

## **Abstract**

The theme of this diploma thesis is the possibilities of working memory training. From the analysis of nowadays literature we found out that the field of stimulus material (which is contained in training programs) has not been researched much.

The aim of this work is to find out whether there is a connection between the type of stimulus material (within the abstraction and modality level), performance and memory strategies. For this purpose we selected the N-Back Campaign training program. And provide it with visual and verbal tasks in a different kind of abstraction level. These tasks were conducted by fifty respondents. After that, several semi-structured interviews were conducted, which helped us to understand the processes associated with N-back tasks.

For the purpose of rigorous work, further research was carried out, which extended the original stimulus material to combined material (parallel presentation of the stimulus in auditory and visual code).

Using statistical analysis, we came to the conclusion that the type of stimulus material is significantly related to the performance in n-back tasks: with increasing rate of abstraction the performance decreases and that visual N-back task achieves with higher scores.

Furthermore, it has been found that there are specific strategies that correspond to a certain degree of stimulus abstraction or modalities (vision, hearing). Therefore, we think that stimulus material in N-back tasks can have a significant effect on the training effect.

## **Key words**

Cognitive functions, N-back tasks, working memory, stimulus material, work memory training.