

TABLE OF CONTENTS

COVER PAGE	
ORIGINALITY STATEMENT OF THESIS	
THESIS SUPERVISOR’S APPROVAL	
THESIS EXAMINER’S APPROVAL	
ABSTRACT	v
FOREWORD	vii
TABLE OF CONTENTS	ix
TABLE OF FIGURES	xiii
TABLE OF TABLES	xiv
TABLE OF APPENDICES	xv
CHAPTER I INTRODUCTION	1
1.1. Background of the Study	1
1.2. Problem Identification	4
1.3. Problem Limitation	6
1.4. Problem Statement	6
1.5. Purpose of the Study	7
1.6. Benefits of the Study	8
1.7. Organization of the Study	8
CHAPTER II THEORETICAL BASIS	10
2.1. Theoretical Description	10
2.1.1. English Vocabulary Learning	10
2.1.2. Motivation	12
2.1.3. Emotions	13
2.1.4. Cognitive Engagement	16
2.1.5. Augmented Reality	17
2.2. Relevant Research Results	20
2.3. Framework of Thinking	21
2.3.1. Motivation relationship with English vocabulary learning	22
2.3.2. Emotions relationship with English vocabulary learning	23

2.3.3. Cognitive engagement relationship with English vocabulary learning	24
2.3.4. Augmented reality implementation relationship with motivation.....	24
2.3.5. Augmented reality implementation relationship with emotions	25
2.3.6. Augmented reality implementation relationship with cognitive engagement.....	26
2.4. Hypothesis	27
CHAPTER III RESEARCH METHOD	28
3.1. Research Design	28
3.2. Place, Time, and Research Subject.....	30
3.3. Research Procedure	30
3.4. Population.....	34
3.5. Data Collection Technique	34
3.6. Instruments	35
3.6.1. English Vocabulary Learning Achievement	35
3.6.1.1. Conceptual Definition Construct	35
3.6.1.2. Operational Definition Related to Measurement	35
3.6.1.3. Instrument	37
3.6.1.4. Calculation of Validity and Reliability	38
3.6.2. Motivation	38
3.6.2.1. Conceptual Definition Construct	38
3.6.2.2. Operational Definition Related Measurement	38
3.6.2.3. Instrument	39
3.6.3. Emotions	40
3.6.3.1. Conceptual Definition Construct	40
3.6.3.2. Operational Definition Related to Measurement	41
3.6.3.3. Instrument	41
3.6.4. Cognitive Engagement	43
3.6.4.1. Conceptual Definition Construct	43
3.6.4.2. Operational Definition Related to Measurement	43
3.6.4.3. Instrument	44
3.6.4.4. Calculation of Validity and Reliability	45

3.6.5. Augmented Reality	45
3.6.5.1. Conceptual Definition Construct	45
3.6.5.2. Operational Definition Related to Measurement	45
3.6.5.3. Instrument	46
3.7. Data analysis	47
3.7.1. Measurement Model Assessment	48
3.7.2. Descriptive Statistics	50
3.7.3. Structural Model Assessment	50
3.8. Statistical Hypothesis	52
3.9. Research Model	53
CHAPTER IV RESULT AND DISCUSSION	54
4.1. Data Description	54
4.1.1. Respondent Profile	54
4.1.1.1. Gender	54
4.1.1.2. Age	54
4.1.1.3. Grade Level	55
4.2. Testing Requirements Analysis	56
4.2.1. Normality	56
4.2.2. Homogeneity	56
4.2.3. Measurement Model Assessment	56
4.2.3.1. Convergent Validity and Construct Validity Assessment	57
4.2.3.2. Discriminant Validity Assessment	59
4.2.3.3. Construct Reliability Assessment	60
4.2.4. Descriptive Statistic	61
4.2.4.1. English Vocabulary Learning Achievement Variable	61
4.2.4.2. Motivation	63
4.2.4.3. Emotions	65
4.2.4.4. Cognitive Engagement	66
4.2.4.5. Augmented Reality	68
4.2.5. Structural Model Assessment	70
4.2.5.1. Multicollinearity Test	72
4.2.5.2. Coefficient of Determination Assessment	73

4.3. Simple Slope Analysis.....	74
4.4. Hypothesis Testing and Discussion.....	77
4.4.1. Motivation to Students' English Vocabulary Learning Achievement.....	80
4.4.2. Emotions to Students' English Vocabulary Learning Achievement.....	82
4.4.3. Cognitive Engagement to Students' English Vocabulary Learning Achievement.....	84
4.4.4. Motivation to Students' English Vocabulary Learning Achievement using AR implementation.....	85
4.4.5. Emotions to Students' English Vocabulary Learning Achievement using AR implementation.....	86
4.4.6. Cognitive Engagement to Students' English Vocabulary Learning Achievement using AR implementation.....	87
4.5. Research Limitations.....	87
CHAPTER V CONCLUSIONS, IMPLICATIONS AND SUGGESTIONS ..	89
5.1. Conclusion.....	89
5.2. Implication.....	90
5.3. Suggestion.....	95
REFERENCE LIST.....	98
APPENDICES	
PUBLICATION PERMISSION FORM	
BIOGRAPHY	

TABLE OF FIGURES

Figure 2.1. The effect of students' motivation, emotions, and cognitive engagement on English vocabulary learning moderated by augmented reality implementation.....	21
Figure 3.1. Quantitative research components and processes.....	31
Figure 3.2. The main screen of the application.....	32
Figure 3.3. A tracked image of a Spitfire plane.....	33
Figure 3.4. 3D Objects are displayed in the scene.....	33
Figure 3.5. Research model of the study.....	53
Figure 4.1. Gender Composition.....	54
Figure 4.2. Age Composition.....	55
Figure 4.3. Grade level composition.....	56
Figure 4.4. The Path Model result of PLS-SEM Exploratory Factor Analysis ...	71
Figure 4.5. The Path Model result of PLS-SEM Confirmatory Factor Analysis.	72
Figure 4.6. Simple slope analysis - AR x M.....	75
Figure 4.7. Simple slope analysis - AR x E.....	76
Figure 4.8. Simple slope analysis - AR x C.....	77

TABLE OF TABLES

Table 3.1. Data normalization using the Likert scale	38
Table 3.2. Motivation Survey Items.....	39
Table 3.3. The short version of the Achievement Emotions Questionnaire (AEQ-S)	42
Table 3.4. Cognitive Engagement Scales.....	44
Table 3.5. Augmented Reality Usability Survey	46
Table 4.1. AVE value of each variable	57
Table 4.2. Convergent validity assessment result	58
Table 4.3. Discriminant validity - Fornell-Larcker criterion	59
Table 4.4. The composite reliability value of each variable	61
Table 4.5. Data distribution of the English Vocabulary Learning Achievement variable	62
Table 4.6. Data distribution of the Motivation variable	64
Table 4.7. Motivation Descriptive Statistic.....	64
Table 4.8. Data distribution of the Emotions variable	66
Table 4.9. Data distribution of the Cognitive Engagement variable.....	67
Table 4.10. Cognitive Engagement Descriptive Statistic.....	67
Table 4.11. Data distribution of the Augmented Reality variable	68
Table 4.12. Augmented Reality Descriptive Statistic	69
Table 4.13. The result of multicollinearity test.....	73
Table 4.14. The R ² value result.	74
Table 4.15. The path coefficient value results.	78

TABLE OF APPENDICES

Appendix A	Construct Validity Assessment	A-1
Appendix B	Convergent Validity Assessment.....	B-1
Appendix C	Discriminant Validity Assessment	C-1
Appendix D	Construct Reliability Assessment.....	D-1
Appendix E	Research Instrument.....	E-1
Appendix F	English Vocabulary Learning Achievement Data.....	F-1
Appendix G	Motivation Data.....	G-1
Appendix H	Emotions Data	H-1
Appendix I	Cognitive Engagement Data	I-1
Appendix J	Augmented Reality Data.....	J-1
Appendix K	Descriptive Statistic Calculation	K-1
Appendix L	Multicollinearity Assessment	L-1
Appendix M	Coefficient of Determination Assessment	M-1
Appendix N	Path Analysis Assessment	N-1