

TITLE: The possibilities of working memory training and the influence on cognitive functions

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ABSTRACT:

The topic of the PhD thesis was to explore the possibilities of the cognitive development using the training of the basal functions. The analysis of literature showed that (1) working memory (WM) is considered to be the function, which is frequently associated with higher cognitive processes and (2) core training can improve the WM capacity and this improvement seems to be transferred to other types of memory. The transfer to higher cognitive functions (intelligence) was not confirmed unanimously. Training programs were evaluated usually in different groups of individuals but none of these studies considered the possibility of WM training in context of the socio-cultural handicap, even if low SES children achieve poorer performance in cognitive tests including tests of WM.

Therefore the aim of this study was to verify the possibilities of WM training on cognitive development with special interest in low SES children. We designed a 400-minutes WM training PC program, which was applied on two groups of children with different SES (low SES – Roma children, middle/high SES – Czech children).

The results showed that both groups improved significantly their performance in memory tasks (including non-trained tasks), however only the low SES children improved their performance in intelligence test.

We concluded that WM training has benefit effects not only in middle/high but also in low SES children, respectively. In addition, the benefits in the low SES group was higher than in the middle/high SES children. This fact can be explained by the concept of the zone of the proximal development. We suppose the higher benefits reached in the case of Roma children were due to higher level of unrealized potential in the zone of the proximal development.

KEY WORDS:

working memory training, socio-cultural handicap, Roma children, development of higher cognitive processes, zone of the proximal development