Subject Meets Subject in ESD

Helen Hasslöf, Margareta Ekborg

helen.hasslof@mah.se

Malmö University, School of Teacher Education, Sweden

Introduction

*This is a study about teachers' possibilities to reveal interdisciplinary perspectives in **Education for Sustainable Development** (ESD) due to interchanges with colleagues across the subject boarders.*

➢A key challenge for ESD in Europe is the lack of competences in education to address the interdisciplinary and holistic nature of ESD (UNESCO, march 2010).

➢From being a concern mainly within the sciences subject, environmental education is now expected to be of mutual interest for most subjects across the curriculum borders (Schnack, 2000).

➢Though collaboration is considered a powerful professional learning environment for teachers, little empirical research has been done into how teachers learn in collaborative settings (Borko, 2004).

Methods

The aim of this study is to reveal in what way interdisciplinary exchange by teachers could be fruitful for getting a more holistic view and reveal the economic, ecologic and social dimensions of sustainable development. The study focuses especially on how the ecological dimension develops.

Research questions

➢How do different aspects of sustainable development emerge in an interdisciplinary discussion between subject teachers?

➢Which speech genres could be identified in different dimensions of sustainable development?

➢How does the ecological perspective evolve in the discussion?

The starting point of this study is an interdisciplinary seminar between 7 teachers from secondary school, discussing sustainable development at an in-service course. The teachers represent: natural science, social studies, language, mathematics and home economics.

The analysis is searching for different speech genres in the different dimensions, and how different aspects and holistic views, emerge.

Transcripts from the discussion were analysed in a qualitative content analysis based on utterances. Bakhtins (1986) framework is used to analyse the conversation. Univocal authoritative utterances is seen as mainly convey information, while the dialogic make it possible to generate new meaning, where the utterance can function as "thinking devices" (Wertsch, 1991).

Results

Preliminary results show that all the three dimensions are discussed (economic, ecological and social). The most discussed dimension is the social, especially with an ethical entrance. The economic dimension is discussed and argued from different points of view. The less discussed dimension is the ecological, which is treated mostly as fact based knowledge. Different speech genres dominate within the different dimensions:

➢**Social dimensions** The discussion is characterized by *intersubjectivity* between the interlocutors. The conversation has a character of consensus of shared values of a "good world" including democracy, justice and equality. Responsibility is a keyword.

➢**Economical dimensions** The discussion is mainly *dialogic* with different voices representing different opinions. Different standpoints are argued, and the discussion retain with opposite opinions.

➢**Ecological dimensions** This is the less discussed dimension and has a relatively narrow content, mostly treated as fact based knowledge with an anthropocentric character. *Univocal and authoritative* utterances are dominating. These fact based authoritative utterances tends to show a "privilege speech" within the ecological dimension, but is more questioned in other contexts. Biology diversity, sustaining ecosystems and nature conservation are almost absent aspects.

Speech genre (*Bakhtin*)	Utterance (e.g.)
➢Social dimension intersubjectivity / dialogic	*Isabell*: … developing countries must have the opportunity to develop their welfare and industries, then they may not have to be that dependent regarding climate change … to survive I mean *All together*: yeh, yeh *Ingrid*: Yes, they are the most exposed ones... *Isabell*: Yes *Ingrid*: They are the ones to be hit, it strikes back on them…
➢Economic dimension dialogic, open	*Ingrid*: Multinational companies in Asia and Africa, what good are they doing for the economy? Who will take the consequences for their acting, both the economical and the social, environmental? *Nils*: …we are starting to talk about tariff walls, trade barriers.. I believe in a free market and capitalism, others believe that we will invent us through this in different ways. They believe in the new religion; Science.
➢Ecological dimension univocal, authoritative	*Nils*: Already, the temperature has increased to the level that incredible amounts of greenhouse gases are let out from the Arctic tundra and there is absolutely nothing we can do about it.

Meanwhile there is a dialogic discussion, across the dimensions as e g: different lifestyles and intercultural reflections. The discussion also shows critical thinking and reveals different conflicts of interests.

Conclusions

Discussions concerning the ecological dimension shows problems to open up for competences like critical thinking, to reveal different valued viewpoints, and to open up for a more dialogic speech genre. This goes in line with results from studies about interdisciplinary collaboration between teachers in school, as by Levinson & Turner (2002, p 2.):

"The majority of science teachers consider it their role to present the 'facts' of their subject and not deal with associated social or ethical issues."

Could this be interpreted as an affect of the speech genre of science? How is the ecological perspective emerging in a mutual planning process for ESD between teachers representing social and natural sciences (with different speech genres)? This is the direction of my further studies.

The dialogic genre enables to reach new perspectives and meanings (Bakhtin, 1986). To convey meaning in ESD with holistic views and integrated dimensions it seems important to start from dialogic open questions that goes across subject boarders even within the separate subjects. This may be emphasized by collaboration and discussions with colleagues from different subjects.

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