THE INFLUENCE OF METHODICS USED IN SCHOOL LESSONS ON THE LEVEL OF PUPIL´S LOGIC THINKING

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Abstract

It is observed that the age of 10–12 years which is critical in terms of both dimensional structures and of logical considerations also influences the ability of abstraction which correlates with a pupil's ability to work with the basic logical operators. It is this assumption that leads to the question what logical reasoning in terms of understanding logical connections and general and existential quantifier are pupils of primary school capable of and what impact different approaches or methods in teaching have on this ability. It is necessary to describe the target group in terms of cognitive, verbal and also neurological development in relation to cognitive functions and logical thinking. Also discussed were the issues of the possibility of defining and measuring the logical thinking level, of the effect of gender on the level of logical thinking or of influence of its level on a pupil's assessment in mathematics.

The testing was carried out on 420 respondents attending the fourth and fifth year of primary schools in the Czech Republic. About half of these respondents attend schools that use conventional methods and about half attend schools with other methods.

It is interesting that pupils taught, for example, according to methodologies based on the principles of constructivism reached a higher score in the test focusing on the level of logical thinking than pupils that are taught according to conventional values. However, the survey of statistical significance showed that this difference is not statistically significant. In contrast, the influence of ability to understand basic logical connections on school assessment seems to be significant. The issue of gender influence or other intervening variables on a pupil's ability to work with the basic logical operators is further discussed in the article.

Keywords: abstraction, logical thinking, logical connections

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