ABSTRACT: SUBJECT MEETS SUBJECT
The aim of this study is to investigate the significance of interdisciplinary meetings between teachers for the interdisciplinary interpretation of ESD. This study takes its point of departure at a literature seminar between seven teachers at an in-service course of ESD at Malmö University. What different aspects are emphasized and how do the teachers use each other’s knowledge as resources? What do different teachers consider as important aspects of the discussion? The preliminary results show that the social aspects and questions with ethic and moral based entrances are dominating the discussion. The ecological perspectives are mostly treated as fact-based knowledge.

Keywords: ESD, interdisciplinary, collaboration, ESD-content, science education

INTRODUCTION
Environmental education has been a topic for biology teachers in Sweden, as well as in many other countries, since the 1970th. In order to meet the goals in policy and school documents about ESD, environmental education is supposed to broaden the view and embrace different aspects and competences. ESD seeks to integrate ecological, social and economic perspectives into environmental education. Studies emphasizes the necessity of the teacher’s own ability to possess “holistic views”, “complex thinking” and “pluralistic attitude”, since these are important pieces of the pedagogical content knowledge (PCK) for ESD. To meet these claims teachers need a broad understanding of ESD.

Studies show that collaborative reflection can provide greater clarity to issues than can be individually perceived (Rearick & Feldman’s, 1999). Learning in collaborative settings is particularly enhanced when people with different ideas, conceptions, and opinions interact. In collaboration, existing knowledge extend and new knowledge can be created (Putnam & Borko, 2000). However, interdisciplinary teaching is not free from problems. Several studies show the difficulties of interdisciplinary teaching in school. On the other hand when teaching for sustainable development in mono disciplinary subjects there is difficulties for the teachers from natural science to include aspects like values in science, and critical attitudes. Similarly teachers from the social science have problems to discuss environmental questions with the demand of natural science knowledge. Studies about lectures’ beliefs and attitudes from higher education shows that teachers often place ESD equal to ecological sustainability (Summers & Childs, 2007). This indicates a lack of understanding how the ecological, economic and social aspects are intertwined in ESD. Though collaboration is considered a powerful professional development environment for teachers, little empirical research has been done into how teachers learn in collaborative settings.

METHODS
The study takes its point of departure at a literature seminar at an in-service course where teachers reflect on sustainable development together in an interdisciplinary setting. Due to Wertsch (1991) learning and meaning making are defined as processes taking place in social contexts, with the language as a main artefact. Learning is mediated through communication between individuals. In this study teachers reflect together in a social context with possibilities to use knowledge form each other. This is in line with the view of learning and development as a transition from a social context into
individual understanding in social situations. While the conversation continues the communication makes sense for the participants. This study use a sociocultural perspective which means one ought to start investigating the ways in which people think by looking at how they talk and communicate.

Research questions
- What different aspects are emphasized by teachers in an interdisciplinary discussion about sustainable development, and how? Which role has the ecological perspective?
- How do the teachers use each other’s knowledge as resources?
- What do different teachers consider as important aspects of the discussion?

The seminar group that was subject for this study consisted of seven teachers that normally work in public schools in Malmö with pupils age 13-15. The teachers represent different subjects: natural science, social science, language, mathematics and home economics. The literature seminar was videorecorded and audio recorded, semi-structured interviews were used after the discussion. The transcripts from the seminar and the interviews are now the subject of analysis and the results will extend during this spring. A form of content analysis is used which play attention to what different dimensions of ESD that emerge and if there is a tendency to pick them up and treat them as intertwined. Bakhtines (1986) framework is used to analyse the conversation. The transcripts from the interviews will also be analysed in a qualitative content analysis.

RESULTS
Initial analyses reveal that the social aspects and questions with ethic and moral based entrances are dominating the discussion. The ecological perspectives are mostly treated as fact-based knowledge. This implies that the ecological questions is not as dominating as supposed in environmental discussions, on the other hand it seems like the lack of value oriented aspects in the natural sciences seems to be confirmed in those preliminary analyses. The teachers pick up each other’s words and statements, to use for their own argumentation. Further analyses of those data are currently underway. The findings will be discussed in relation to the signification and goals of achieving an interdisciplinary approach of ESD.

CONCLUSIONS
For the international research field this study hopefully can give a complementary piece of understanding to the ESD research field, by illustrating the outcome of interchanges between teachers in relation to integration of the three dimensions of ecology, economy and social questions. Since the research about teachers’ learning is not investigated to a great extent, this study could be a complement. The result/findings of this study might reveal a view of the importance of how teachers can develop a more complex understanding of ESD through reflection in a social interdisciplinary context. To be revised and continued when the results and the analysis expand during this spring…

REFERENCES