Dorze Weaving in Ethiopia

A Model of Education for Sustainable Development?

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Abstract
The aim of the study is to analyse the learning process of the Dorze weaving in Ethiopia and its implications on Education for Sustainable Development, ESD. My two main questions are: 1. How do the Dorze understand their learning process in weaving? 2. What conclusions concerning education for sustainable development applied on textile handicraft can be drawn from the findings of my case study?

In order to answer these questions I have made a field study on the Dorze (the weavers) in Addis Ababa in Ethiopia for 10 weeks. The study has a socio-cultural and narrative approach and the method used are interviews, observations and review of documents. The result is presented in a “metastory” where I retell the stories and introduce the results of the study and that gives answers to question 1. UNESCO’s recommendations on ESD are used to analyse the findings and give the answer to question 2.

The result shows that the learning process depends on the environment with its people, who have gathered knowledge of raw material and techniques for generations but the latter also needs to develop to meet new challenges. “Shiro Meda” is the centre of learning. To grow up in “Shiro Meda” it becomes natural to work with textile production, accept a special lifestyle with clear gender differences and a hierarchical structure. The educational model of spinning and twisting are “learning by doing”, whereas young boys start practising weaving under the leadership of an older teacher step by step.

From an ESD perspective the Dorze education is holistic, practical, individualized, and contains some problem solving even if the students are not participating in decisions on how they learn. The education is highly integrated in the daily life of the weaving community and is also relevant to the surrounding local community. Moreover the education transfers a historical legacy of cultural continuity, and has shown itself to be dynamic and adaptable to change. A weakness in this traditional knowledge system is the low profit the weavers are making and the set hierarchical and gender rules which need to be developed in order to be sustainable for future challenges.

The final discussion highlights the relevance of my findings for a Swedish learning context.

Keywords: Learning, Weaving, Textile Handicraft, Ethiopia, Dorze, Shiro Meda, Education for Sustainable Development, Socio-cultural approach, Metastory, Relevance in Swedish context.
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1. Introduction

Research about Education for Sustainable Development (ESD) is a prioritized field both internationally and in Sweden. One of the reasons is that UN has declared the years 2005–2014 to be a decade for ESD. It is decided that the whole educational process should aim at generating sustainable development to as a high degree as possible in different countries (UNESCO, 2004). The new curriculum of the Swedish School emphasizes the policy of ESD. The education should give the students knowledge so they can contribute to avoid harmful environmental effects and develop a personal attitude toward the overall global environmental issues (Lgr11 & Gy 2011).

This leads us to the main concern of this paper. What does ESD mean for the teaching of students who will work with textile production in some way? What is ESD from a perspective of textile handicraft? These are some of my core questions in this study.

A common way of thinking about sustainable development is about environment and its ecological dimension. But sustainable development is a complex undertaking, with connections to every part of life. Three dimensions: The ecological, the economical and the social are used to define sustainable development (Sandell, Öhman & Östman, 2003 and WCED, 1988). The three dimensions provide a holistic view of needs, situations and problems of people and their societies. The education about sustainable development should therefore reflect this complex view taking the three dimensions into account, not only the ecological dimension as some might believe. So-called Traditional Knowledge Systems (TKS), which consist of traditional, local and indigenous knowledge, are often underscored as intrinsically sustainable in ESD-literature. For example the World Commission on Environment and Development claims that:

These communities are the repositories of vast accumulations of traditional knowledge and experience that links humanity with its ancient origins. Their disappearance is a loss for the larger society, which could learn a great deal from their traditional skills in sustainably managing very complex ecological systems (1987: 114-115).

Breidlid writes about indigenous knowledge in an African context and he notes that the West has realized the need for TKS in sustainable development:

“In the West there is, however, a growing realization that the South may have something to teach the West, and that indigenous knowledge may increase our scientific understanding of natural phenomena which might be crucial for sustainable development” (2009, p.142).

Thus, TKS may possibly guide us in understanding Education for Sustainable Development. But what is TKS and where can it be found?

Kronlid and Öhman (2010) argue that the TKS can serve as a source from where we can gain knowledge content, as an alternative to some of the knowledge content in institutional knowledge system. They point out that the traditional knowledge system includes intuitive and holistic elements. Its validity is rooted in the knowledge functionality and its knowledge is often shared
orally between generations. Furthermore, the traditional knowledge is often within its context, dynamic and may change with the times (ibid).

Ethiopia has a strong tradition in producing handmade textiles. According to Spring & Hudson is:

Ethiopia undoubtedly the most important centre for production of handmade cloth in Eastern Africa, and has always held this position of pre-eminence. /…/The textile tradition in Ethiopia has shown itself to be supremely resilient, dynamic and adaptable to change (1995, p. 119).

Many of the weavers live and work in the capital of Ethiopia, Addis Ababa, and are in general called Dorze, even if the term originally refers to an ethnic group in southern Ethiopia. Their handicraft tradition is taught from one generation to another. The production takes place in their homes, using simple looms, and the products are mainly sold within the country.

Hence, the Dorze “weaving environment” seems to fall within the definition of the TKS. It is dynamic and adaptable to change. Further, it is taught from one generation to another and it has a strong tradition and validity that is rooted in the knowledge functionality. Consequently, it becomes pertinent to ask if this weaving environment in Ethiopia and its learning process is a relevant model for Education for Sustainable Development. And, what contribution could it give when trying to understand textile handicraft from an Education for Sustainable Development perspective?

In order to answer such questions I have made a Minor Field Study (MFS), conducted by the Swedish International Development Cooperation Agency (SIDA), to the Dorze (the weavers) in Addis Ababa in Ethiopia, including a visit to the Gamu-Gofa region in the southern part of Ethiopia. It is on this basis that I now present the findings of my case study with the title: “Dorze Weaving in Ethiopia– a Model of Education for Sustainable Development?”

2. Aim of Study

The aim of this study is to analyse the learning process of the Dorze weaving and its implications on Education for Sustainable Development. The main questions are therefore:

1. How do the Dorze understand their learning process in weaving?
In order get more specific answers to this question I divide it into three sub-questions as follows: How do they understand
   1a) what they are learning?
   1b) how they are learning?
   1c) why they are learning?

2. What conclusions concerning education for sustainable development applied on textile handicraft can be drawn from the findings of my case study?
The question will be answered by analysing the findings from the recommendations UNESCO provides for ESD. I have transformed these recommendations (found under point 3.4) into questions that can serve as an analysing tool. The questions are:

1. Is the education interdisciplinary and holistic?
2. What values and ideals are expressed in the practice?
3. Does the education involve critical thinking and problem solving?
4. Are different pedagogies used which model the learning processes?
5. Are learners participating in decisions on how they are to learn?
6. Is the education applied in such a way that the learning experiences offered are integrated in day-to-day personal and professional life?
7. How is the education locally relevant? Is the education addressing local as well as global issues?

3. Background

3.1 Ethiopia

Ethiopia is an old country and civilisation. The earliest hominid, called “Lucy” by foreigners and “Denqenash” (“you are beautiful”) by Ethiopians, was discovered in 1974 in the Afar desert. This female of the human race was dated to three and a half million years ago (Zewde 1991). The Ethiopians are a proud people, not only because of Lucy. It was the only country in Africa that managed to preserve its independence in the European colonial period (Utrikesdepartementet, 2011) Ethiopia has a population of 80,7 million people (UN, 2008) who are associated with thirty different ethnic groups and speak seventy different languages (Silvermann, 1999). The ethnic and cultural diversity has given rise to many unique and dynamic visual traditions. One of these traditions is the weaving from the Gamu-Gofa Highland; the Dorze weaving. Many Dorze weavers live in Addis Ababa, the capital of Ethiopia, at "Shiro Meda", which is an area at the foot of Entotto Mountain in the northern part of the city.
3.2 Weaving

According to Hudson & Spring (1995) the finest cloth in Ethiopia is today produced by two ethnic groups who live close to one another in the southern highlands of Ethiopia: The Konso and the Dorze. The Dorze migrate to the large towns in search of other outlets for their products, which the Konso people rarely do (ibid.). In this paper I will focus on the Dorze.

In Ethiopia the horizontal treadle loom is used in weaving the cotton, silk and synthetic fibres. There are numerous regional variations of the treadle loom. The “pit looms” is the one Dorze use. Hudson and Spring describes it as:

The weaver is sitting on the edge of the pit above which the loom is mounted and in which he operates the treadles with his feet. Alternatively, the weaver may sit upright with his feet operating the treadles at ground level (1995, p. 38).

Male craftsmen predominantly operate the weaving and the women are cleaning and spinning the cotton (Pankhurst, 1968).

The weaving process can be described as follows: The first part is the warping and it is done outside. The factory-made warping threads are placed on a handheld warping reel and the weaver unrolls the threads around eight warping wooden posts that are placed into the ground in two parallel rows. When the weaver unrolls the threads a zigzag pattern is created between the posts (Silverman, 1999). When the warping is finished it is ready to be put on the loom. Cartledge describes the process like this:

The weaver takes one end of the warp threads and ties this to a post located at the front of the loom near the weaver’s seat. The warp threads are then brought around a second post, which is 2,5 meters beyond the back end of the loom. Next the weaver takes the warp threads and pulls them through the harnesses. When this is finished, half of the warp threads will be on each of the harnesses. Then each warp thread is pulled through a small space of reed. Finally the warp threads are tied onto the beam at the front of the loom (Silvermann, 1999, p. 248).

After the loom is dressed the wefts threads are prepared on small hollow pieces of bamboo, using a wooden apparatus called bobbin winder (ibid.)

The weavers use three kinds of raw materials: Dir, a factory produced warp (which is locally known as komtare), mag, a weft which is spun by women mostly in the house and t'ilet, factory produced coloured threads used for decorative borders (Freeman & Pankhurst, 2003). According to Freeman and Pankhurst the weavers produce three kinds of cloth: Kemis, is the name for women’s dresses which are usually worn together with a net’ela. The latter is a shawl, which may also be worn with other types of clothing. The third item is a gabi, a large cloth worn by both women and men in bed or in cold weather. The bulliko can be added to the list of cloth. It is a thicker and bigger cloth used as a blanket in bed. Except for the decorative borders the material used in these clothes is cotton. The cotton ripens in the dry season and it is therefore associated with drought. And the white colour, reminds of the colour of bleached bones, and is therefore
closely connected with death. This is one of the reasons why the weavers have a marginalised status in Ethiopia (Hudson & Spring, 1995).

3.3 The Dorze People

As mentioned above, the Dorze originally come from the Gamu-Gofa highlands in southern Ethiopia. When Hapte Giyorgis conquered the highlands of Gamu-Gofa in 1898 many slaves, including Dorze, were brought to Addis Ababa and settled at the foot of the Entotto Mountain. Already skilled in weaving, some were sent to Ankober (the formal capital of Shewa), to learn how to weave the *shamma* (dress clothes). Within a few years this locally made product outstripped foreign imports in quality and sales. “Dorze” became synonymous with the term “weaver” despite the fact that all weavers were not of Dorze origin (Prouty & Rosenfeld, 1982). Mesfin Getahun also writes about “Dorzes” as the weaving people: “In practise this means that they (Dorzes) come from anywhere in the Gamo highlands, as ‘Dorze’ seems to have become the predominant identity of Gamu people outside their homeland” (Freeman & Pankhurst, 2003, p. 268). In this research I use Dorze as the name for the weavers coming from the Gamu-Gofa Highland in southern Ethiopia if nothing else is indicated.

3.4 Education for Sustainable Development (ESD)

A classic definition of sustainable development is: “A development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (The World Commission on Environment and Development, 1988). As mentioned in the introduction, sustainable development includes three dimensions; the ecological, the social and the economical dimension. These three dimensions are integrated – they are interdependent and mutually reinforcing (SOU, 2004). The Swedish official government reports, SOU, give an extended explanation of the three dimensions of sustainable development:

Sustainable development is about safeguarding the resources that exist. A sustainable society is a society that is permeated by democratic values. Citizens feel they can participate, that they can influence the development of society, and that they have the desire and ability to assume responsibility for doing so. Society is shaped within the framework of what the environment and human health can tolerate. Citizens have equal opportunities irrespective of sex, socioeconomic and ethnic or cultural affiliation. Sustainable development is also about the efficient use of resources and the long-term management of and investment in human, social and physical resources. (SOU 2004: 104)

What is clear from this explanation is the impact holistic sustainable development has on society and its citizens.

According to Scott and Gough (2003) there is a distinction between sustainable development and sustainability: The sustainable development is a process and sustainability is the goal. Scott
and Gough argue that ESD is a core component in the process of sustainable development through which we learn to live more sustainably.

When UN declared the years 2005–2014 to be a decade for ESD, UNESCO was asked to lead the work and provide recommendations for ESD. These recommendations focus on how ESD should be integrated in education policy and have an impact on all educational levels. The recommendations UNESCO provides for ESD are: (1) **interdisciplinary and holistic**: Learning for sustainable development embedded in the whole curriculum, not as a separate subject, (2) **values-driven**: It is critical that the assumed norms – the shared values and principles underpinning sustainable development – are made explicit so that that can be examined, debated, tested and applied, (3) **critical thinking and problem solving**: Leading to confidence in addressing the dilemmas and challenges of sustainable development, (4) **multi-method**: Word, art, drama, debate, experience - different teaching methods which model the processes, (5) **participatory decision-making**: Learners participate in decisions on how they are to learn, (6) **applicability**: The learning experiences offered are integrated in day to day personal and professional life, (7) **locally relevant**: Addressing local as well as global issues, and using the language(s) which learners most commonly use (2003 p. 18).

### 4. Previous Research

There is a limited amount of literature concerning weaving in Ethiopia, but there are some which I will present below. After that I will present number of ESD research and ESD research focusing on TKS. I have not found any research about ESD concerning textile handicraft.

Richard Pankhurst (1990), *A social history of Ethiopia*. Pankhurst writes about the Ethiopian social history from the Middle Ages to the early nineteenth century. In his chapter on *Handicraft workers* weaving and spinning are presented and explained. Pankhurst’s book is an overview and gives a good background.

Julie Hudson & Christopher Spring (1995), *The North African Textiles*. The authors give a more detailed description of the treadle loom used in Ethiopia as well as what fabrics are produced in the country. Furthermore, some habits, colours and raw material of the Dorze weaving are described.

Raymond A. Silverman (1999), *Ethiopia - traditions of Creativity*. The book is a based on research of cultural traditions in Ethiopia edited by Raymond A. Silvermann. One of the cultural traditions the book focus on is the weaving in the Gamu-Gofa highland. The loom, the dressing of the loom, weaving, the market and the surrounding neighbourhood are issues presented in the book. For example you can follow two weavers from the Gamu-Gofa highland which makes the descriptions very colourful.

Dena Freeman and Alula Pankhurst (2003), *Peripheral People – the Excluded Minorities of Ethiopia*. The authors seek to explain why minorities of Ethiopia, such as craft workers and hunters, are marginalised. Weavers are one of these minorities and the book gives an overview of the weavers’ habits. That is, for example: What they produce, their livelihood and their social interaction.
William Scott & Stephen Gough (2003) *Sustainable Development And Learning – Framing the Issues.* The book examines diverse perspectives on learning, sustainable development and its inter-relationships. Every chapter in the book has its own focus that provides an overview of the developing key issues. The book is dealing with issues relating to how we understand our environment, our place in it and how we choose to act.


Leif Östman (2003). *Nationell och internationell miljödidaktisk forskning: En forskningsöversikt.* The purpose of the book is to identify and categorize research about environmental education internationally and nationally. A variety of perspectives are used in environmental research and they can be identified as three research categories: The positivist, the interpretivist and the critical perspective. The book describes the different research perspectives and gives research examples.

Johan Öhman (2008), *Values and Democracy in Education for Sustainable Development.* Creating opportunities for sustainable development is a complex matter because it concerns values. The purpose of the book is to contribute with knowledge on how we can prepare coming generations to deal with value-related differences and make agreements, and compromises in a democratically responsible way.

UNESCO (2009), *Learning and Knowing in Indigenous Societies Today.* Changes in the social environment often undermine the transmission of the traditional knowledge system. The book examines indigenous knowledge, how it can be integrated in school curricula and the need for the revitalisation of indigenous ways of learning in a modern context.

Research about TKS may also be found in Journals concerning ESD. An example is Anders Breidlid’s paper “Culture, indigenous knowledge systems and sustainable development: A critical view of education in an African context” published in *International Journal of Educational Development.* Breidlid analyzes the concept of sustainability with particular reference to education and indigenous knowledge systems and suggests more research into the viability of indigenous knowledge systems as a potential tool in sustainable development.

5. Theoretical Framework

5.1 Socio-Cultural Perspective

The theoretical framework for the study is inspired by a socio-cultural approach to the study of learning. The view on knowledge and skills is created from the insights and practices that have been built up historically in a society, in which we are involved by interaction with other people (Säljö, 2000). Knowledge is not seen as something objective and “cold” that is transferred from
the teacher to the student who just receives, rather seen from a socio-cultural perspective knowledge is created in a specific context through interaction with other people and artefacts. Learning can therefore be explained as what individuals gain from one social practise and are able to use in another (ibid). “The goal of a socio-cultural approach is to explicate the relationships between human action, on the one hand, and the cultural, institutional, and historical situations in which this action occurs, on the other” (Wretch, 1995, p. 11). This action, where knowledge is formed, should be seen as a moment of action rather than as a separate process that exists somehow in isolation (Wretch, 1995).

The physical and intellectual tools that are available in a culture are called artefacts. In a socio-cultural approach these artefacts mediates the reality to people in a specific context. (Almqvist, 2005; Säljö, 2000). The word mediation indicates that a person is not in a direct contact towards the surrounding world. He or she deals with the world, interprets it with the assistance of the artefacts that are integrated in his or her specific social practices (ibid). The process of learning can therefore not be understood without taking into account the interrelationship between agent and mediational means.

Language is an important mediational tool for the human being. The meaning of language is related to how the speaker wants to present a phenomenon, or how the social setting is formed and therefore affects the speaker’s way of presenting it (Säljö, 2000). Therefore something can occur differently depending on how a person wants to present it or how the social setting is formed.

5.2 Knowledge and Learning

According to a sociocultural perspective on knowledge and learning, what kind of knowledge that is requested in society has changed over the years and will change due to society's demands and opportunities (Säljö, 2000). The current educational philosophy determines the education’s purpose and the school's mission in society (Sandell, Öhman & Östman, 2003). To structure educational philosophical beliefs one can use the three didactic questions: Why, what and how. The “why-question” deals with the purpose of education, the “what-question” deals with choice of content in education and the “how-question” explains what methods are used (ibid). The didactic questions are used in the research of education where two major areas can be found in Sweden. The first area is the curriculum theory research, focusing on the why and what question. The other major area focus on what and how questions; what is being taught and how? However, as one reason among others, the two areas have converged because of the socio-cultural approach on learning (Molin, 2006).

The didactic questions are often used in analyses of teaching. By asking the questions why, what and how; the purpose, the content and the methods of the teaching becomes visible. This in turn makes it possible to evaluate the outcome of the purpose and to hence, identify what needs to be examined (Lindström & Pennlert, 2006). Consequently the didactic questions are of great
importance to identify the dimensions of education in educational research. The picture to the right illustrates the teaching dimensions graphically. The education’s purpose, content and methods converge in the aim of the education (2006, p. 27).

In institutional learning environments, such as schools, learning has been characterized by the assumption that knowledge and skills are transferred from the teacher to the student (Nielsen & Kvale, 2000). In addition institutionalized education has regarded knowledge as distinct units of information or skills that can be learned as separate parts. (ibid). Hence, institutional knowledge can be distinguished from traditional knowledge, as described in the introduction. Compared to traditional knowledge institutional knowledge is often based on analytical and reductionist methods, its validity is based on agreed transparent principles and its knowledge relies on academic and literary sources (Kronlid, 2010; Mazzocchi, 2006).

5.3 Narrative theory

Narrative theory is interdisciplinary and includes a variety of different theoretical traditions. Therefore narrative research has many analytic options (Johansson, 2005). In this research I have chosen to focus on stories as a “form of knowledge” where social and personal identities are constructed as narratives (ibid.) A story is when you in words express what has happened (ibid). Stories are always created from a certain perspective and are told by someone with a specific purpose. According to Hjörne & Säljö (2008) storytelling is a “rhetorical work” where certain episodes and fragments are highlighted whereas others are not. Therefore stories do not express a completely true reality; their meanings are produced through communication in social interaction (Johansson 2005). Thus, stories are socially situated and must be interpreted in that way.

According to narrative theory, narrative research is an ongoing social construction and a reflexive process. Riessman argues that it is impossible to have access to one another’s experience and therefore we have to interpret the experiences: “Investigators do not have direct access to another’s experience. We deal with ambiguous representations of it – we use talk, text, interaction and interpretation” (1993, p. 8). As a result the researcher has to interpret his or her interpretations and knowledge. To be able to interpret, Riessman suggests five levels of representation:

1) Attending experience: adopt different stimuli from the field, such as smell, pictures, light and sound.
2) Telling experience: the story is created by the storyteller and the listener.
3) Transcribing experience: the transformation from speech to written text.
4) Analysing experience: the investigator explicitly analyses the transcript and makes written conclusions. By remaking the story, a “metastory” is created.

5) Reading experience: the reader encounters the written report and depending on who is reading it, a different interpretation will be done (Riessman, pp. 9-15).

The main purpose of these five levels of representation is that the researcher must look at himself or herself as an active interpreter (Johansson, 2003).

6. Methodology

The methods used to collect data depend on their power to bear upon the research questions asked. Qualitative methods are often used to capture the experiences and lived meanings of the subject’s everyday world (Brinkmann & Kvale, 2009). This approach is located in a context of discovery, in contrast to a context of justification that uses the quantitative methods in which theories are proved or used to measure a phenomenon (Kullberg, 2004). Consequently and considering that this study aims at discovering the learning process and to highlight the subjects’ experiences I make use of a qualitative methodology which is suitable for a minor field study.

Interviews and observations are the primary methods when collecting data in a qualitative research (Merriam, 1998). The interview can be seen as a conversation with a purpose (ibid.) and makes it possible to register answers that are not expected (Esaiason, 2007). The observation takes place in the natural field and its data represent a firsthand encounter with the phenomenon of interests (Meriam, 1998). This can give information about the phenomenon of interests that people in this specific context take for granted (Esaiason, 2007). The third method used to collect data is a review of documents. Documents can be public records, personal documents and physical material. They are ready-made sources of data (Merriam, 1998). In combination, these three methods give a holistic view on the data collected for the study.

The process is generally very interactive and holistic. You observe something on site, which you then ask about in an interview; or something may come to your attention in a document that manifests itself in an observation and perhaps informal conversation in a context of the observation (Merriam, 1998, p. 148).

Further, in a socio-cultural approach the process of learning cannot be understood without taking into account the interrelationship between agent and mediational means. The interrelationship between agent and mediational means will therefore be emphasized in the observations, the interviews and the review of documents.

6.1 Interviews

The interview method captures the way people perceive their environment because it is designed to identify people's everyday experiences (Esaiason, 2007). The value of the interview is the
flexibility and its possibility to ask supplementary questions. In the study the interviews are therefore an important source of data. But from a socio-cultural perspective it is important to distinguish thoughts from communications. You cannot claim to know how another human being thinks because of what he or she may say. What people say, write or do is always contextually determined and should therefore be analyzed as situated social practices (Säljö, 2000). Hence, the interviews in the study are interpreted as a situated social practice.

Nielsen & Kvale claims: "The setting of the interview stage should encourage the interviewees to describe their points of view on their lives and worlds” (1999, p. 128). To be able to do this the interviewees will want to know the interviewer before they allow themselves to talk freely (ibid.). This criterion was given priority in this study. E.g., the interviews in my study were almost exclusively made in someone’s home; either in the weaver’s or in a neighbour’s house. I was always invited to have something to drink: Coffee, tea or a soft-drink. A consequence of this was that the atmosphere became more relaxed and I came to the conclusion that the interviewees were encouraged to talk freely. By using an interpreter, who actually became my friend, also helped a lot to get a good contact with the different persons I interviewed. What I noticed was that all the persons I met were very happy to tell me about their life and handicraft. They were also a little bit surprised over the fact that I was interested in what they were doing. Many of the interviewees also asked me questions about my handicraft and weaving practices in Sweden.

6.1.1 The Interview Guide

The interviews are semi-structured, meaning that the interview guide has an outline of topics with suggested questions but it differs how strictly it is used. The main reason for choosing semi-structured interviews is that they make it possible for the interviewer's judgment and tact to decide how closely he or she needs to stick to the guide and how much he or she needs to follow up on the interviewees’ answers and the new directions these may open up (Nielsen & Kvale, 1999). The interview, as mentioned above, is a conversation with a purpose. That means that the questions should generate positive interaction and keep the flow going (ibid.). A key when considering producing good interview questions is to try to make them simple. The questions should be easy to understand (Esaiason, 2007).

My interview guide has four themes, which are shown in the table below. All themes are related to the learning process directly or indirectly, by asking about the context where the learning is set or the mediating artefacts. The table below also shows that the research questions are formulated theoretically, whereas the interviewer’s questions are expressed in a more everyday language (Nielsen & Kvale, 1999). The collected data is analysed from a narrative perspective and therefore the interviews centre on the stories told. The stories the subjects tell may come up spontaneously or be selected by the interviewer (ibid). To record the interviews an audio recorder is used during the interviews.
Table 1. Interview guide

<table>
<thead>
<tr>
<th>Theme</th>
<th>Research questions</th>
<th>Interview question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life-story</td>
<td>Get to know the person, get their narrative life-story, what is important to them?</td>
<td>Please tell me about your life?</td>
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<tr>
<td></td>
<td></td>
<td>History, where you were born, school, family…</td>
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<tr>
<td>Teaching-learning</td>
<td>What are they learning, how and when are they learning it and why?</td>
<td>If you were to teach someone to weave what would you start with?</td>
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<td></td>
<td></td>
<td>And then?</td>
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<td></td>
<td></td>
<td>Do you remember how you felt when you learnt how to weave?</td>
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<td></td>
<td></td>
<td>What is the hardest to teach/learn?</td>
</tr>
<tr>
<td>Weaving</td>
<td>What do they know, what have they been learning?</td>
<td>What is good quality for weaving, raw material? What is the hardest?</td>
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<td></td>
<td>Material, Quality</td>
<td></td>
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<tr>
<td>Life as a weaver: present,</td>
<td>Change over time?</td>
<td>What are your thoughts when you think about the future?</td>
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<tr>
<td>past and future</td>
<td>Strengths with being a weaver, what can be better?</td>
<td>What would you like for your children?</td>
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<tr>
<td></td>
<td></td>
<td>Has the weaving changed compared to “before”? What has changed?</td>
</tr>
</tbody>
</table>

6.2 Observations

To observe is a unique chance to get firsthand information of a phenomenon since you are there observing it yourself. As an outsider an observer will notice things that have become routine to the participants themselves, things that may lead to understanding the context (Merriam, 1998, p. 95). When you observe it is impossible to be just an observer, since the people you observe know you. When the researcher becomes familiar with the phenomenon being studied, the ratio between participating and observing may change. One can start as a spectator and gradually become involved in the activities being observed (ibid). This is a likely scenario for me; my role as an observer starts as observer - participant and then goes on to become a participant - observer, when a trust has been built up.

To know what to observe I use Merriam’s checklist of things that are likely to be present in any setting (pp. 97-98). The table below shows the list of what to observe.
Table 2. Observation setlist.

<table>
<thead>
<tr>
<th>The physical setting</th>
<th>What is the physical environment like? What kind of behaviour is the setting designed for?</th>
</tr>
</thead>
<tbody>
<tr>
<td>The participants</td>
<td>Who is in the scene? What are their roles? Who is not here?</td>
</tr>
<tr>
<td>Activities and interaction</td>
<td>What is going on? Activities? Interaction? Artefacts?</td>
</tr>
<tr>
<td>Conversation</td>
<td>Who speaks to whom? Who listens?</td>
</tr>
<tr>
<td>Subtle factors</td>
<td>Less obvious, informal and unplanned activities, non-verbal communications, what does not happen?</td>
</tr>
<tr>
<td>Your own behaviour</td>
<td>How is your role? What do you say and do? Observer’s comments.</td>
</tr>
</tbody>
</table>

To record the observations I keep field notes of the participating observations. I also take photographs and shoot short film sequences during my observations in order to strengthen my observation data.

6.3 Review of Documents

As mentioned above, collecting documents such as public records, personal documents and physical material is my third method for gathering empirical data (Merriam, 1998). I will focus on gathering physical material. These documents, also called artefacts, consist of physical objects used or produced by a particular group (ibid.). The artefacts can be a valid source in qualitative research since they lend contextual richness and help to ground an inquiry in the milieu of the writer (ibid.). In evaluating artefacts one must ask about history and the use of the artefacts in this setting. They should not be referred to in isolation outside their context (ibid.).

To conclude, this minor field study combines interviews, observations and collection of documents for its analysis. Hence, the analysis produces three kinds of complementary data: Transcribed interviews from the audio recorder, a diary of observations and physical documents. Furthermore, these data will be examined by using a narrative approach when analysing the observations in the diary, the interview transcripts and the physical documents.

6.4 Selections of Interviews, Observation Fields and Physical Documents

One reason why I have chosen Ethiopia and the Dorze weaving is that the Dorze weaving is quite unique and unknown to the rest of the world (Silverman, 1999). Another reason is that I have been living in Ethiopia for some years so I know the culture and language a bit. By knowing how to greet and behave makes it easier to get good contact with people in the study, which is important in conducting qualitative interviews (see above).
There is no collective source of information for example a proper phone book of Addis Ababa, so to get in contact with people you have to rely on people’s hospitality and willingness to help. Hence, getting in contact with “gate-keepers”, actors with control of key resources, will definitely help (Kullberg, 2004).

In order to select possible interviewees and observation fields I contacted some persons I knew since before. By doing this I got to know five different “gate-keepers” who could introduce me to relevant people and to potentially functional observation fields. If you are introduced to someone in whom a person trusts things tend to open up. After this first introduction I could make use of the “snowball-effect”, that is: One person introduced me to a second person, who introduced me to a third person etc. (Esaiason, 2007). I stopped making interviews and observations with such contacts when they did not give any new information. Such an approach is called theoretical saturation (ibid.).

When gathering suitable interviewees my focus was to reach three different generations; teenager, middle-aged and senior persons and of course both women and men. These three groups can be seen to guarantee a maximum variation, which is a common methodology when selecting interviewees (ibid.). By doing the selection in this way one gets a change over time and stories both from male and female perspectives. This will raise the interest of the result of the research questions asked.

While collecting observation fields I observed situations and activities of interest for my study questions. For example, people were using their homes for weaving and spinning. I found some other places, too, like cooperatives, where spinning and weaving were the main activities and I also visited different markets where various artefacts were sold.

Collecting artefacts was an ongoing process through the whole of my study. It increased when my knowledge about the phenomenon studied grew. The more I learnt about my subject the more relevant artefacts I could recognise and collect.

6.5 Ethics

In qualitative research ethical dilemmas are likely to emerge both when considering the collection of data and in the researcher-participant relationship (Merriam, 1998). There are four requirements (Vetenskapsrådet, 1990) that a researcher has to be aware of:

1. The information requirement: The participants should be informed about their partaking in the project and what it will be used for.
2. The consent requirement: The participants in the survey have the right to determine their involvement.
3. The confidentiality requirement: Details about people in the survey should be given confidentiality and personal data should be stored in such a way that no-one is able to take advantage of it.
4. The “use” requirement: Data collected on individuals must only be used for research purposes. Due to these four requirements all people involved were informed about their rights as participants, their rights to determine their degree of involvement, that their names were not to be published and that all data would be used only for research purposes. In addition, photographs used in the study are inserted in a manner that no person may be identified.

When doing a cross-culture research one has to be aware of the multitude of cultural factors that affect the researcher and the participants. The researcher needs time to establish familiarity with the new culture and learn some of the many factors needed to collect successful data (Nielsen & Kvale, 1999). As shown in the study Ethiopian children and young teenagers are working with weaving and spinning. Child labor is of course nothing I support or want to encourage by my study.

6.6 Validity and Reliability

Assessing the validity and reliability of a qualitative study involves examining its component parts. That is, to pay attention to the study’s conceptualization and the way the data were collected, analyzed and interpreted (Merriam, 1998). If the validity is good the study measures what it attempts to measure. The reliability deals with how trustworthy the study is and measures the method’s accuracy (Kullberg 2004). By using triangulation, multiple methods of data collections and analysis, the validity and reliability are strengthened (Merriam, 1998).

According to Johansson (2005) it is hard to measure reliability and quality in narrative analysis. Riessman (1993) argues that validation of narrative analysis is not to seek for an absolute truth. Rather the trustworthiness is the key. In narrative analysis validation is the process through which we make claim for the trustworthiness of our interpretation. There are criteria for the validity of narrative analysis which I have used as far as possible in the study. Below I will summarize the criteria according to Johansson (2005) and Riessman (1993) and give a comment on how the study is validated by these criteria:

**Persuasiveness.** Is the interpretation reasonable and possible? The reading of the study should be convincing. To help the reader to assess the evidence and its interpretation evidence should be supported with theoretical claims and alternative interpretation. Furthermore many quotations will help the research’s persuasiveness. To achieve persuasiveness I have tried to make the interpretation convincing. Many quotations are included in the “metastory” and photos are inserted to help the reader to get a wider understanding. Some alternative interpretations are also discussed in the analysis.

**Correspondence.** A way to assure credibility is to let the respondents read the interpretations and get their view on the interpretation. But on the same time it is questionable if the respondents can affirm the validity of an investigator’s interpretation so in the end the researcher has the responsibility of the interpretations presented. The respondents in the study do not know English
and their access to e-mail is very limited, just to mention some problems. Therefore it has not been possible to share my interpretations with them.

*Perceptivity* is about the originality and ingenuity of the stories and its analysis. Does the reader get a greater insight by reading the study report? It is my wish to have accomplished this, but I leave that to the reader to assess.

*Coherence* is about how the different parts of the interpretation create a complete and meaningful understanding without contradictions and ambiguities. By describing the method, sharing the "metastory", analysing and discussing the material I try to present my findings in a logical and coherent way.

### 6.7 Processing the Data

In narrative analysis, knowledge and human action are seen as socially situated (Johansson, 2005). This is also the case when actions are seen from a socio-cultural perspective (Säljö, 2000). Therefore these models can be used together successfully. The observation notes, interview transcripts and the field diary will accordingly be analysed from a narrative approach. The physical documents, photos and film shots will be used to strengthen the analysis of the written material.

To process the data I use Riessman’s five levels of representation: Attending, telling, transcribing, analysing and reading experience. My working process is as follows: 1. I am in Ethiopia, attending the field, and I adopt different stimuli; visiting places where people are weaving, making observations, taking photographs and shooting short film sequences. 2. Level two, the telling experience; interviews are made, as well as the observation notes and field diary. 3. At this level the transcribing is made. I listen to the recordings and write down the whole interview word-by-word. 4. At level four the analysis is made and presented. I start with reading the written material several times having my first question in mind: “How do the Dorze understand their learning process in weaving?” My sub questions 1 a-c: “What, how and why they learn”, the artefacts and the interrelationship between agent and mediational means will be in focus while reading. When the material has been categorized properly, the result will be written down in a “metastory” where I retell the stories and introduce the results of the study. 5. This level takes place when my study is finished and someone reads and interprets in his or her way.

To summarize: The study follows Riessman’s five levels of representation and the result is presented in a “metastory”. The “metastory” gives answers to my main question 1: “How do the Dorze understand their own learning process in weaving?” based on my analysis of the sub-questions 1 a-c, the artefacts and the interrelationship between agent and mediational means. The physical documents, the photos and the film shots will be taken into account in order to strengthen the analysis.

Main question number 2: “What conclusions concerning education for sustainable development applied on textile handicraft can be drawn from the findings of my case study?” will
be answered by analysing the findings from the recommendations UNESCO provides for ESD. I have transformed these recommendations (found under point 3.4) into questions that can serve as an analysing tool. The questions are:

1. Is the education interdisciplinary and holistic?
2. What values and ideals are expressed in the practice?
3. Does the education involve critical thinking and problem solving?
4. Are different pedagogies used which model the learning processes?
5. Are learners participating in decisions on how they are to learn?
6. Is the education applied in such a way that the learning experiences offered are integrated in day-to-day personal and professional life?
7. How is the education locally relevant? Is the education addressing local as well as global issues?

The UNESCO recommendations, that are the basis for my questions above, are designed for an institutional environment. As a result some questions may be more relevant for my study than others. However, I believe it is interesting for me to use these recommendations, not only because they are internationally widely used, but because I will in the future teach in an institutional environment. So by answering these questions, based on my findings, conclusions concerning ESD applied on textile handicraft can be drawn and this gives the answer to question 2.

7. Results

The results consist of findings based on 24 interviews with three different generations of people, both men and women. 13 of the interviews are about one hour long and 11 are about 20 minutes long. There are 6 observations made and a field diary has been written during my 10 weeks stay in Ethiopia. About 1500 photographs have been taken and 3 hours of film have been shot. The physical documents collected are: A weaving loom, raw cotton with and without seeds, spun cotton by hand and from fabric, two types of spindles, woven fabric such as bulliku, gabi and netella, maps over Ethiopia, Addis Ababa and the Gamu-Gofa region.

The over-all results are presented as a “metastory” where quotes and pictures are included. In order to answer my first main question: “How do the Dorze people understand their own learning process in weaving?” I have structured my presentation in the metastory as follows:

7.1 The context in which the weaving is learnt and products produced.
7.2 The learning content: Results drawn from question 1a) What are they learning? These findings are categorized under five themes: Material, Quality, Weaving technique, Patterns and Lifecycle.
7.3 The learning procedure: Results drawn from question 1b) How are they learning?
7.4 Reasons for learning: Results drawn from question 1c) Why are they learning?
Together these points from 7.1 to 7.4 provide the basis for answering my first main question: “How do the Dorze people understand their own learning process in weaving?”

My second main question is: “What conclusions concerning education for sustainable development applied on textile handicraft can be drawn from the findings of my case study?”

The answers to my second question are inferred from the analytical process of question one below and presented under title number 8.2 as part of the final analysis.

**Metastory**

### 7.1 The context in which the weaving is learnt and products produced

“Selmanne (weaver) this is what I am. How come you have that thing in your hand?” A man, who is passing by looks at my weaving-loom, laughs and speaks to me in Amharic. I am standing and waiting outside the airport of the city of Arba Minch approximately 500 kilometres south of Addis Ababa. I have just been in two villages called Chencha and Dorze for four days. The man tells me that he used to weave and has learnt it at “Shiro Meda” in Addis Ababa as a young boy. I have come to understand that this is the practice. People from the Gamu-Gofa highland send one of their boys to a relative in Addis Ababa, where they learn the skills of weaving.

Coming to “Shiro Meda”, the weaving district in Addis Ababa, is quite an experience. The houses, made of mud and with tin roofs, are built closely together. In almost every house men are weaving. Outside, women are sitting spinning and twisting the net’elas (shaws). If you come early in the morning, especially in the beginning of the week, you are very likely to see men warping outside their houses. Eight wooden sticks are placed into the ground, four on each side, and the warp is strung between the sticks. On the main road there are hundreds of shops selling net’elas, gabis and other weaving items. Every person I meet knows about weaving, spinning and twisting. The “Shiro Meda” neighbourhood is breathing with weaving production.

![The photos are from "Shiro Meda"; houses and shops.](image-url)
I enter one of the houses. Outside the house the warping sticks are placed in the ground. This is the sign that weaving is going on inside the house. There are six looms in the room, which is 12 square meters in dimension. The white warps are crossing one-another and create a contrast to the mud floor and walls. It is a beautiful scene! No one is talking in the room, the weavers are fully concentrated on weaving patterns. I am amazed by the skill the weavers show when using such simple looms. Especially impressing is the complex weaving patterns they are able to produce. There are thousands of weavers living in this area of Addis Ababa called “Shiro Meda”. No one knows the exact figure. I realise that I am at the geographical centre of Ethiopian weaving!

7.2 The learning content

7.2.1 Material

“The raw material is very important”. Solomon 18 years old explains to me. He says that the quality always depends on the material (Interview 4). The main material is cotton, either produced in Ethiopia or imported. Many of the women I am interviewing say that the cotton from Ethiopia
is the best one. Selam has recently moved back to Chencha in Gamu-Gofa, after more than 30 years of living at “Shiro Meda”. I am visiting her house and her daughter is making a coffee ceremony for me. Selam has been spinning her whole life, both for selling and for providing her husband with material. When I ask her about the spinning, she fetches some cotton and a spindle so she can show me and explains:

The quality depends on the cotton and the spinning. Some people are making it too quickly when they spin. They spin and collect. You have to make the thread strong by rolling it, and it has to be the same size, otherwise it will be a space in the gabi (blanket) when you weave with it. /…/ The local cotton is the best one, it is very white. If the seeds are small the harvest is too early. Therefore the seeds should be big. /…/ There should not be any rain during harvest, and the cotton must be protected by a shelter. Another thing that is important is that you let the cotton rest for a day after you have cleaned it, otherwise it is hard to spin it. (Interview 14)

During the coffee ceremony I also talk to Selam’s daughter. She also knows the spinning, “much better than her” she says laughing and pointing at her mom. As we talk she asks me if I have any children? A daughter, I tell her and she replies to me “I wish you a son next time”. I can’t help to ask why and it turns out that a daughter has no right to inherit. Or actually she has a legally right to do so, but still the tradition is so strong that it will not happen, Selam’s daughter tells me (Interview 14).

Back in Addis Ababa I now understand how the process of spinning is constructed but I have not tried to spin myself yet. Hirut, an old woman living at “Shiro Meda”, teaches me how: “First you have to clean the cotton from the seeds”, she says and rubs the cotton with her fingers until the seed is ready to be picked out (Interview 18). It takes time, but the cotton that is cleaned by hand is much easier to spin. When Hirut has cleaned some cotton she puts it in the spindle and rolls it. It looks so easy for her. The cotton is transformed into a strong thread, which has the same size. When I try myself to roll it, the cotton fibres first break and on my second try the thread becomes very thick. Hirut is looking carefully at me, “tjigger yellem” she says, which means “no problem”. She takes the thread and fixes it for me. “You have to spin it more while you draw the cotton”, she tells me (ibid).
7.2.2 Quality

“Weaving with air” that is how Markus explains what bad quality is in weaving (Interview 2). “If you feel it and look at it you can see if it is good quality”, he continues. “The fabric should be dense and smooth” (ibid). To show me Markus’ grandson is taking me to the market so we can look at different qualities. A good sign of quality for a thick gabi is that if you pour water on it the water will not seep through (Interview 2 and 3). Merrikat, another man, is known for weaving gabis of very high quality. When I am visiting his house the second time I order a gabi from him. The gabi is perfectly made; the pattern is without a flaw. I have never seen such a dense and smooth gabi.

7.2.3 Weaving techniques

The loom has two treadles; suitable for “tabby” weaving, which is the main part of the Dorze fabrics. In order to use the “tabby” technique in weaving two treadles are needed. The “tabby” is the simplest weaving technique; the weft is going over and under every other warp thread. The photo to the right shows tabby weaving.

The woven fabrics have colourful patterns on the edges, which is the most difficult part to weave (Interview 3). These patterns are “picked” by counting the thread. When a single pattern row is “picked”, the weaver saves it by putting in another smaller stick that can be used further down on the warp (Observations notes 3).

The photos show a weaver counting threads and a loom where many sticks are used to “save” the pattern.

The warp threads are counted in hundreds. Michael explains it to me: “You know, we count in hundreds: 700 or 800. When we say 500 hundreds, it means 1000 threads. 500 is the standard for the net’ela today, but before it was 600 both for net’ela and gabi.” I understand that there has been a change in quality. Before the net’elas were much bigger and both wider and longer (Interview 12).

I visit Workene who learnt weaving when he was 11 years old. He has stopped weaving by now because he thought it was too hard physically. Instead he sells the weavers’ products and he
is planning to open a shop in the future (Interview 8). Workene lives at home with his parents. Their house is further up on the Entotto Mountain, a seven minutes drive by taxi. About 80 weavers are working for Workene. Not all of them are working in Workene’s house, but quite a number are.

During my visit here I get to see the whole process of weaving and I am able to practise all the steps myself. The hardest thing for me is to prepare the warp, to kedge. I have to stretch the warp threads and at the same time walk on the irregular ground because the kedge is done outside. The thin warp threads easily break, which of course is a problem. (Observation notes 4). The heddling is when the warp threads are passed through the heddle loop. This I know from weaving in Sweden and it is done the same way. The tabby weaving is also using the same procedure but since the threads are thin, they may easily break. When I try to weave I sit with my legs down in a hole, there is not much space and it is not suitable for my long legs. After a few minutes I feel pain in my back. When I tell the other weavers about this, they start laughing at me (ibid).

7.2.4 Patterns

There are many patterns, both traditional and modern. The patterns have special names and the oldest pattern is called “broancha”. The modern patterns can picture anything. The weavers have no limitations in what they are able to weave (Interview 2). Thomas tells me that you nowadays must know many patterns to be competitive (Interview 3). For that reason he is going to the market and the shops at “Shiro Meda” every third month to look for new patterns (ibid). Concerning the patterns Michael tells me that before there were basic designs, traditional ones that the weavers made. The weaver had the knowledge to weave any pattern but they stuck to the patterns they knew (Interview 12). He also tells me that before the wide patterns were four fingers wide and the smaller patterns were two fingers. Today there is no such measuring (ibid). Another difference is that before a dress had four pieces of fabrics, but today the dress can be made from only two or three (ibid).

7.2.5 Lifecycle

The weaving at “Shiro Meda” is organised in a weekly cycle. The weavers are preparing the weave and start weaving on Tuesday. On Saturday, when the weave is finished they clean their
workshops. On Sundays and Mondays the weavers are free (Interview 10). “The weavers sell their things on Sunday mornings so they get money for the “sambat misa” (holy lunch). On Sunday every weaver is happy, because he has some money”, Michael tells me, but remembers as we talk that it didn’t include the children. The only time he was free as a child was when he was in school (Interview 12). Michael continues explaining that Sunday, referring to this freedom, is called “timirtebet” (school) because you will go out and have fun, eat and drink. Monday is called “senio Mariam”, that is: Every Monday is St Mary’s day, and then the weavers are free, too. So they have a special meaning when saying: “It is Monday”. I ask about what they do on a Monday? “It is the same thing, but usually they try to reconcile those who have been fighting on Sunday”, Michael replies laughing (ibid).

When the woven fabric is produced the weaver has three options: To sell it to a salesman, to sell it himself at the market or to sell it to a shop. I made an observation at the market in the village of Chencha in Gamu-Gofa where weavers sold their net’elas to the salesman. It was an interesting experience. First I was just standing and observing what was going on. A crowd of people, about hundred men, were standing closely together. Some of them had plastic bags in their hands; those were the weavers. Others were walking around, looking; those were the salesmen. One salesman nods to a weaver, and the weaver gives him his woven fabric. The salesman looks at the fabric very closely. If he likes it, he flings the fabric over his shoulder and pays for it. If he does not like it he gives it back. It was interesting to see how the salesmen were in charge of the whole business. I also wanted to buy a net’ela, so I entered into the crowd of people. But no one showed me anything. So I started to nod to the weavers, and then they showed me their net’elas. After about 10 minutes of testing I bought a net’ela for 150 birr (birr is the Ethiopian currency). I was happy and so was the weaver. This made me suspect that he was very well paid by me (Observation notes 6).

7.3 The learning procedure

“- Whiii...” Tigist is looking at me laughing when I ask her if she has been to school. “The way I learnt the numbers was by looking at the buses”, she tells me (Interview 19). She has been very eager to let her children go to school. That is why she is upset that her girls now are spinning.
“You know if they do this they will not care about their education”, she tells me (ibid). That is a recurrent answer from all the middle aged people and the elderly people I have been speaking to. If the young people weave or spin they will not care for their own education. Because of that Elias refuses to teach his son how to weave, even though his son wants to learn. “But will you teach him later then?” I ask him. “No, nowadays the work has no profit”, is his reply. He wants his son to care for his own education. I can see sorrow in his eyes. Elias is struggling to get enough money to survive and he is upset by the system. He tells me that what makes him upset is that he can sell fabric for a dress for 160 birr to a salesman, who in turn sells it for 1600 birr! And he continues saying that he will only get 150 birr for this fabric, pointing at the fabric in the loom. 100 birr is for the material, so there is only 50 birr left for him (Interview 9).

I ask how the women learn the spinning and twisting. “It is practise; you learn by doing”, is the answer I get (Interview 21). Some think that just to spinning is easier and some find twisting easier. This becomes clear to me one afternoon when I am having coffee in a house at “Shiro Meda”. We are 11 women in different ages gathered, sitting together enjoying the fresh coffee. Some are spinning and some are twisting net’elas. They all agree that both the spinning and the twisting are easier to learn when you are young, because then your fingers are “quicker”, they say (Interview 19).

I ask if Elias remembers how he felt when he was learning how to weave. “I was not happy because I could not go to school on Fridays. I had to finish weaving on Saturdays, so I stayed at home”, he tells me (Interview 9). Elias was 10 years old when he learnt weaving. First he was watching and helping out with the winding. After that he started weaving. This meant that he sat on his father’s left side and was weaving every other weft thread. When he learnt the pattern Elias was given a short stick to use. His father, however, used a long stick. Then Elias started from the left, counting threads and moving the stick towards the middle. His father, and teacher, was doing the same from the right side and could easily see if Elias made some mistakes (Interview 9). Elias’ story is not unique: Out of 13 weavers that I have been interviewing, 12 of them tell me the same story. They sat on their teachers left side, having a short stick in their hand. Number 13 of my interviewees did not have a teacher at all. He learnt the technique himself just by watching (Interview 6). Abinet tells me, while talking about his learning experience, that his teacher was good because he never beat him. “That is why I learnt quickly”, he contends (Interview 12).

Every one of my interviewees has learnt how to weave in Addis Ababa, at “Shiro Meda”. The weavers I talked to in the villages of Chencha and Dorze in Gamu-Gofa had also learnt how to weave in Addis Ababa. Later on they moved back to the county side. You are young when you learn, just 7 – 12 years old and you work very hard without salary. “My teacher used the money for himself, but sometimes he brought me clothes and sent some money to my parents at times
of celebration”, one interviewee tells me (Interview 3). When you get older you can rent a place yourself in a house and earn your own money, however.

### 7.4 Reasons for learning

Coming to Addis Ababa as a child to learn weaving is often a decision parents make for their sons. A reason why children are sent to learn weaving is that children easily adopt, so it is good to learn when you are young (Interview 10). Another reason why children learn weaving is because they learn to generate an income. “We did not get enough with income, so I had to weave”, a person tells me (Interview 8). During my stay I tried to figure out why women are not weaving. “It will be difficult for them when they become pregnant” is one answer (Interview 3). But I was not too satisfied with that answer and continued asking: Women are not pregnant their whole life, are they? I asked. Later on I was visiting a spinning cooperative and many of the women had their youngest child with them. Then I realised that maybe it was not such a bad explanation after all. Seeing the children together with their mothers I realised that they are expected to take care of all their children and also of their household. It is only when they have some spare time that they can spin. “It is not a burden for me to work (spinning). I will work when I have time, after I cleaned the house for example”, Tigist tells me. I ask her about the profit and she says that many women have stopped spinning because the cotton is so expensive nowadays. They are therefore concentrating on the twisting. She also tells me that she will get 3 birr for of a spun coil and if the cotton is cleaned she can spin five coils in one day (Interview 20). The women in the spinning cooperative tell me it is good for them being a member of the cooperative because they tend to work more as the other members encourage them to spin. Another good reason is that they have common savings (Interview 15).

The young men I talk to want to do something else rather than weaving. When I ask about their future I get the following answers: “I am studying to be a teacher in biology, when I graduate I want to work with that. But if it is not profitable I want to do this (weaving)” (Interview 10). “It is very hard work, so I don’t like it, but I don’t have a choice. If I will have another choice I will change” (Interview 11). “I want to become a doctor” (Interview 5). “My future plan is to be an engineer” (Interview 6). The elderly men I interviewed seem to be very satisfied with their life: “I would not have chosen another job, I was free on Sundays and Mondays and I had very good meat on Sundays”, one man tells me (Interview 2). Abinet is telling me of a negative thing in being a weaver, but also talks about the joy of by being together with people from his home area:
The difficult part is that you don’t have a pension as a weaver, this is why I wanted my children to go to school. I didn’t know any other job so I was happy with weaving. You know we celebrated, the “Meskel-feast and also another celebration where people who come from the same small area had a special kind of celebration (interview 12).

Abinet tells me about this celebration where 52 men and their families came together for a week to eat and celebrate. They saved three birr every week for two years for this celebration. During the week they made some special clothes (not by weaving), which they wore during their celebration (Interview 12). None of Abinet’s sons are weaving today. They all learnt weaving as children but today they are not working with it anymore. It is quite common that weavers seek other income sources. Weaving is not profitable today. One explanation is that the Ethiopian currency has decreased a lot the last years, so the economic situation in the country is very difficult. To be able to survive some of the weavers move to places where the house rents are relatively cheap or even settle in the countryside where it is even cheaper to live. “The last 10 years there has been a great move of weavers, about 30 – 40 % of the village “Shiro Meda” has moved”, I am told (Interview 12).

8. Analysis

Under subchapter 8.1 I summarize of the results of my findings concerning my first main question: “How do the Dorze understand their learning process in weaving?” In doing this I use a socio-cultural perspective. That is, how the world is interpreted with assistance of artefacts and the interrelationship between agent and mediational means. (cf., p.9f. above)

Under title number 8.2 below, I present the answers to my second main question: “What conclusions concerning education for sustainable development applied on textile handicraft can be drawn from the findings of my case study?” I do that by using the recommendations provided by UNESCO for Education for Sustainable Development as a test applied to my findings. This will help me to draw relevant conclusions regarding my paper’s title: “Dorze Weaving in Ethiopia a Model of Education for Sustainable Development?”

8.1 The Dorze’s understanding of their learning process in weaving

The results show how the Dorze understand “What you learn” depends on the learning environment, because knowledge is not formed in a separate process that exists somehow in social isolation. That the “Shiro Meda” environment is breathing textile production has therefore a great impact on the learning processes. That is, weaving, spinning and twisting are taken for granted; it is an option to generate an income. The weaving artefacts are found everywhere; looms in almost every house, outside the warping sticks are into the ground and thousands of ready-to-sell woven items fill the main street and its shops. The knowledge how to weave, spin and twist are known theoretically by everyone at “Shiro Meda” even though it is far from everyone that master the skills in practise. It is also clear from the result that the learning process is in
Addis Ababa, at “Shiro Meda”. Every weaver I talked to both in Gamo-Gofa and in Addis had learnt the skills of weaving at “Shiro Meda”. A bit surprising I would say, but this maybe explains the importance of “Shiro Meda” as the centre for the weaving market. It is also here weavers look for new patterns. It has become the “fashion-centre” of weaving in Ethiopia you can say.

What individuals gain from one social practice and are able to use in another is an explanation of learning from a socio-cultural perspective. That the Dorze learn the weaving, spinning and twisting skills are of course obvious, but the results show more than that. By working with textile production they know from experience what good quality is, since it is harder to work with poor quality. Other things they learn is to concentrate, being creative and solve problems while weaving the patterns. A sleight of hand is needed otherwise the warp threads may break. The sleight of hand is an argument for letting children learn how to weave and spin. They “easily adopt” and “their fingers are quick”, as they say. When preparing the warp and when weaving patterns the weaver counts and calculates, which is another skill that they master. As the weaver becomes self-sufficient he needs to know about profitability and how to be competitive.

The results also show the interrelationships within the “weaving environment”. I would describe it as a hierarchy where the children are at the bottom. They generate an extra income and are not always free on Sundays and Mondays. The weaver is at the next level and then the salesman. If you want to make a career as a weaver you can become a salesman, or even better, have your own shop because the shop owner is at the top of the hierarchical scale. Workene is an example of a person who has made this journey; he started to weave as a child because his family needed more money to survive. Today he has stopped weaving and is working as a salesman. His future plan is to have his own shop.

Another interrelationship is within the family. Weaving is men’s work, whereas spinning and twisting are done by the women. These gender roles are fixed and it is something you will learn when growing up in this environment. A woman is taking care of the household and the children and her task is to spin or twist, whenever she has time to do so. The family is often an “extended” family where relatives and people from the same area in the South live closely together as neighbours.

How you learn is a matter of “learning by doing”. It is clear from the interviewee’s stories that if you want to learn spinning and twisting you start by practising. In order to learn how to weave you start by watching and helping out with preparing the weft thread. Your teacher is sitting next to you, as you learn the weaving. This is a good example of the socio-cultural model, where knowledge is transferred in the socio-physical interaction between people. The learning process here is different from a typical institutional learning scene, where education tends to involve learning through instruction and reading, and by internalising abstract information (UNESCO, 2009). Seen from a socio-cultural perspective: What does it mean that your teacher is sitting next to you? Are you more “equal” then? Or is it an opposite experience? Will you be more nervous and afraid to make mistakes? I would argue that the crucial thing is the relationship between the
boy and his teacher. As Abinet told me, he learnt quickly because his teacher never beat him. The underlying meaning is that their relationship was good and therefore he became motivated and learnt fast. The social practice of learning how to weave is thus positively influenced by good relations between the agent (teacher), his apprentice (boy) and how the mediational means (artefacts, i.e. weaving objects and skills) are handled (cf., p.9, above).

The purpose, why they learn, can be answered in several ways. A reason why children learn is because they easily adopt and learn quickly. They also generate an extra income to their families. The younger weavers I talked to wanted to do something else if they got a chance. The elderly men are generally satisfied with their lives as weavers, except that they do not have a pension. Some of the middle aged women and men would rather not see their children working with spinning and weaving. The reason is that they will not have time to care for their own education. The underlying statement is that weaving is not lucrative, it is better to get another education.

To summarize the answer to my first main question: “How does the Dorze understand their learning process in weaving” I will put it as follows: The learning process depends on the environment with its people, who have gathered knowledge of raw material and techniques for generations but the latter also needs to develop to meet new challenges. By this transition of knowledge the agents of learning interact in the learning process of weaving. The weavers’ week has got a structure of interrelationships, which creates a kind of weavers’ microcosm, a “world” they seek to enjoy. The relations in this “world”, which reinforce the weavers’ concepts of reality and understanding of their environment have a clear hierarchical structure: From shop owner, salesman, weaver and down to the children. The gender positions are also fixed and emphasize the established logic of a patriarchal family. That is, men weave; women are responsible for the household, and spin and twist in their spare time. The educational model of spinning is “learning by doing”, whereas young boys start practising weaving under the leadership of an older teacher step by step. By this gender positions are reinforced. The “world of Dorze weaving” can thus be interpreted as a microcosm where artefacts mediate a characteristic reality which becomes meaningful in the “Shiro Meda” context. To grow up in “Shiro Meda” means that it becomes natural to work with textile production, and to accept a special lifestyle with clear gender differences.

8.2 Conclusions concerning education for sustainable development applied on textile handicraft drawn from the findings of my case study

Under subchapter 3.4 (p.8f. above, cf. also p.4 above) the concept of ESD is described. Recommendations of what components the teaching and learning for sustainable development should include are presented there. These recommendations have been transformed into questions in a framework of analysis to determine ESD applicability on textile handicraft institutional textile education. I will present the answers to these questions one by one and present my conclusions below.
1. **Is the education interdisciplinary and holistic?** The education in “Shiro Meda” does not contain different subjects as in institutional education, so the question of interdisciplinarity is irrelevant for this context. But one can conclude that the different parts of the education are not divided, but practised in one and the same practise. The various components of teaching can thus be said to be integrated.

Is the Dorze education holistic? The result shows that the Dorze understand the textile production process: The interviewees have a good knowledge of the raw material, what good quality is and the process of producing textile products. It is not only the professionals who have this knowledge, but the people living at “Shiro Meda” seem to have it even though they do not have the skills in practice. Thus, they possess a high level of knowledge concerning textile production. My experience of people’s knowledge concerning textile in Sweden is exactly the opposite! No one knows about textile materials or its production in general. For that reason it has been very interesting to experience this Ethiopian environment where such great knowledge of textile exists.

Following the definition of ESD in this study, the social, economical and ecological dimensions are part of a holistic view. I will therefore highlight the interdependent dimensions in the weaving practise of “Shiro Meda”: Seen from a social perspective the weaving environment works to a high degree as a network with **social dimensions**. The whole family is often involved in the textile production. The women spin and the men weave. In a way they have created their own “weaving microcosm” with a weekly cycle and obvious gender patterns, which of course are reinforced by the overall patriarchal context of Ethiopia. People from the same area in Gamo-Gofa also cooperate in Addis Ababa and meet in joint celebrations. An example of this is Abinet who comes together with 51 other weavers every other year for a big celebration. I would argue that the textile production at “Shiro Meda” brings a cultural continuity as they produce the special traditional Ethiopian clothes: *Kemis, net’ela* and *gabi*. The way to develop as a weaver is by starting to sell woven items and to open your own shop. Health is another social aspect. The weaver works hard physically, and often in an uncomfortable working position but I never heard anyone complain about that. When I complained, after having been weaving for just some minutes, the weavers just laughed at me. Another social dilemma that unites especially young people is to try to change career to a more lucrative one. This is of course a challenge and a threat to the whole weaving production in Ethiopia.

As just mentioned, many of the weavers bear witness to how their **economic** situation is not sustainable and therefore wish to do something else which is more profitable. Another economic matter is the Dorze’s weekly cycle, were money are spent on Sundays and Mondays. Money is not saved for the future and as a result of this the weavers have no pension. But, as already mentioned, the results above show that if you are involved in a weavers’ association, savings may occur. For instance the spinning women’s association saved money weekly and so did Abinet for “the special every second year celebration”.

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Concerning the **ecological** dimension it is inevitable not to mention the raw material production. But as the study focuses on the learning aspects of weaving, spinning and twisting, this issue has not been sufficiently investigated in my study. I therefore limit myself from giving any answers as to how the cotton is produced and how the coloured threads have been dyed.

2. **What values and ideals are expressed in the practice?** In the weaving environment there are several actors involved: Children who are learning the handicraft, men that weave, women that spin, salesmen and shop owners who sell the woven items. A conflicting need and interest in the weaving environment is: Who earns the money? The young boys, who are learning, do not get an income. The spinning women are very poorly paid, and according to my result shown above, it seems as if the weavers are too. Many weavers express that their craft is not profitable. The salesmen and shop owners also want to earn as much money as possible. It seems as if there is not enough money for everyone. A consequence of this is that the craftsmen convey a negative message to their children by telling how unprofitable weaving and spinning are. For example, Elias refused to teach his son because of that and Tigist was not satisfied that her daughter was spinning. The result also shows that the young boys and men say that they want to do something else in the future. Another possible interpretation from a socio-cultural perspective is that their answers must be seen as a situated social practice. Weaving and spinning do not give a high income and therefore the practices are disparaged in society. Therefore one should not think that weaving is something of value. As a result these young boys and men tell me that their future plans are to do something else. Another value I saw among the Dorze is their belief in their children’s capacity. “Children easily adopt” they told me and to see these young Dorze boys weaving the most amazing patterns proves, without a doubt, that Ethiopian children are capable of learning advanced handicraft. (I am of course not saying that child-labour is something positive, but to believe in and encourage children’s capacity is very positive).

The values and ideals concerning gender and family structure illustrate a society and practice with traditional gender roles. The men are weaving and are probably more highly valuated than the women, who fulfil the simpler tasks of spinning and twisting.

3. **Does the education involve critical thinking and problem solving?** Education that involves critical thinking generates confidence in dealing with dilemmas and challenges and it is therefore important. Within a practical education, as the Dorze weaving, problem solving is often a natural part as different problems occur. For example learning new patterns is a creative process where problem solving is a part of that process. The patterns are constantly changing so the weavers need to be updated. The weavers also have to learn how their work can be profitable which I would suggest involves problem solving. At a higher level, however, creative thinking of how to make the weaving business more lucrative has so far not been taking place as far as I can understand. The system and environment, surrounding the Dorze weaving, seem to be very regulated and fixed.
4. Are different teaching methods used which model the processes? UNESCO suggests that different methods should be used, for example: Word, art, drama, debate and experience. As mentioned before, these suggestions are constructed for institutional learning procedures and therefore the use of drama in the Dorze education seems a bit out of context. The teaching methods used in the Dorze education is “learning by doing”. The students learn from their own experiences. The spinning and twisting are learnt by practising and so is the weaving, but under the leadership of an older teacher. The practical teaching must be tailor-made for each student because the students make different mistakes and learn in different ways. Therefore the teaching must be individualized. Having this in mind I would say that different teaching methods are used, but not by way of using “word, art, drama and debate”.

5. Are learners participating in decisions on how they are to learn? Regarding the learning process the results show that 12 out of 13 weavers have learnt the weaving skills in the same way, as apprentices. Due to this, one may assume that the students have not been involved in the teaching agenda. It seems as if the teaching follows traditional lines, which can be formulated as “this is the way we teach” (cf. no.3, p.26 above). On the other hand, and as mentioned earlier, the students are all individuals and therefore make different mistakes so the teaching must be individualized. So indirectly the students are participating even if they may not be encouraged to do so. Again we can say that the relation between teacher and learner is crucial and there may of course be variations to my findings above.

6. Is the education applied in such a way that the learning experiences offered are integrated in day-to-day personal and professional life? The education is not only applicable in daily life: It is totally integrated in daily life, in a kind of holistic weavers’ lifestyle! The Dorze people are identified as weavers; it is part of their ethnical background. Their knowledge has been transferred from one generation to another which provides the Dorze with a special historical legacy. There is an obvious interaction between the learning and teaching generations among the Dorze. From a long-term perspective it is questionable how sustainable the work is due to the lack of making money. The weekly cycle (cf. above, p. 19f.) and the lack of a system for savings in the “weaving microcosm” are perhaps to apart from the surrounding society to be classified as sustainable? As mentioned earlier, however, their associations sometimes do have saving recommendations, which would probably make the weaving more sustainable.

7. How is the education locally relevant? Is the education addressing local as well as global issues? The learning is locally relevant since the Dorze weave items that are asked for in the society and that provide working opportunities. Furthermore, the production has shown itself to be dynamic and adaptable to change. An example of that is how the weaving products have changed. For example, today a dress can be made from two or three fabric pieces, due to new dress designs and patterns. And the width can be much wider than four fingers wide, which is new thing.
Based on the above, I will now summarize the answer to my second question: **What conclusions concerning education for sustainable development applied on textile handicap can be drawn from the findings of my case study?**

One conclusion drawn from the answers given above is that the Dorze education is holistic in the sense that the education provides knowledge of the entire chain of the textile production. The different parts of the production and learning process are integrated and not divided into smaller parts, but kept together in one practice as a most natural thing and even as a “lifestyle”. This is a strength which means that the knowledge of textile production among people at “Shiro Meda” is generally high. Therefore, one can clearly identify that the weaving environment has an impact on the surroundings, which is a criteria for ESD (see above, p.8).

When looking at social dimensions, which partly define ESD, the Dorze education provides a social network as the whole family often is involved in the production. There is also an intense interaction between different generations in the teaching and learning process, which can be seen as an asset.

Concerning the economical dimension, however, it is questionable how sustainable the Dorze weaving model is since it is not regarded as profitable for future according to the weavers. Besides that, they do not have any pension. As we have seen above, conclusions regarding values are that the textile production is not highly valued and as a result the younger generation says that they want to work with something else.

The education is practical, individualized, and contains some problem solving even if the students are not participating in decisions on how they learn. The education is highly integrated in the daily life of the weaving community and is also relevant to the surrounding local community. Moreover the education transfers a historical legacy of cultural continuity, and has shown itself to be dynamic and adaptable to change.

So to answer my second question briefly the **answer** is: Yes, there are conclusions drawn from my study of Dorze weaving that points to that the environment I have investigated could serve as a local model for Education for Sustainable Development. There are, however, also problems in this environment which need to be solved from an ESD point of view. I will mention two examples: The low profit made by the weavers and the patriarchal system with fixed gender roles. Such problems need to be addressed for the sake of sustainability when facing an unknown future.

I will finally discuss the relevance of my findings for a Swedish learning context.

**9. Final Discussion**

As we have seen above, the Dorze education is holistic in the sense that the education provides knowledge of the entire chain in the textile production. Having this in mind, it becomes relevant to ask how to teach in a way that includes the different parts of textile production so Swedish students acquire a more holistic view in learning textile production. How to do this is maybe not
as simple as it perhaps seems. The Dorze gather their knowledge by living in “Shiro Meda”, an environment breathing of textile production and where artefacts connected to weaving are common. What is common in learning the spinning, twisting and weaving is that a student sees the process first and then he or she “learns it by doing”. The student does not hear about it first, or has it explained theoretically, which is often the case in institutionalized education. To gain such a holistic understanding of textile production is positive from an ESD perspective since it highlights their interconnection between the social life, work life and economy. In my study I have shown that the surrounding environment and its artefacts are important factors in reaching such a holistic type of knowledge. To reinforce a more holistic learning situation in the Swedish textile learning context I would recommend study trips in different environments in Scandinavia and perhaps even field studies to more far away countries, where integrated learning is taken for granted. Films and photos and artefacts from such environments, like the ones collected in my study, can also contribute to a wider understanding of textile production.

What is also interesting in “Shiro Meda” is how the weaving environment has an impact on its surroundings. The people living there have a rich knowledge of textile production. In Sweden the textile production is very far off from ordinary people. I contend that this is a major reason why people in general do not have sufficient knowledge of material, quality and textile production. The more visible the chain of production is - the more concrete the holistic understanding will become. “Shiro Meda” can be defined as a centre for learning. For years people have sent their children to that area in order to learn weaving. My question is: Is it possible to create such a “centre for learning textile” in Sweden? Can we use knowledge from other countries and create an environment where “the whole process” in producing textile can be shown and can we do it in school? It sounds like a dream but if it would be ecologically sustainable it would have a great attraction on people dedicated to textile handicraft.

What is clear though is that textile production must evolve with the demands of times in order to be sustainable. What the weaving environment of “Shiro Meda” on one hand teaches us is that proximity and visibility increase knowledge but on the other that future demands must be met.

As the result shows the weavers bear witness of how their economic situation is not economically sustainable and therefore they wish to do something else which is more profitable. When I met these weavers I was wondering why they did not sell their products for more money? For me there was no doubt that the weavers’ products were worth much more than what they asked for. I know that this solution sounds simple but what would happen if they did sell them to a higher price? Would they want their children to learn the handicraft then? And would that change the boys’ and young men’s future plans? Who is going to increase the value of the handicraft if not they themselves? What I am trying to say here is that our values have an impact on how we think and behave, and on our self-esteem. As a teacher, my own values and self-esteem for my job will characterize my way of teaching. Another example is the Dorze’s belief in children’s capacity in learning advanced handicraft. Maybe it is not easy to discover your own
values but in the ESD philosophy of teaching and learning, values should be made explicit so they can be examined, debated, tested and applied.

The learning experiences of the Dorze are integrated in a day-to-day personal and professional life and this gives them an identity as weavers. Being a weaver is part of their life. As a weaver they will produce items that are asked for in the society. To have an identity as a craftsman, to create products that others need and want to pay for are of significant immaterial intrinsic value and will generate self-confidence. As a teacher this is something I want to convey to my students: A positive identity connected to the handicraft they enjoy practising. This includes acknowledging that their education is locally relevant. This may be accomplished through producing things that others need and want to pay for. According to my understanding a positive identity and local relevance are things needed in Education for Sustainable Development as a process towards sustainability.

By this paper: “Dorze Weaving in Ethiopia – a Model of Education for Sustainable Development” I have characterised some parts of the Dorze Weaving environment as being in line with the ESD way of understanding good learning. It can be looked upon as a Traditional Knowledge System. As such I have also challenged some of the parts of this traditional and fixed setting which need to be developed in line with the demands of an evolving society. By this I hope that I have brought some new knowledge for further discussions on how to improve the learning of weaving and textile handicraft in general. The Dorze learning process and the “Shiro Meda”environment have brought new insights to me and I have a longing that such old and relevant handicraft would prosper and be fairly evaluated in a global perspective.

The photos above show a woman walking at the main road at “Shiro Meda” wearing a net’ela, a young boy weaving and myself dressed the Ethiopian way.
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