

1. <u>Game Development</u>	46
1.1. Purpose	46
1.2. Game Design Investigation	46
1.3. Story	46
1.4. Gameplay	47
1.5. Game Mechanics	47
1.6. Design	47
1.6.1. Visual	47
1.6.2. Audio	47
1.6.2.1. Music	47
1.6.2.2. Sound Effects	47
1.6.3. Level	48
1.7. Target Audience	48
1.8. Target Platform	48
1.9. Development Software and Hardware	48
1.9.1. Development Engine	48
1.9.1.1. Programming Language	48
1.9.2. Additional Software	48
1.9.3. Hardware Used	49
1.10. Development Methodology	49
1.10.1. Waterfall Model	49
1.10.2. Incremental Model	50
1.10.3. Spiral Model	51
1.10.4. Rapid Application Development (RAD)	52
1.10.5. Agile Development	53
1.10.6. Selected Development Methodology	54
2. <u>Testing Methods</u>	56
2.1. Regression Testing	56
2.2. Compatibility Testing	57
2.2.1. Hardware to be Used	59
2.2.2. Bug Tracking	60
2.3. Reliability Testing	60
2.4. Black Box Testing Techniques	61
2.4.1. Usability	61
2.5. Possible Future Testing Techniques	61
2.5.1. Portability	61
2.5.2. Performance	62
2.5.3. Localization	62
2.6. Risk Analysis	62
3. <u>Research Study</u>	64
3.1. Organisation of the Study	64
3.2. Participants	64
3.3. Questionnaires Design	64
4. <u>Revised Games Design</u>	66
4.1. Story	66
4.2. Gameplay	66
4.3. Mechanics	66
4.4. Visual Design	66

4.5. Improvements over the Prototype	67
4.6. Violent Features	67
4.6.1. Firearms	67
4.6.2. Killing	68
4.6.3. Blood	68
4.6.4. Sound Effects	68
5. <u>Evaluation</u>	<u>69</u>
5.1. Identification of Statistical Test	69
5.2. Chosen Method	69
6. <u>Quantitative and Qualitative Analysis</u>	<u>70</u>
6.1. Pre-Test Analysis	70
6.1.1. Pre-Test Quantitative Results	70
6.1.2. Pre-Test Qualitative Results	73
6.2. Post-Test Analysis	75
6.2.1. Post-Test Quantitative Results	75
6.2.2. Post-Test Qualitative Results	77
6.3. Pre-Test Vs Post-Test Results	78
7. <u>Discussion</u>	<u>82</u>
7.1. Summary of Results	82
7.2. Results in Light of Previous Research (literature review)	83
7.2.1. Aggression	83
7.2.2. Youth Violence	83
7.2.3. Desensitisation	83
7.2.4. Moral Aspects	84
7.2.5. Appeal of Violent Video Games	84
7.3. Wider Implications of Research	84
7.4. Problems and Limitations of Study	84
7.5. Suggestion of Improvement	84
7.6. Suggested Directions for Future Research	84
8. <u>Conclusion</u>	<u>85</u>
8.1. Key Findings	85
8.1.1. Quantitative Results	85
8.1.2. Qualitative Results	85
8.2. Limitations	85
8.3. Importance	85
8.4. Future Recommendations	85
8.5. Final Conclusion	86
9. <u>Critical Self-appraisal</u>	<u>87</u>
9.1. Initial Game Design	87
9.2. Implementation Updates	87
9.3. Survey	87
9.4. New Research Groups	88
9.5. Lack of Academic Skill	88
9.6. Project Progress	88
9.7. Evaluation and Analysis	88
10. <u>References</u>	<u>89</u>
11. <u>Appendix</u>	<u>100</u>

11.1.	Appendix 1: Game Mechanics	100
11.1.1.	Appendix 1.1. Player Move	100
11.1.2.	Appendix 1.2. Player Shoot	100
11.1.3.	Appendix 1.3. Player Reload	101
11.1.4.	Appendix 1.4. Player Change Weapon	101
11.1.5.	Appendix 1.5. Player Damage	101
11.1.6.	Appendix 1.6. Player Lose	102
11.1.7.	Appendix 1.7. Player Win	102
11.1.8.	Appendix 1.8. Enemy Patrol	102
11.1.9.	Appendix 1.9. Enemy Move to Player	103
11.1.10.	Appendix 1.10. Enemy Shoot	103
11.1.11.	Appendix 1.11. Enemy Damage	103
11.1.12.	Appendix 1.12. Enemy Die	104
11.2.	Appendix 2: Mind Map	104
11.3.	Appendix 3: Mood Board	105
11.4.	Appendix 4: Demo Screenshots	105
11.4.1.	Demo World Screenshot with the two box targets	105
11.4.2.	Demo Screenshot of the gun reload animation	106
11.5.	Appendix 5: Prior Questionnaire Results	106
11.6.	Appendix 6: Regression Testing Results	108
11.7.	Appendix 7: Compatibility Testing	110
11.8.	Appendix 8: Game Screenshots	111
11.9.	Appendix 9: Pre-Test Results	114
11.10.	Appendix 10: post-Test Results	129