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**Autoreferát disertační práce
Summary of the Ph.D. Thesis**



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Dovednosti žáků v chemii v období kurikulární reformy

Skills of Chemistry Pupils during the Period of Curricular Reform

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SUMMARY

The dissertation deals with the issue of skills of lower secondary school pupils.

First, the system of recommended general (universal) and specific (special) skills of the pupils was suggested that the pupils should acquire in the course of Chemistry at the level of lower secondary school education.

This system was tested and subsequently adjusted according to survey results of a questionnaire survey among a total of 121 teachers of Chemistry at all school levels (upper level of elementary school, eight years grammar school, four years grammar school, university). Consequently pupils (7th, 8th and 9th grades of elementary school and the 1st, 2nd and 4th year of the eight years grammar school) expressed their opinions on the importance of selected special Chemistry skills.

It was found in an extensive survey among 957 pupils, inter alia, that pupils as the most important and simultaneously the worst-mastered input skills considered the skills necessary for safe performing of chemical experiments. The least important skills in terms of their future study of Chemistry the pupils stated skills associated with the relationship of man to nature and sustainable development.

In the second part of the thesis, a didactic test was used to verify whether pupils have mastered selected general (universal) and specific (special) skills. By means of testing of 431 pupils (9th year of elementary school and 4th year of the eight years grammar school) associated with a questionnaire survey it was found, inter alia:

- the test task focused on finding information in the text was solved better by elementary school pupils than by grammar school pupils, surprisingly. While elementary school pupils did really work with the text, many grammar school pupils wrote universally valid information instead; but this information was not included in the text of the task;
- the relationship between the real success of pupils in solving test tasks and their own rating of the difficulty of the tasks was quite free; the pupils of 4th year of eight years grammar school had significantly better estimate ($R^2 = 0.36$) than pupils of 9th grade of lower secondary school ($R^2 = 0.28$);
- agreement between the pupils' answers to the question of frequency of practicing individual skills compared with answers of teachers to the same question was good; also prevailed greater consensus in the case of the 4th year of the eight years grammar school ($R^2 = 0.38$) than 9th grade of elementary school ($R^2 = 0.33$);
- creating graphs from data presented in the text perceived pupils as more often practiced than their teachers stated. The reason might be that the pupils (unlike chemistry teachers) included also practicing of this complex skills within other teaching subjects (for instance mathematics), not only Chemistry.

Keywords: lower secondary school education, teaching Chemistry, competence, general and specific skills, questionnaire survey, didactic test