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METACOGNITIVE STRATEGIES FOR GEOMETRY: AN EXPLORATORY STUDY

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Most research on metacognition in problem solving focused on the non-topic specific metacognitive strategies. Research such as Throndsen (2011) has shown that different topics would influence students' metacognitive activity and, Thorpe and Satterly (1990) also postulated that metacognitive strategies activated were specific to the problem from which it was derived and he questioned the transfer of such skills. This was also supported by Keleman, Frost and Weaver (2000) who suggested that different questions, even within a topic, might activate different metacognitive strategies and therefore, metacognitive strategies could be problem-specific.

The paper reports an exploratory study that aims to provide such insights to the type of metacognitive strategies students employed while solving problems on a Geometry topic, Angles. The sample comprises 783 Secondary One students (age 13 years old) in Singapore. They completed a problem-solving test comprising 2 mathematics problems on Angles with retrospective self-report of the processes involved in solving each problem.

In this presentation, qualitative data from the retrospective self-reports would be discussed in detail to provide preliminary evidence on the type of metacognitive strategies students employed in solving problems on Angles. The possible contribution by problem difference within the topic on the type of metacognitive strategies activated during problem solving will also be examined. Classification of metacognitive strategies will be based on Pólya's four phases of problems solving, based on and adapted from a few related literature (e.g. Garofalo and Lester, 1985).

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