

WEB-BASED LEARNING ENVIRONMENTS IN CHEMISTRY EDUCATION.

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International publications (PISA, Eurobarometer)¹ show that, for most young people, the motivation to pursue studies in sciences is rather low. Considering an increasing recognition of the importance and economic utility of scientific knowledge in an industrialized society, the general lack of interest in science and the resulting reduction in the numbers of young people choosing to pursue the study of science has become a matter of considerable social concern and debate². It is therefore crucial to look for alternative teaching methods to motivate pupils to study sciences and to pursue a career in science and technology.

An important reason for the lack of interest in sciences is that this field is very often experienced as dull and difficult. New learning methods, using a contextual and inquiry-based approach to make science fit-in with the pupil's environment, appear to be effective in improving the student's motivation. For chemistry, some countries have already implemented this approach in their curriculum³⁻⁵. When ICT-technologies are integrated in such an approach, powerful computer-supported learning environments can be created. One of these environments is the Web-based Inquiry Science Environment (WISE) which has already proven to lead to effective learning gain in secondary science education^{6,7}. However, the implementation of these innovative learning environments is still lacking in higher education and insights regarding the effects to learn chemistry is limited. In this regard, this study investigated the implementation and impact of WISE⁶ as a computer-supported collaborative learning (CSCL) environment in the chemistry curriculum of first-year bachelor students. Two different subjects were taught to two groups of students, the experimental group used the WISE environment, the control group dealt with the subject in a traditional classroom setting. Effects were measured based on a pretest-posttest design and the outcomes were analyzed as a function of prior knowledge, motivation and learning style.

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