RECENT DISSERTATIONS

BERIT KURTÈN-FINNÄS, 2008:

"It was interesting when you had to think so much."

Open investigations and Vee-heuristics within education in chemistry.

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Abstract

The thesis describes the implementation of open investigations and a modified version of Gowin's Vee in a chemistry course. The study was carried out in the first chemistry course for grade 7 students in a Finnish comprehensive school having Swedish as the language of instruction. The open investigations were all context-based and the students could relate them to their own lives. The Vee-heuristics were used by the students in their laboratory groups during planning, while carrying out their investigations, and as a form of report from their laboratory work.

The focus of the study was on affective variables of students' learning, such as self-concept, beliefs, attitudes and interest, and on students' beliefs about their own learning. Design-based research was used as research methodology. The implementation of the open investigations and Vee-heuristics was studied from different points of view. The students as individuals, the students in their laboratory groups and the discussion in the groups, and the teacher were in focus.

For many of the students the open investigations were characterised by thinking. The planning in the small groups seemed to be important with regard to the students' understanding. Several examples from the discussions in different groups indicate interactive processes and efforts to reach some kind of intersubjectivity. The students could develop their own understanding in the dialogue with other members of the group and with the teacher. A majority of students found the Vee-heuristics helpful for their understanding of the investigations.

The open investigations combined with Vee-heuristics seemed to have a positive influence on the attitudes and interest of many of the students. Most of the small groups were very focused on the task during the open investigations. The students' "ownership" of the investigations appears to have been important for their interest. The opportunity to help others in the group in their understanding seemed to have affected the self-concept positively for some of the students.

The results from the study show that the use of open investigations in order for the students to discover connections between chemistry on micro and macro level can be problematic. For the teacher it is important to be aware of group-related problems. Especially for students with a weak self-concept, open investigations can be a threat and they might prefer laboratory work where the teacher provides clear instructions on what to do.

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