

The role of metacognition in cognitive processing and executive functions in the problem-solving process: An intervention

ABSTRACT:

The present experimental study examines whether student's training on metacognitive problem-solving strategies improves their awareness in problem-solving, their performance on language and math tasks as well as the efficiency of their executive functions. Students aged from 10 to 12 years participate in the study and they are examined individually, with various language and math tasks differed in their complexity (Demetriou, 2009). The RAVEN test is also used to determine participants' level of intelligence but also tasks, such as the computerized version of the Visual Cued Color-Shape Task (Zelazo, Craik & Booth, 2004) and various Stroop like tasks, addressed to executive functions such as working memory, inhibition and shifting. The study will be completed in three phases. In the first phase, all participants are examined, individually, with the tasks described above. In the second phase, students of the experimental groups (of 4-5 people) are trained in the efficiency of their metacognitive skills based on the thinking aloud method during the processing of language and math tasks. In the third phase, the participants of both the experimental groups and the control group are examined, individually, with the initial tasks. The results are discussed in relation to modern theories of cognitive development. Their implications in education are also discussed.