Changes to Dissertation after Examiner Feedback

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1 Introduction

This document highlights the changes made to the MSc dissertation entitled 'Video Games as a Medium for Software Education' in response to examiner feedback. The dissertation is to be resubmitted in fulfillment of the requirements for a Masters of Science in Engineering at the University of the Witwatersrand, Johannesburg, South Africa.

2 Changes Made

This section shows the corrections and amendments made to the dissertation in response to examiner feedback.

2.1 Typographical and Grammatical Errors

Table 1 below shows typographical and grammatical errors highlighted by the examiners, and the corrections made to the final dissertation.

Table 1: Corrected Typographical and Grammatical Errors

Section	**Page**	**Original text**	**Corrected text**
Overview	5	"A number of axillary"	"A number of auxiliary"
Literature Review	15	"tool intended for the use by students"	"tool intended for use by students"
Testing Methodology and Analysis of Results	42	"could natutrally arise"	"could naturally arise"
Testing Methodology and Analysis of Results	48	"help screens, which was made"	"help screens, which were made"
Recommendations and Future Work	51	"does not alienate the poorer-performing players."	"does not alienate the players that perform more poorly."
Recommendations and Future Work	52	"car should be taken"	"care should be taken"
Conclusion	55	"since the provide"	"since they provide"
Conclusion	59	"the collected data could be used inform"	"the collected data could be used to inform"
Conclusion	59	"this particular game a lot more beneficial"	"this particular game is a lot more beneficial"
Conclusion	60	"within an framework"	"within a framework"

2.2 Amendments, Deletions and Rewordings

Table 2 below shows small amendments, deletions or rewordings in response to examiner feedback.

Table 2: Amendments, Deletions and Rewordings and Reason for Change

Section	**Page**	**Change**	**Reason for change**
Overview & Testing Methodology and Analysis of Results	5 & 35	Included the ethics committee approval number (H120407)	An examiner noted that it is proper to include this information
Overview	5	Clarified that the research assumes that the test marks are indicative of educational value.	An examiner felt that the dissertation did not make the assumption clear, or lacked relevant literature to support the claim
Literature Review	11	Mentioned explicitly that socio-economic and political factors are also having an impact on the technological world	As suggested by an examiner
Literature Review	15	Deleted and reworded most of the second paragraph on this page	The paragraph repeated what followed under the bold subheadings
Literature Review	20	Added a paragraph on the tool *Scratch*	An examiner suggested the investigation and inclusion of the visual programming environment *Scratch*.
Literature Review	23	Restating the first research question	An examiner felt that restating the research question here would be useful, as the reader would not have to page back
Literature Review	23	Expanded section on gamification to include more examples	An examiner noted that Section 2.4.3 was not detailed enough and did not give enough examples
Implementation Methodology	27	Clarified the relevance of the BMI calculator laboratory	An examiner commented that the relevance of the BMI calculator example (Listing 3.1) was unclear
Testing Methodology and Analysis of Results	37 (Table 4.1)	Presented the table in a more compact manner and as a pivot matrix	One examiner felt that this presentation would be more compact and more understandable
Testing Methodology and Analysis of Results	38	Added a brief discussion of the standard deviation for the skills test results	An examiner felt that this analysis would be useful
Testing Methodology and Analysis of Results	40	Clarified that the time per level is used as a measurement of the *perceived* level of difficulty	The research appeared to contradict itself on this case

2.3 Corrections to Bibliographic and References Sections

Table 3 shows corrections made to the reference and bibliographic items.

Table 3: Corrections to Bibliography and References and Reason for Change

Item	Original item	Corrected item	Reason for change
2	M. Porta, K. Maillet, and M. Gil. The Computer Science Declining Phenomenon. In Proceedings of the World Congress on Engineering and Computer Science, volume 2, pages 1173-1178, 2010.	M. Porta, K. Maillet, and M. Gil. The Computer Science Declining Phenomenon. In Proceedings of the World Congress on Engineering and Computer Science, volume 2, pages 1173-1178, 2010, [Available at: `http://upcommons.upc.edu/e-prints/bitstream/2117/13904/1/Porta.pdf`].	Added reference to download the paper
5	Blaine A. Price, Ian S. Small, and Ronald M. Baecker. A principled taxonomy of software visualization. Journal of Visual Languages and Computing, 4:211-266, 1998.	Blaine A. Price, Ian S. Small, and Ronald M. Baecker. A principled taxonomy of software visualization. Journal of Visual Languages and Computing, 4:211-266, 1993.	Year incorrect
17 & 19	These were repetitions of the same publication	Corrected so that the publication only appears once in the references (as reference 17)	Repetition of the same publication
29	Karel J. Robot. `http://csis.pace.edu/bergin/KarelJava2ed/Karel++JavaEdition.html`	Karel J. Robot. `http://csis.pace.edu/~bergin/KarelJava2ed/Karel++JavaEdition.html`	Missing tilde in the URL
46	Lee Sheldon. The Multiplayer Classroom: Designing Coursework as a Game. Course Technology, Cengage Learning, 2012.	L. Sheldon. The Multiplayer Classroom: Designing Coursework as a Game. Course Technology Press, 2011.	Year incorrect and author name incorrectly formatted
47	A. Decker D. Simkins, C. Egert. Implementing a game design course as a multiplayer game. IEEE International Games Innovation Conference, pages 137-140, 2012.	K. Bierre. Implementing a game design course as a multiplayer game. IEEE International Games Innovation Conference, pages 137-140, 2012.	Author incorrect
49	K. Salen and E. Zimmerman. Rules of play: Game design fundamentals. The MIT Press, 2004.	K. Salen and E. Zimmerman. Rules of play: Game design fundamentals. The MIT Press, 2003.	Date incorrect

3 Examiner Suggestions that were not Actioned

Table 4 shows examiner suggestions that were made, but not corrected. The reason for not changing the document is also listed.

Table 4: Examiner Suggestions that were not Actioned

Section	**Page**	**Suggested change**	**Reason for not changing**
Literature Review	23	Repeat the image of the taxonomy in Section 2.4.4	This image is already shown in Section 2.3.3, and is repeated (in a more concise form) in Section 6.3.1. Thus, the candidate feels that a repetition is not required, since the reader is referred back to the previous figure.
Appendix A	71	Remove the Gantt chart appendix	An examiner writes "*I think that you should omit the dates 'February 2012' and 'April to August 2012' as well as the Gantt chart in Appendix A*". The other examiner writes that "*Inclusion of the Gantt chart was useful for me to get a sense of the flow of the research*". It is thus the candidate's decision to keep the Gantt chart and dates as indicators of the research process.

4 Candidate Actions for Future Research

This section lists the suggestions made by the examiners and the candidate's intended actions to address these in future research.

- An examiner notes that the section entitled 'Why Games Can be a Good Pedagogical Medium' "*only refers to to publications that deal specifically with games in an educational environment*", and that the section could be improved by "*considering the body of literature on engineering education and contextualising a software visualisation game within current thinking on engineering education*". This is an incredibly valid suggestion, since the literature review currently examines only generalised pedagogical approaches, and not engineering pedagogy specifically. This will be done in future research.

- An examiner made the comment that "*[Software visualisation tools] are still open to interpretation for the 'So what?' I find that knowing how to 'read' the visualisations is an art of its own and different tools on the same source system often lead to very different conclusions on what the next steps are.*" This is a very interesting and insightful comment. I have not come across this point of view in my research thus far. It would be highly beneficial to investigate the 'interpretive' nature of software visualisations in future research.

- With respect to quantifying educational value of the game by using the increase in mark for the skills test, an examiner asks "*Is this adequate to eliminate bias and be fair assessment of the improvement on skills?*" As mentioned in Section 5.2 of the dissertation, it would be highly beneficial to test the educational value of the game relative to other teaching methods (such as student self-study, a video tutorial and a lecture). The quantifiable educational value of the game could thus be seen in relation to these activities, and more definitive conclusions could be made. This is a very good avenue for future research.

- An examiner comments that the use of time as a measurement of the difficulty of the level content is not supported by relevant literature. For future research, it may be necessary to use other metrics (perhaps qualitative questioning of the participants) in order to measure this.