RECENT DISSERTATIONS

CHRISTEL PERSSON, 2008:

Symphony of the spheres in change? Learning in environment for sustainable development in primary school with a scientific and longitudinal approach.

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Abstract

This research deals with learning in science, including learning in environment for sustainable development. These are obligatory perspectives in science as well as in other school subjects. The study, concerning 28 pupils nine years of age, started in a city in southern Sweden, in 2003. In order to analyse the pupils' development of concepts in science and in environment for sustainable development, I have videotaped sequences from the pupils' science lessons and followed up with questionnaires and questions in interviews. Stimulated recall is used to find the teacher's intentions and reactions on the outcome of the lessons. The results are analysed according to the Earth System Science (ESS) model. It is a model, which describes the relations and interactions between the natural spheres: atmosphere, hydrosphere, lithosphere as well as biosphere, including man, and technosphere/anthroposphere.

The concepts found among the pupils in this study are *the hydrological cycle; life; soil; water in every day life; pollution; non-polluting busses* as well as *waste; collecting batteries; corrosion; greenhouse and the increasing greenhouse effect*. Some concepts e.g. *the hydrological cycle, life and soil* can from the beginning be classified as concepts used in science, but also to describe what happens in the environment. Concepts as *pollution; non-polluting busses; collecting batteries; corrosion; greenhouse and increasing greenhouse effect* are used by the pupils to express relations and interactions in and between the natural spheres including man. The relation between man and nature is for the pupils an area of conflicts through the entire study when the pupils from a scientific approach will be aware of the impact on living ecosystems including themselves, today and in the future. The longitudinal approach resulted in important findings regarding the changes in the pupils' answers over time. The concepts are often connected to each other in a more or less complicated network, 'concepts webs'. My obtained results indicate that the Socratic dialogue is a possible and successful method to use for the development of pupils' concepts in environmental questions and issues.

Another finding in the study, which ended in 2006, is how different methods, e.g. *Play and learning*, support environmental learning and learning for sustainable development during the science lessons. Play is important in integrated learning and gives opportunity to understand others' perspectives, *Theory of mind*. The results indicate an integrated learning process by the pupils, implying in what way they express human impact on nature.

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