RELATIONSHIPS BETWEEN ATTITUDES TOWARDS MATHEMATICS AND MATHEMATICAL PROBLEM-SOLVING BEHAVIOUR, AND PROBLEM SOLVING PERFORMANCE AMONG YEAR TEN STUDENTS IN TEHRAN, IRAN

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By

MARYAM KARGAR NAGHAB

Thesis Submitted to the School of Graduate Studies, University Putra Malaysia, in Fulfilment of the Requirements for the Degree of Master of Science

June 2012
Dedicated to my husband *Mahdi* for his immense patience and allegiance while studying specially during the last year and to my son *Hirad* for his love
Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science

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Chairman: Associate Professor Rohani Ahmad Tarmizi, PhD

Institute: Institute for Mathematical Research

A descriptive correlational research design was conducted to investigate the correlation between mathematical problem solving performance and strategy with mathematics attitudes and mathematical problem solving behaviours. The subjects of this study were 150 Mathematics and Physics year 10 students from Tehran city which is capital city of Iran. Among 22 regions of Tehran city, 3 regions were selected randomly by using fishbowl method. Ten high schools from these three regions participated in this study. Three instruments were used in this study namely, the Mathematical Problem Solving Test, Mathematics Attitudes Scale, and Mathematical Problem Solving Behaviours Scale.
The data was analysed by using Pearson correlation to show the correlation among variables. The study shows that there is high positive significant correlation between students’ mathematical problem solving performance and students’ mathematics attitudes. In addition, a high positive significant correlation was found between students’ mathematical problem solving behaviour and mathematical problem solving performance. The results also indicate that there is a high positive significant correlation between students’ mathematics attitudes and students’ mathematical problem solving behaviour with executing the appropriate mathematical problem solving strategies. These findings indicated that problem solving performance is correlated with mathematics attitudes and problem solving behaviour, hence mathematical problem solving ability can be enhanced with nurturing positive attitudes toward mathematics learning and also students’ behaviour in problem solving.
Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

HUBUNGAN ANTARA SIKAP TERHADAP MATEMATIK DAN TINGKAH LAKU MENYELESAIKAN, DAN PRESTASI PENYELESAIAN MASALAH MATEMATIK DALAM KALANGAN PELAJAR TAHUN SEPULUH DI TEHRAN, IRAN

Oleh
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Sebuah reka bentuk kajian korelasi-deskriptif telah dijalankan bagi tujuan menyiasat korelasi antara prestasi dan strategi penyelesaian masalah matematik dengan sikap terhadap matematik dan tingkah laku menyelesaikan masalah matematik kalangan pelajar tahun 10 di Tehran, Iran. Subjek kajian ini terdiri daripada 150 pelajar Matematik dan Fizik tahun 10 dari bandar Tehran yang merupakan ibu negeri Iran. Di antara 22 rantau di Bandar Tehran, 3 rantau telah dipilih secara rawak dengan menggunakan kaedah “fishbowl”. Sepuluh sekolah tinggi daripada tiga rantau ini telah dilibat dalam kajian ini. Di
antara sepuluh sekolah tinggi, 200 orang pelajar telah terlibat dalam kajian ini. Tiga set instrumen kajian alat telah digunakan dalam kajian ini iaitu ujian penyelesaian masalah matematik, sikap terhadap matematik, tingkah laku menyelesaikan masalah matematik.

Data telah dianalisis dengan menggunakan korelasi Pearson untuk menentukan hubungan antara pembolehubah kajian. Dapatan kajian menunjukkan terdapat korelasi positif yang signifikan antara prestasi penyelesaian masalah matematik dengan sikap terhadap matematik serta tingkah laku menyelesaikan masalah matematik. Di samping itu, korelasi positif yang signifikan juga diperoleh di antara sikap terhadap matematik dan tingkah laku menyelesaikan masalah matematik dengan melaksanakan strategi penyelesaian masalah matematik yang sesuai dalam kalangan pelajar. Dapatan kajian ini menunjukkan bahawa prestasi menyelesaikan masalah matematik sangat berkait dengan sikap matematik dan tingkah laku terhadap penyelesaian masalah matematik, dengan itu, prestasi menyelesaikan masalah dapat ditingkatkan dengan menyemai sikap dan tingkah laku positif terhadap matematik dalam kalangan pelajar.
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I would also like to thank Prof. Dr. Aida Suraya Mohd Yunus, Prof. Dr. Wan Zah Wan Ali for their suggestions and comments, and also being in the supervisory committee.

Last but not least, to my families, thank you for the prayers and encouragements given to me all these years and of course not forgetting my husband and son for their love and understanding, and my dear father and mother for their supports and encouragements.
I certify that a thesis Examination Committee has met on February 2012 to conduct the final examination of Maryam Kargar Naghab on her thesis entitled “Relationship Between Mathematics Attitudes and Mathematical Problem Solving Behaviour with Problem Solving Performance among Iranian year ten students” in accordance with the Universities and College Act 1971 and the constitution of the Universiti Putra Malaysia [P.U.(A) 106] !5 march 1998. The committee recommends that the student be awarded the Master of Science.

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DECLARATIONS

I declare that the thesis is my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously, and is not currently, submitted for any other degree at Universiti Putra Malaysia or any other institution.

_______________________
MARYAM KARGAR NAGHAB

Date: 29 June 2012
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>DEDICATIONS</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>ii</td>
</tr>
<tr>
<td>ABSTRAK</td>
<td>iii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>v</td>
</tr>
<tr>
<td>APPROVAL</td>
<td>vi</td>
</tr>
<tr>
<td>DECLARATION</td>
<td>vii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>viii</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>x</td>
</tr>
<tr>
<td>CHAPTER</td>
<td>xv</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>xviii</td>
</tr>
</tbody>
</table>

## CHAPTER 1

### INTRODUCTION
1.1 Background of Study 1
1.2 Mathematics Education in Iran 5
1.3 Factors Related to Mathematical Problem Solving Performance 8
1.4 Problem Statement 12
1.5 Research Objectives 15
1.6 Research Hypothesis 18
1.7 Significant of Study 19
1.8 Limitations 21
1.9 Definition of Terms 22
1.9.1 Problem Solving Performance 22
1.9.2 Problem Solving Strategies 24
1.9.3 Mathematics Attitudes 25
1.9.4 Mathematical Problem Solving Behaviour 26

## CHAPTER 2

### LITERATURE REVIEW
2.1 Introduction 28
2.2 Mathematical Problem Solving Performance 28
2.3 Mathematical Problem Solving Strategies 36
2.3.1 Working Backward 39
2.3.2 Finding Patterns 39
2.3.3 Adopting a Different Point of View 40
2.3.4 Solving a Simpler Analogous Problem 40
2.3.5 Considering extreme cases 41
2.3.6 Making a Drawing (Visual Representation) 42
2.3.7 Intelligent Guessing and Testing 42
2.3.8 Accounting for All Possibilities 43
2.3.9 Organizing Data 43
2.3.10 Logical Reasoning 44
2.4 Mathematics Attitudes 44
2.4.1 Measuring Attitudes Towards Mathematics 51
2.5 Mathematical Problem Solving Behaviour 55
2.5.1 Measuring Problem Solving Behaviour 60
2.5.2 Metacognition 65
2.6 Relationship between Mathematics Attitudes and Mathematics Ability 66
2.7 Theories in Mathematics Education 69
2.7.1 Cognitive Theory 69
2.7.2 Theories in Social Cognition and Thinking Skills 70
2.7.2.1 Mathematics Beliefs 72
2.7.3 Theories of Affect in Mathematics Education 74
2.7.4 Metacognitive Theory 76
2.7.4 Theories of Attitudes in Mathematics Education 77
2.8 Theoretical and Conceptual Framework of the Study 78

3 METHODOLOGY 80
3.1 Introduction 80
3.2 Design of the Study 82
3.3 Variables of the Study 84
3.3.1 Dependent Variables 84
3.3.2 Independent Variables 84
3.4 Population and Sample 85
3.4.1 Population of the Study 86
3.4.2 Location of the Study 86
3.4.3 Sample and Sampling of the Study 87
3.5 Instrumentation 90
3.5.1 Instrument Development 92
3.5.1.1 Mathematical Problem Solving Test 92
3.5.1.2 Mathematics Attitudes Instrument 96
3.5.1.3 Problem Solving Behaviour Instrument 99
3.6 Validation Process of Instruments 102
3.7 Pilot Study 103
3.7.1 Reliability of Instruments 104
3.7.1.1 Reliability of Problem Solving Test 104
3.7.1.2 Reliability of Students’ Mathematics 105
Attitudes and its Sub-constructs

3.7.1.3 Reliability of Students' Mathematical Problem Solving Behaviour and its Sub-constructs

3.8 Procedure of Data Collection

3.7 Data Analysis Method

4 RESULTS AND DISCUSSION

4.1 Introduction

4.2 Assumption of Normality

4.2.1 Mathematical Problem Solving Performance

4.2.2 Mathematical Problem Solving Strategy

4.2.3 Mathematics Attitudes

4.2.4 Mathematical Problem Solving Behaviour

4.3 Description of Demographic Information

4.3.1 Descriptive Analysis of Students’ Mathematical Problem Solving Performance

4.3.2 Descriptive Analysis of Students’ Mathematical Problem Solving Strategies

4.3.3 Descriptive Analysis of Students’ Mathematics Attitudes

4.3.4 Descriptive Analysis of Students’ Mathematical Problem Solving Behaviour

4.3.5 Correlations between Problem Solving Performance and Students’ Mathematics Attitudes

4.3.6 Correlations between Problem Solving Performance and Students’ Problem Solving Behaviour

4.3.7 Correlations between Problem Solving Strategies and Students’ Mathematics Attitudes

4.3.8 Correlations between Problem Solving Strategies and Students’ Problem Solving Behaviour

4.3.9 Correlations between Mathematics Attitudes and Problem Solving Behaviour

5 SUMMARY, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS
5.1 Introduction 161
5.2 Conclusions and Discussions 162
  5.2.1 Major Constructs 163
  5.2.2 Correlations between Predictors and Mathematical Problem Solving 167
5.3 Recommendations for Future Research 170

REFERENCES 173
APPENDICES 192
  Appendix A. Survey questionnaire 192
  Appendix B. Reliability Analysis 199
  Appendix C. Permission of the survey questionnaire 210
  Appendix D. Letter for evaluated the survey questionnaire 213
  Appendix E. Bio-data of experts, those evaluated the survey questionnaire of this study 214
  Appendix F. Translation of survey questionnaire to Persian 215

BIODATA OF STUDENT 222
LIST OF PUBLICATIONS 223