

# TABLE OF CONTENTS

APPROVAL PAGE .....	II
SELF DECLARATION AGAINST PLAGIARISM.....	III
ABSTRACT.....	IV
ABSTRAK .....	V
ACKNOWLEDGMENTS .....	VI
TABLE OF CONTENTS.....	VII
LIST OF TABLES .....	X
LIST OF FIGURES .....	XI
<b>CHAPTER 1 THE PROBLEM.....</b>	<b>1</b>
1.1 RATIONALE .....	1
1.2 THEORETICAL FRAMEWORK.....	4
1.2.1 <i>Shader Development Process Baseline</i> .....	4
1.2.2 <i>Using Tool for Shader Tweaking Process</i> .....	5
1.2.3 <i>Shader Tweaking Experiment</i> .....	5
1.3 CONCEPTUAL FRAMEWORK.....	6
1.3.1 <i>Inputs</i> .....	6
1.3.2 <i>Tweaking Process</i> .....	6
1.3.3 <i>Outcome</i> .....	7
1.4 STATEMENT OF THE PROBLEM.....	8
1.5 HYPOTHESIS .....	8
1.6 ASSUMPTIONS .....	8
1.7 SCOPE AND DELIMITATION.....	9
1.8 IMPORTANCE OF STUDY .....	9
<b>CHAPTER 2 REVIEW OF THE LITERATURE AND STUDIES .....</b>	<b>10</b>
2.1 GAME DEVELOPMENT .....	10
2.2 SHADER TWEAKING .....	13
2.3 COLLABORATION WORK .....	17

<b>CHAPTER 3 RESEARCH METHODOLOGY .....</b>	<b>19</b>
3.1 SYSTEM DESIGN .....	19
3.1.1 <i>Architecture Design</i> .....	19
3.1.2 <i>Workflow Design for the Use of Tool</i> .....	21
3.1.3 <i>Tool Design</i> .....	24
3.1.3.1 Use case .....	24
3.1.3.2 Block Diagram of Tool .....	34
3.1.3.3 Collaboration system .....	38
3.1.3.4 Integration Process from Tweaking Tool to Game Source .....	40
3.2 EXPERIMENT DESIGN .....	41
3.2.1 <i>Treatment</i> .....	41
3.2.2 <i>Object of Experiment</i> .....	42
3.2.3 <i>Subjects of Experiment</i> .....	42
3.2.4 <i>Variables</i> .....	43
3.2.4.1 Independent Variables (Factors/State Variables).....	44
3.2.4.2 Dependent Variables (Response Variables).....	45
3.2.5 <i>Control object</i> .....	45
3.2.6 <i>Task design</i> .....	45
3.3 TESTING SCENARIO .....	47
3.3.1 <i>Scenario 1 – The Relations of Shader Experiences and Use of Tool to the Number of Iterations and Time Spent</i> .....	47
3.3.2 <i>Scenario 2 – The Relations of Collaboration experiences and use of tool to the number of iterations and time spent</i> .....	47
3.3.3 <i>Scenario 3 – The Relations of existence of M0/T0 (Shader Concept and Use of Tool Introduction) to the Number of Iterations and Time Spent</i> .....	47
3.3.4 <i>Scenario 4 - The Relations of Sequence Order to the Number of Time Spent and Its details on think time and action time</i> .....	48
<b>CHAPTER 4 PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA .....</b>	<b>49</b>
4.1 PRESENTATION OF DATA.....	49

4.1.1	<i>Result of scenario 1 – The Relations of Shader Experiences and Use of Tool to the Number of Iterations and Time Spent.....</i>	50
4.1.2	<i>Results of Scenario 2 – The Relations of Collaboration experiences and use of tool to the number of iterations and time spent.....</i>	53
4.1.3	<i>Result of Experiment in Scenario 3 – The Relations of existence of M0/T0 to the Number of Iterations and Time Spent .....</i>	56
4.1.4	<i>Result of Experiment in Scenario 4 – The Relations of Sequence Order to the Number of Time Spent.....</i>	59
4.2	SUMMARY OF FINDINGS.....	63
<b>CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS .....</b>		<b>65</b>
5.1	CONCLUSIONS .....	65
5.2	RECOMMENDATIONS .....	66
<b>BIBLIOGRAPHY .....</b>		<b>67</b>