

ABSTRACT

This thesis is focused on analysing chemical experiments and their potential to help increase science literacy among vocational school students. Currently, greater emphasis is placed on the development of scientific and critical thinking at higher cognitive levels and science literacy. These skills and abilities can be achieved through tuition based on experimental scientific activities. For this reason, the main goal of this thesis was to review the quantity and method of processing of individual experiments in terms of quality and compliance with the given requirements. Experiments in the field of organic chemistry were taken from available vocational school literature and were analysed and evaluated. These sources were the following textbooks: *Chemie pro střední školy*, *Chemie pro studijní obory SOŠ a SOU nechemického zaměření* and the web page *Studium chemie* and the *video database* of chemistry experiments. Each experiment was evaluated whether it met the analysed criteria of transparency, connection with practical life, problem solving and material, technical, time and economic simplicity. Furthermore, the experiments were evaluated in terms of usability during various stages of tuition with regard to the development of students through different levels of inquiry. The last and main evaluation element was the level of cognitive processes and knowledge according to Bloom's revised taxonomy. The results showed that the experiments presented in the analysed sources are focused primarily on confirmatory levels of inquiry. The experiments include results and conclusions that the students verify through experiments. Most of these experiments need modification, which could increase the potential of the experiments to develop better science literacy. In this respect, this thesis is a warning showing that many experiments need to be rethought. The analysis proved that the most beneficial textbooks in terms of developing science literacy were: *Chemie pro studijní obory SOŠ a SOU nechemického zaměření* and the *video database* of chemistry experiments. Despite that, these sources also included experiments that did not meet certain criteria and would need to be modified.

KEY WORDS

chemistry, experiment, vocational school, science literacy, inquiry, cognitive processes