere oss. Det kommer jo nye teorier hele tiden.
- Det ville ha gjort en stor forandring.
- Men vi hører de samme tingene hele tiden.
- Det burde ha vært: Denne måneden skal vi høre om Sør-Amerika.
- Når de har hørt alle teoriene kan barna gjøre noe annet, kanskje rydde på veien eller engasjere seg.
- Ja, da vet de hvordan de kan engasjere seg og gjøre noe bedre. Lag en poster!

## En av dere sa at før dette prosjektet hadde dere ikke tenkt så mye på det. Er et slik at prosjektet har fått dere til å tenke mer på det?

- Ja!
- Mye mer.
- Veldig mye mer.
- Jeg har lært mye mer enn jeg visste før. Jeg har skjønt.
- Det kom som et sjokk.
- Jeg har skjønt hvor seriøst det var, men nå har jeg virkelig skjønt hvor alvorlig det er. Vi sitter her i Norge med alt vi trenger mens de sitter i Afrika.
- Jeg visste ikke at global oppvarming skadet dyreartene i regnskogen. Også på grunn av det har vi mistet gule frosker.
- Åhh, gule frosker.

# Appendix E – History of Education for Sustainable Development

Initiatives to promote environmental issues and awareness in education did not first appear with the Brundtland report or Agenda 21. For some the earliest links between education and the quality of the environment is associated with the Scottish botanist Sir Patrick Giddens (1854-1933) who was a pioneer in extensive use of the outdoors as a resource for active learning. However, the first recorded use of the term "environmental education" in Britain can be traced back to a 1948 at a meeting of the International Union for Conservation of Nature and Natural Resources (IUCN, currently the World Conservation Union) held in Paris. However, the term was not commonly used until the 1960s after worldwide concern for the environment had been triggered by the publication of Rachel Carson's Silent Spring. Based on this concern the IUCN held a working meeting on 'Environmental Education in the School Curriculum' in the USA. This conference came up with a definition that was adopted by several international organizations and helped raise the profile of environmental education during the 1970s. Principle 19 enunciated at the United Nations Conference on the Human Environment in 1972 in Stockholm, stated: "Education in environmental matters for the younger generation as well as adults, giving due considerations to the underprivileged, is essential…" Subsequently the United Nations Environmental Programme (UNEP) was established, which together with UNESCO founded the UNESCO/UNEP International Environmental Education Programme (IEEP) in 1975 (Palmer and Neal 1994:12).

The IEEP was launched in 1975 at an International Workshop on Environmental Education held in Belgrade and the programme ended in 1996. The workshop produced the first intergovernmental statement on environmental education in a document called the Belgrade Charter. The charter states that the overall goal of environmental education is "To develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones" (UNESCO 1975:15).

In 1977 Belgrade was followed by the first intergovernmental Conference on Environmental Education, held in Tbilisi, former USSR. The conference was organized by UNESCO in cooperation with UNEP and was attended by 66 member states. The conference established that education has a crucial role in the face of environmental problems and opportunities. Moreover, environmental education should be integrated into the whole system of formal education at all levels to provide the necessary knowledge, understanding, values and skills needed by the general public for their participation in devising solutions to environmental questions (UNESCO 1977). Also, the conference prepared

recommendations for the wider application of environmental education in formal and non-formal education. This significant event and subsequent publications based on it, continue to provide the framework for environmental education today (Palmer and Neal 1994:13).

The World Conservation Strategy was published in 1980n by the IUCN, UNEP and the World Wide Fund for Nature (WWF) with the objectives to maintain essential ecological processes and life support systems, preserving genetic diversity, and ensuring the sustainable utilization of species and ecosystems (OECD 2006). The strategy is one of the most significant documents concerning conservation and environmental education at a global level ever published. It includes a chapter on environmental education with the message that the long-term task of environmental education is to foster or reinforce attitudes and behavior compatible with a new ethic of conservation (Palmer and Neal 1994:13). An updated version of the strategy was published in 1991 under the name Caring for the Earth – A Strategy for Sustainable Living (IUCN 2006).

In 1987, the same year the Brundtland report was published, UNESCO and UNEP held a 'Tbilisi Plus Ten' conference in Moscow (Palmer and Neal 1994:15). The vital importance of environmental education was one of the issues that came out of the conference: "In the long run nothing significant will happen to reduce local and international threats to the environment unless widespread public awareness is aroused concerning the essential links between environmental quality and the continued satisfaction of human needs. Human action depends upon motivation, which depends upon widespread understanding. This is why we feel it is so important that everyone becomes environmentally conscious through proper environmental education" (UNESCO 1987).

The next major event was the first Earth Summit (UNECD) Conference that took place in Rio de Janeiro, Brazil, in June 1992. The aim was to address urgent problems of environmental protection and socio-economic development. The Earth Summit assembled more than 100 heads of state who signed the Convention on Climate Change and the Convention on Biological Diversity, endorsed the Rio Declaration and the Forest Principles, and adopted Agenda 21 (UNESA 2006). One of the most significant outcomes for educators of the conference was the adoption of A 21 as mentioned above.

The European Community has also been active in the environmental education debate. In May, 1988 the Council of the European Community agreed on "The need to take concrete steps for the promotion of environmental education so that this can be intensified in a comprehensive way throughout the Community." The Council adopted a Resolution on Environmental Education where one of the actions to take was that each Member State, taking account of regional particularities and in cooperation with parents, local bodies and other relevant bodies, should promote the introduction of environmental education in all sectors of education (The European Council, 1988).

In 1990, delegates from 155 countries, as well as representatives from some 150 organizations agreed at the World Conference on Education for All in Jomtien, Thailand to universalize primary education and massively reduce illiteracy before the end of the decade (UNESCO 1990).

In October 1992, the World Congress for Education and Communication on Environment and Development (EGO-ED) was held in Toronto, Canada. It was the first major international gathering, after the Earth Summit in Rio, to focus on Chapter 36 of Agenda 21, promoting Education, Public Awareness, and Training. The congress was hosted by the North American Association for Environmental Education, the Council of Outdoor Educators of Ontario and Canada/MAB. Over 4,000 delegates from 84 countries participated. ECO-ED was a multi-sectoral and multi-disciplinary conference that brought together politicians, diplomats, NGOs, labor representatives to discuss environmental education. The Congress resulted in the publication of a Curriculum Resources Guide, co-sponsored by UNESCO, which describes the environmental education and information materials representing over 300 organizations from around the world (CBRA 1993).

In 1997 UNESCO organized the International Conference on Environment and Society: Education and Public Awareness for Sustainability in Thessaloniki, Greece. The conference brought together nearly 1,200 experts from 84 countries and was undertaken as an inter-sessional activity contributing to the work of the UN Commission on Sustainable Development (CSD) on Chapter 36 of Agenda 21. At the conclusion of the Conference, participants adopted, by consensus, the Declaration of Thessaloniki (UNESCO 1997a). The Declarations states that appropriate education and public awareness should be recognized as one of the pillars of sustainability together with legislation, economy and technology. It further recommends that governments and leaders honor the commitments already made during a series of UN conferences, and give to education the necessary means to fulfill its role in achieving a sustainable future (UNESCO 1997b).

The World Education Forum took place in Dakar, Senegal in April 2000 and was the first and most important event in education at the dawn of the new century. By adopting the Dakar Framework for Action, the 1,100 participants of the Forum reaffirmed their commitment to achieving Education for All by the year 2015 and entrusted UNESCO with the overall responsibility of co-coordinating all international players and sustaining the global momentum. The Forum resulted in the Dakar Framework for Action, Education for all: Meeting our Collective Commitments that re-affirm the commitments made to achieve the education for all (EFA) goals and targets for every citizen and for every society (UNESCO 2000).

Ten years after the first Earth Summit, the United Nations organized the Summit on Sustainable Development in Johannesburg, South Africa in 2002. A new vision of education for sustainable development which emphasizes a

holistic, interdisciplinary approach to developing the knowledge and skills needed for a sustainable future, as well as the necessary changes in values, behavior, and lifestyles was outlined. This vision demands a re-orientation of education systems, policies and practices in order to empower everyone – women and men, young and old – to make decisions and act in ways that are culturally appropriate and locally relevant in order to redress the problems threatening our common future. This new vision of education applies to both developing and industrialized countries. Many national education systems that are presently deemed effective tend to produce individuals geared to individual enhancement and pecuniary wealth maximization. If we believe that education and learning throughout the world have neglected important areas of values and attitudes, then we have to accept that education for sustainable development throws up significant challenges for developed as well as developing countries (UNESCO 2002).

**Sources**

CBRA (Canadian Biosphere Reserves Association) (1993): Environmental Education. Biosphere Reserves in Canada. No.3 – March 1993. Retrieved October 7, 2006 from http://www.biosphere-canada.ca/publications/newsletters-bulletins/news3/art18.html

European Council (1988): Resolution of the Council and the Ministers of Education meeting with the Council in Environmental education of May 1988. Official Journal C 177, 06/07/1988:0008-0010.

IUCN (2006): Website – Caring for the Earth: A Strategy for Sustainable Living. Retrieved October 7, 2006 fromhttp://www.uicn.org/bookstore/WorldconStrat.htm

OECD (2006): World Conservation Strategy – Glossary of Statistical Terms. Retrieved October 7, 2006 from http://stats.oecd.org/glossary/detail.asp?ID=2941

Palmer, J. and P. Neal (1994): *The Handbook of Environmental Education*.  UK: Routledge.

UNESA (2006): Earth Summit+5 – General information. Retrieved  October 7, 2006 from http://www.un.org/esa/earthsummit/

UNESCO (1987): International Strategy for Action in the field of Environmental Eduction and Training for the 1990s. Moscow 1987. UNESCO, UNEP. Retrieved October 7, 2006 from http://unesdoc.unesco.org/

UNESCO (1975): The International Workshop on Environmental Education, Belgrade Yugoslavia, 13-22 October 1975. IEEP, UNESCO, UNEP. Final Report ED-76/WS/95. Retrieved October 7, 2006 from http://unesdoc.unesco.org/

UNESCO (1977): Intergovernmental Conference on Environmental Education, Tbilisi, USSR, 14-26 October 1977. UNESCO, UNDP. Final Report ED/MD/49, Paris, 1978.  Retrieved October 7, 2006 from http://unesdoc.unesco.org/

UNESCO (1990): The World Conference on Education for All. Jomtien, Thailand, 5-9 March, 1990. Retrieved October 7, 2006 from http://www.unesco.org/education/efa/ed_for_all/background/world_conference_jomtien.shtml

UNESCO (1997a): International Conference on Environment and Society: Education and Public Awareness for Sustainability, Thessaloniki, Greece. Retrieved October 7, 2006 from http://portal.unesco.org/education/en/ev.php-URL_ID=37610&URL_DO=DO_TOPIC&URL_SECTION=201.html

UNESCO (1997b): The Declaration of Thessaloniki, International Conference: Environment and Society: Education and Public Awareness for Sustainability, Thessaloniki, 8-12 December 1997. UNESCO-EPD-97/CONF.401/CLD.2, 12 December 1997.

UNESCO (2000): Dakar Framework for Action, Education for all: Meeting our Collective Commitments. World Education Forum, Dakar, Senegal, 26-28 April 2000. ED-2000/WS/27. Retrieved October 7, 2006 from http://www.unesco.org/education/efa/wef_2000/index.shtml

UNESCO (United Nations Educational, Scientific and Cultural Organization) (2002): No sustainable development without education. Retrieved October 21, 2006 http://portal.unesco.org/en/ev.php-URL_ID=5751&URL_DO=DO_TOPIC&URL_SECTION=201.html