

## Abstract

In my dissertation, I dealt with the problem of education of gifted pupils in chemistry. I particularly focused at a detailed search in this scientific field, problems identification and suggesting as well as realisation of possible solutions. All the particular aims specified in the introduction were gradually accomplished.

A survey among high school chemistry teachers (in the form of questionnaires) showed that there neither is a sufficient attention paid to the gifted pupils education in the Czech Republic, nor the prospective teachers are systematically prepared for this role. There are also consequent problems with gifted pupils curriculum differentiation, which most teachers consider to be more suitable for the gifted pupils education than a (lepší asi their?) segregation and separate education. Teachers lack a sufficient amount of enough information about curriculum differentiation (individual approach) and educational software, suitable and available for the education of gifted pupils.

On the basis of this survey, research results and my own experience in this field, I designed and created a hypermedia teaching aid as a XHTML program. The main theme was "Halogen chemistry", because of its universal relevance. The main purpose of this program was to facilitate differentiation of curriculum for pupils interested in chemistry (gifted pupils) at school or during a self-study. I tested the created program "Halogen chemistry" in several grammar schools of different parts of the Czech Republic. I was particularly interested in the influence of the program upon pupils interested in chemistry (in comparison with the other pupils) as well as in the feedback from pupils and teachers.

It was statistically proven that the program "Halogen chemistry" had a bigger influence on the effectivity of the education process in pupils interested in chemistry than in the other pupils. On the other hand, the ability of the program to induce a pupils effort to search for additional information was not proven to be higher in the group of pupils interested in chemistry than in the others. It was confirmed that teachers have a very strong influence on the formation and developing of pupils interest in chemistry. In general, the program was very well evaluated by all the groups involved in the research (pupils interested in chemistry, other pupils, teachers). The best evaluation was given by teachers, but their research sample was not representative.

I also used two topics of the program "Halogen chemistry" ("Freons", "Halogen bulb") in an e-learning course, designated for gifted pupils as a part of the project Talnet. These topics were better assessed by the pupils compared to the other topics. I assume this was thanks to the closer connection with everyday life that resulted in greater interestingness of these topics.

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