

FACTORS INFLUENCING THE ACHIEVEMENT  
IN MATHEMATICS OF MALAY SECONDARY  
SCHOOL STUDENTS

CHE A. HALIM BIN CHE DAUD

MASTER OF SCIENCE  
UNIVERSITI PUTRA MALAYSIA  
2001



**FACTORS INFLUENCING THE ACHIEVEMENT IN MATHEMATICS  
OF MALAY SECONDARY SCHOOL STUDENTS**

**By**

**CHE A. HALIM BIN CHE DAUD**

**Thesis Submitted in Fulfilment of the Requirements  
for the Degree of Master of Science in the  
Faculty of Management and Economics  
Universiti Putra Malaysia**

**May 2001**

## **DEDICATION**

This work is dedicated to all mathematics teachers  
who have been working hard in helping their students  
succeed in learning mathematics.

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in  
fulfilment of the requirements for the degree of Master of Science.

**FACTORS INFLUENCING THE ACHIEVEMENT IN MATHEMATICS  
OF MALAY SECONDARY SCHOOL STUDENTS**

By

**CHE A. HALIM BIN CHE DAUD**

**MAY 2001**

**Chairman : Associate Professor Mohd Salleh bin Lebar, M. Sc**

**Faculty : Management and Economics (Department of Education)**

The present situation of many secondary school students having difficulty in learning mathematics needs to be thoroughly investigated. Various factors need to be studied in order to determine why these students failed to perform satisfactorily in mathematics. For this research, a group of three hundred secondary school students were studied in order to determine the influence of students' internal characteristics on achievements in mathematics. This research focused on the following seven internal characteristics: Attitudes towards mathematics, mathematics anxiety, motivation to study mathematics, personality and behavioural characteristics, cognitive readiness, learning strategies, and learning styles.

For learning styles, Kolb's Learning Style Inventory (1985) was used. Cognitive readiness test consisted of questions involving abstract reasoning, logical thinking, and numerical computation. For the other variables, the tests consisted of questionnaires using likert scale from one to five. Mathematics achievements were determined by the scores that the students got for mathematics in the Trial SPM Examination, 1999.

The research findings showed that mathematics achievements were significantly and positively correlated with attitudes towards mathematics, motivation to study mathematics, and personality and behavioural characteristics. Mathematics anxiety, on the other hand, had negative influence on achievements in mathematics. The result suggested that efforts must be made to reduce the level of mathematics anxiety in order to raise the students' performance in mathematics.

Mathematics achievements were found to correlate strongly with abstract reasoning, logical thinking, and numerical computational abilities. As for learning strategies, higher achievers were found to be more oriented towards meaningful learning, as opposed to rote memorising. The findings for learning styles indicated that higher achievers were more oriented towards abstract conceptualisation and active experimentation modes of learning. Convergence was found to be the dominant learning style of students who were excellent in mathematics.

In the inter-groups comparison analyses, the findings showed that weak students did not have positive attitudes and strong motivation to succeed in learning mathematics. Their levels of mathematics anxiety were relatively high, and their personality and behavioural characteristics were relatively unfavourable. Weak students also had a relatively lower level of ability in abstract reasoning, logical thinking, and numerical computation. Weak students were more oriented towards rote memorising and concrete experiencing mode of learning.