

## Abstract

The purpose of this research is to investigate the correlation between deaf or hearing-difficulty students in metacognition and mathematical problem solving. Another goal is to achieve more in-depth understanding of how the students solve algebraic word problems.

The first phase of the study is a survey, and the second phase is a case study--thinking aloud are adopted, and there are 10 secondary school students participated in this study. There are seven students from Form 1 and three students from Form 2 in special education school in Macao.

According to the information provided from the school, researcher located the degree of hard of hearing. Based on the language comprehension test, students can be classified into different language competence groups. A "metacognitive scale" is used as the research instruments to measure students' metacognitive competence. "Non-routine mathematical problem test" and "Thinking aloud" are adopted to test the total time they used. Finally, based on the test results, subjects are ranked, and the correlation between metacognition and mathematical problem solving are generated. The results of the research as follows:

1. In the view of target-setting, self-control, self-evaluation, self-correction, hearing disable students in F2 have an obvious difference from students in F1. It reveals that students in different grades have a distinction in target-setting, self-control, self-evaluation, self-correction.
2. On the total time used in problem solving and the checking time in mathematical problem solving, hearing disable students in F2 have an obvious difference from students in F1. It indicates different grade of junior students have a big difference

in mathematical problem solving.

3. For the hearing disable students, there is a positive correlation with metacognition and mathematical problem solving. Therein to, the highest correlation between metacognition and mathematical problem solving is the self-control, self-evaluation, and self-correction.
4. Different degree of hearing disability among students, there is no obvious difference in metacognition.
5. Expect the negative correlation between target-setting and language understanding others as self-control, self-evaluation and self-correction are in positive correlation. Therein to, self-control and self-correction have the most correlation in statistics. At last, researcher bring forward a serious advice to listening problem teaching and the future study by using the results of research and conclusion.

**Key words** : Metacognition , Mathematical Problem Solving ,  
Algebraic problem-solving , deaf or hearing-difficulty