

Abstract

The main target of the thesis is to find the impact of using inquiry-based science education (IBSE) on pupils' inner motivation and the level of knowledge gained for ISCED 2. To reach that, two consecutive research surveys have been held.

In the first part the reaction of pupils to including an IBSE task into a regular lesson has been observed. The impact on their inner motivation has been studied. The correlation between various factors (e.g. type of school, sex) and their changes in inner motivation on observed scales has been evaluated.

In the second part, the existence of statistically significant difference between experimental and control group relating the motivation of pupils to do ordinary laboratory tasks has been questioned. That was studied also after implementation of IBSE. The level of knowledge of all the pupils was examined in a similar way.

Implementation of IBSE itself was evaluated by an observation of pupils while performing the implemented task as well as by standardized questionnaire Intrinsic Motivation Inventory (IMI) (McAuley et al., 1989; Ryan, 1982). Acquired data have been processed by specialised software IBM SPSS Statistics 25 (IBM Corp., 2017), choosing suitable statistical methods.

The results have shown that implementing IBSE tasks in chemistry education decreases the pupils' interest, puts girls under bigger pressure and lowers their willingness to participate in the educational process in comparison with conventional teaching practice. On the other hand, introducing IBSE into biology lessons had a positive effect on the feeling of pressure (students felt more relaxed). Regarding the level of knowledge gained, introduction of IBSE (compared to traditional laboratory teaching) has been found to help students with strengthening their knowledge in the long-time horizon.

Key words: Inquirybased science education, Internal motivation of pupils, IMI questionnaire, Chemistry teaching, Science teaching