ABSTRACT

Title: Content and interaction
The process of how students learn natural science
Language: Swedish with a summary in English.
Keywords: Content, interaction, learning, science education, science experiment, chemical reaction, context, phenomenography, socio-cultural.
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This research describes the learning process of six students during science lessons. The learning process is directed to the content of chemical reactions as the phenomena. Every case and sequence from the education includes an experimental situation, a problem to solve and means for the students to communicate their efforts.

The aim of the study is to describe the learning process of these students and to understand this learning when directed to a science phenomena related to science education. Two of the students´ were in seventh grade and four in eighth grade. The teaching and learning sequences were observed and recorded on videotape. After the lesson both the student and the teacher were interviewed. Between two and six weeks later the videotape was showed to the student and teacher and a second interview was made.

Phenomenography and socio-cultural learning perspectives were used as analytical tools to understand the students´ learning. A qualitative methodology approach was used to analyze the data. This focused on the students and teachers treatment of content and their interaction.

The conclusions drawn from the results are that learning science in an experimental situation can be seen in two perspectives. First, it can be seen as a process whereby students come to appreciate how the content is constituted. This is an open and dynamic process, where the content in the dialogues with the students were created and treated in a specific and general dimension and in a concrete and abstract dimension. This treatment of content became visible in the richness of interaction. In this interaction students and teachers focused upon microprocesses as actions, communication, the use of pictures, tables and metaphors. Secondly, learning science can be seen as a process, that focuses on the procedures, performing the experiment and handling the content on a concrete level.