A research project: Teaching and learning kinetics and chemical equilibrium with the help of computer-aided modelling activities

This work is based on a project that aims to promote the use of computer-aided modelling for chemical concept acquisition or investigation work in chemistry at the school level. The report discusses a study of students learning kinetics and equilibrium in chemistry in a planned teaching period. The main goal of the study was to investigate the ways in which the use of computer-based modelling activities can foster students learning. By focusing on students' cognitive and collaborative activities, the study highlights students' knowledge construction in modelling. Also the students' understandings of the chemistry concepts dealt with the modelling tasks are considered.

The research data consist of the pre- and post-test results and the students' actual works on the screen. The results show that the students' works reflect rather well the conceptual understanding. The coherent understanding of the chemistry concepts in modelling tasks indicates a good result in the post-test. It was also found that collectively produced models can lead to discussion on the profound meaning of concept.

The reliability and validity of the study still, however, need to be further developed in order to make any general claims of the effectiveness of the used teaching mode.