

TABLE OF CONTENTS

COVER

ORIGINALITY STATEMENT OF THE THESIS

THESIS SUPERVISOR'S APPROVAL

THESIS EXAMINATION COMMITTEE

ABSTRAK	v
ABSTRACT	vi
ACKNOWLEDGEMENTS.....	vii
TABLE OF CONTENTS.....	ix
LIST OF TABLES	xii
TABLE OF FIGURES	xiii
TABLE OF APPENDICES	xiv
CHAPTER 1	1
INTRODUCTION	1
1.1 Background of the Study.....	1
1.2 Problem Identifications	5
1.3 Scope and Limitations.....	6
1.4 Research Questions	6
1.5 Research Objectives	7
1.6 Significance of the Study	8
1.6.1 Theoretical Significance.....	8
1.6.2 Practical Significance.....	8
1.7 Thesis Overview.....	9
CHAPTER 2	10
LITERATURE REVIEW.....	10
2.1 Academic Performance (AP)	10
2.1.1 Definitions of Academic Performance (AP).....	10
2.1.2 Significance of Academic Performance (AP).....	11
2.1.3 Indicators of Academic Performance (AP).....	11
2.2 Learning Motivation (LM).....	12
2.2.1 Definitions of Learning Motivation (LM).....	12
2.2.2 Significance of Learning Motivation (LM).....	13

2.2.3	Indicators of Learning Motivation (LM).....	13
2.3	Between-Class Ability Grouping (BAG).....	14
2.3.1	Definitions of Between-Class Ability Grouping (BAG).....	14
2.3.2	Significance of Between-Class Ability Grouping (BAG).....	15
2.3.3	Characteristics of Between-Class Ability Grouping (BAG).....	15
2.4	GeoGebra (GG).....	16
2.4.1	Features of GeoGebra (GG).....	17
2.4.2	Significance of GeoGebra (GG).....	20
2.5	Relevant Studies.....	20
2.6	Theoretical Framework.....	25
2.6.1	The Effects of BAG on AP and LM.....	26
2.6.2	The Relationships between AP and LM	26
2.6.3	The Effect of GG in Moderating BAG's Relationship on AP and LM	27
2.7	Research Model.....	28
2.8	Hypotheses of the Study	29
CHAPTER 3		30
RESEARCH METHODOLOGY		30
3.1	Research Design.....	30
3.2	Time, Place and Subjects of the Study.....	31
3.3	Research Procedure.....	32
3.4	Population and Sampling	33
3.5	Data Collection.....	39
3.6	Research Instruments	39
3.6.1	Academic Performance (AP) Variable.....	41
3.6.2	Learning Motivation (LM) Variable	41
3.6.3	Between-Class Ability Grouping (BAG) Variable	43
3.6.4	GeoGebra (GG) Variable	44
3.6.5	Validity and Reliability Test	45
3.7	Data Analysis	49
3.8	Statistical Hypotheses	50

CHAPTER 4.....	52
RESULTS AND DISCUSSIONS	52
4.1 Results	52
4.1.1 Descriptive Statistics Analysis	52
4.1.2 Inferential Statistics Analysis.....	65
4.1.3 Hypothesis Testing.....	70
4.2 Discussion	81
4.2.1 The Effects of BAG on AP	81
4.2.2 The Effects of BAG on LM	82
4.2.3 The Correlation between AP and LM	83
4.2.4 The Effects of GG in Moderating BAG's Relationships on AP ...	84
4.2.5 The Effects of GG in Moderating BAG's Relationship on LM....	85
4.2.6 Discussion Summary.....	85
4.3 The Limitations of the Study.....	86
CHAPTER 5.....	88
CONCLUSIONS	88
5.1 Conclusions	88
5.2 Implications.....	89
5.3 Suggestions	90
REFERENCES	91
APPENDICES	

LIST OF TABLES

Table 2. 1 Summary of the Relevant Studies	24
Table 3. 1 All BAG Classes of First-year Students at High School XYZ	36
Table 3. 2 Samples of BAG	37
Table 3. 3 Instrument Blueprint for LM Variable.....	42
Table 3. 4 Instrument Blueprint for GG Variable	45
Table 4. 1 The Category of the Mean Value	53
Table 4. 2 Descriptive Statistics for AP based on the School Report (August 2024)	53
Table 4. 3 Descriptive Statistics for AP	54
Table 4. 4 Category of Mean Value for LM Questionnaire	55
Table 4. 5 Distribution of the Answers for Indicator LM1	56
Table 4. 6 Distribution of the Answers for Indicator LM2	57
Table 4. 7 Distribution of the Answers for Indicator LM3	59
Table 4. 8 Distribution of the Answers for Indicator LM4	60
Table 4. 9 Demography of the BAG	62
Table 4. 10 Category of Mean Value for the GG Questionnaire	63
Table 4. 11 Answers Distribution for GG Variable	63
Table 4. 12 Linearity Test among Variables	66
Table 4. 13 Normality Test	67
Table 4. 14 Heteroskedasticity Test	68
Table 4. 15 Homogeneity Test of the Variances	69
Table 4. 16 Pearson Correlation Test (BAG and AP)	70
Table 4. 17 ANOVA ^a (BAG on AP)	71
Table 4. 18 Coefficients ^a Regression Model (BAG on AP)	71
Table 4. 19 Model Summary (BAG on AP)	72
Table 4. 20 Pearson Correlation Test (BAG and LM)	72
Table 4. 21 ANOVA ^a (BAG on LM)	73
Table 4. 22 Coefficients ^a of Regression Model (BAG on LM)	73
Table 4. 23 Model Summary (BAG on LM)	74
Table 4. 24 Pearson Correlation Test (AP and LM)	74
Table 4. 25 ANOVA ^a (BAG, GG, BAGxGG on AP)	75
Table 4. 26 Coefficients ^a of Multiple Regression Model (BAG, GG, BAGxGG on AP)	76
Table 4. 27 Model Summary (BAG, GG, BAGxGG on AP)	77
Table 4. 28 ANOVA ^a (BAG, GG, BAGxGG on LM)	79
Table 4. 29 Coefficients ^a for Multiple Regression Model (BAG, GG, BAGxGG, on LM)	79
Table 4. 30 Model Summary (BAG, GG, BAGxGG on LM)	80
Table 4. 31 Hypothesis Testing Results	81

TABLE OF FIGURES

Figure 2. 1 GeoGebra Software Logo	16
Figure 2. 2 3-D Object Created from Graph Rotation	17
Figure 2. 3 Various Mathematics Topics in GeoGebra	18
Figure 2. 4 A Wide Range of GeoGebra Usage.....	19
Figure 2. 5 Theoretical Framework.....	28
Figure 3. 1 Steps in Quantitative Research	32
Figure 3. 2 BAG at High School XYZ.....	35
Figure 3. 3 Respondent Profile based on Gender.....	38
Figure 3. 4 Respondent Profile based on Age.....	38
Figure 3. 5 Validity and Reliability Test for Mathematics Proficiency Test of XYZ School.....	46
Figure 3. 6 Validity and Reliability Test for LM Questionnaire.....	47
Figure 3. 7 Validity and Reliability Test for GG Questionnaire.....	48
Figure 3. 8 Statistical Hypotheses.....	50
Figure 4. 1 The Demography of Mathematics Proficiency Tests Result of the Samples	62

TABLE OF APPENDICES

APPENDIX A	— Learning Motivation Questionnaire for Trial Test	A-1
APPENDIX B	— Validity and Reliability Test for LM Variable	B-1
APPENDIX C	— Validity and Reliability Test for GG Variable	C-1
APPENDIX D	— Final Learning Motivation Questionnaire	D-1
APPENDIX E	— Data for BAG, AP, LM, and GG	E-1
APPENDIX F	— Descriptive Statistical Calculations	F-1
APPENDIX G	— Supporting Documents from High School XYZ	G-1
APPENDIX H	— Regression and Correlation Calculations for Hypothesis 1 Testing	H-1
APPENDIX I	— Regression and Correlation Calculations for Hypothesis 2 Testing	I-1
APPENDIX J	— Correlation Calculations for Hypothesis 3 Testing	J-1
APPENDIX K	— Regression and Correlation Calculations for Hypothesis 4 Testing	K-1
APPENDIX L	— Regression and Correlation Calculations for Hypothesis 5 Testing	L-1
APPENDIX M	— Form For Statement Of Authenticity And Approval To Upload Final Project.....	M-1
APPENDIX N	— Turnitin Similarity Report	N-1
APPENDIX O	— Institutional Research Permission Letter.....	O-1
APPENDIX P	— Biography	P-1