

**Choosing the best strategy: A study of decision making in participants with high
Mathematical Anxiety (MA)**

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Abstract

People use a variety of strategies to make a decision. A major factor in decision making is stress: it both influences and is influenced by strategy selection. MA, a feeling of tension and anxiety, interferes with the manipulation of numbers and solution of mathematical problems in everyday life and in academic situations. Despite much research on MA, its origins are still under debate. Dominant theories of math anxiety suggest that the phenomenon impairs the ability to solve mathematical problems that demand working memory. However, alternative theories suggest that math anxiety relates to deficiencies in spatial skills, that cause low mathematical performance. In the present talk I will discuss the definition and etiology of math anxiety. In addition, I will describe the investigation of strategy selection processes of high and low math anxious individuals. I first tested the effect of spatiality and found that high math anxiety individuals perform worse than their peers in mathematical problems, regardless of spatiality. Across groups, participants showed higher anxiety related to non-spatial problems compared to spatial ones, demonstrating that spatial representation reduces anxiety rather than being the origin of math anxiety. Then, we compared two groups of college students with high or low MA, in the solution of simple non-carry addition problems (e.g., $54 + 63$) and complex carryover addition problems (e.g., $59 + 63$). The results indicated that high MA participants showed particular difficulty in the harder carry condition. Testing the strategy selection mechanism among high MA participants, we found in the carry condition 1) they used the common strategy less often compared to low MA participants and 2) employed unusual strategies more often compared to low MA participants.