

**UNIVERSITI TEKNOLOGI MARA**

**MATHEMATICS AND SCIENCE TEACHERS'  
SELF-EFFICACY IN TEACHING HIGHER ORDER  
THINKING SKILLS: A CASE STUDY AT BAU  
DISTRICT SECONDARY SCHOOLS, SARAWAK**

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Dissertation submitted in partial fulfilment of the requirements for the degree of  
**Master of Education**  
**(Educational Management and Leadership)**

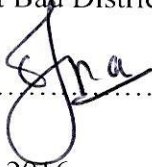
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## AUTHOR' DECLARATION

I declare that the work in this dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This dissertation has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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## **ABSTRACT**

Teachers play an important role in developing students' Higher Order Thinking Skills. In fact it is not inappropriate to say that the teacher factor is the sole factor responsible for the success of teaching thinking in the classroom. Hence, teachers' self-efficacy in teaching higher order thinking skill for mathematics and science is crucial. Teachers with the self-efficacy to employ various teaching approaches in teaching mathematics and science will go a long way to develop student thinking. Thus, this case study sought to investigate the teachers' self-efficacy in teaching higher order thinking skills for Mathematics and Science at Bau District secondary schools, Sarawak. Census was used in this study involved Mathematics and Science teachers. The study utilized survey method. Quantitative data was collected using an instrument adapted from The New Millennium in Mind designed by James Tebb (2000). The findings indicated that teachers possessed a moderate level of self-efficacy based on four factors; Classroom Fit to Think (Factor 1), Teaching Higher Order Thinking Skills (Factor 2), Teaching for Transfer (Factor 3) and Recognizing How Students Think (Factor 4). Inferential statistics conducted using the ANOVA and independent-samples t-test further showed that there are not enough evidence to say that teachers are difference based on teaching experiences and academic qualifications in teaching higher order thinking skills. Besides, results also showed that there is no significant difference between Mathematics and Science teachers in their self-efficacy in teaching Higher Order Thinking Skills. Taking into consideration these findings and aligning them with the initiatives of the National Educational Blueprint, (NEB), and teachers must be provided with sufficient training in teaching using higher order thinking skills. They must also be provided continuous professional development (CPD) so that they can be better informed and motivated to increase their level of self-efficacy in teaching higher order thinking skills. Such a move could see a more effective implementation of HOTS for Mathematics and Science subjects.

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# **CHAPTER ONE**

## **INTRODUCTION**

### **1.0 INTRODUCTION**

One of the many objectives in any education systems is to equip students with the knowledge and skills that are required for achievement in life. Like many systems around the world, the Malaysian education system, focused on the development of a robust content knowledge in subjects such as science, mathematics, and language stated in Malaysian Education Blueprint 2013 -2025. However, as stated in Malaysian Education Blueprint 2013 -2025 it has become evident that it is no longer enough for a student to leave school with the 3 Rs of reading, writing and arithmetic. According to the Malaysian Education Blueprint 2013 -2025, the stress is no longer just on the importance of knowledge, but also on increasing higher order thinking skills (HOTS).

In Malaysia, teaching mathematics has traditionally depended on real recall and focused on the use of consistent algorithms with little effort to teach for higher order thinking. Mathematics and science equip our students with ways of investigating, exploring, and appreciating the world. The opportunities mathematics and science provide to acquire the skills of identifying differences, making comparisons, investigating relationships and establishing connections reflect the importance of the subject across the curriculum during the school years. Undoubtedly, properly taught mathematics and science is vital in everyday life as it encourages logical reasoning and the ability to think in abstract ways. Students must be taught higher order thinking in mathematics and science so that they do not lack the capacity to take the knowledge learned formally and applies it in a different setting.

However the success of any programme to teach HOTS depends on the teachers as implementers of the programme. The teachers play an important role in developing student thinking. In fact it is not inappropriate to say that the teacher factor is the sole factor responsible for the success of teaching thinking in the classroom. Therefore, teacher confidence and self-efficacy in teaching higher order thinking skill