UNIVERSITY OF SOUTHERN QUEENSLAND

IMPLEMENTING PROBLEM-BASED LEARNING IN SOFTWARE ENGINEERING IN A SRI LANKAN UNIVERSITY

A Dissertation submitted by

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Abstract

The study aims to identify the parameters of an optimal learning environment to promote the development of graduate attributes and higher order learning skills in the context of a professional preparation course for Information Technology graduates at a public university in Sri Lanka. It employs a design-based learning approach with iterations of the design being undertaken over a four year period. The underlying pedagogy for the design was problem-based learning. As students were unused to being challenged to apply their knowledge to the resolution of problems, a primary focus of the design was on scaffolding the learning experience. Significant use was made of eLearning tools available through the Moodle content management system for this purpose. In addition to this, course lectures were supplemented with tutorial sessions which provided lecturers with an opportunity to work through a series of skills building activities with the students. A key initiative was to enhance student exposure to industry through the use of videos, chat and discussion forums as well as through face-to-face meetings. As many students in the public university system come from the rural hinterland of Sri Lanka their experience of the industry they aspire to join is often minimal. One consequence of this is a lack of awareness of the importance of soft skills or graduate attributes to industry employers and a consequent lack of motivation to participate in learning activities directed toward building such skills. The study also identified a fundamental need to address the issues of general and cognitive academic language proficiency in English – the language of instruction. While a range of tools and approaches were used successfully to help students develop teamwork, communication, independent learning and problem-solving skills, it became clear that it was not realistic to target development of such skills within a single subject and without addressing the issue of English language proficiency first. As the approach to study was a departure from largely didactic teaching-learning styles to which students had previously been exposed, opportunities for them to reflect on their learning were essential. These were built into the course in the form of assessable assignments. The study concludes by recommending a whole-of-curriculum approach in the form of a framework for a further and more extensive trial of the approach.

CERTIFICATION OF DISSERTATION

I certify that the ideas, experimental work, results, analyses, software and conclusions reported in this dissertation are entirely my own effort, except where otherwise acknowledged. I also certify that the work is original and has not been previously submitted for any other award, except where otherwise acknowledged.

_____ _____

Signature of Candidate Date

ENDORSEMENT

_____ _____

Signature of Supervisor Date

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Mr Gradgrind … in Charles Dickens' book "Hard Times" saw his pupils as '...little vessels, there and then arranged in order, ready to have imperial gallons of facts poured into them until they were full to the brim' (Dixon 2000, p.38).

TABLE OF CONTENTS

ABSTRACT ii
CERTIFICATION PAGE iii
ACKNOWLEDGEMENTS iv
LIST OF TABLES 4
LIST OF FIGURES 5
CHAPTER 1 Introduction 9
1.1 The Research Setting 9
1.1.1 Student Profile – Faculty of Information Technology (FIT), University of Moratuwa 9
1.2 Rationale for the Research 11
1.2.1 Pedagogical Issues 11
1.2.2 Problem-based Learning (PBL) 12
1.2.2.1 PBL at FIT 13
1.2.2.2 Introduction of PBL: FIT's starting point 14
1.2.2.3 eLearning Tools 14
1.3 Research Questions 15
1.4 Outline of the Thesis 16
CHAPTER 2 Study Design and Research Methodology 17
2.1 Design-Based Research (DBR) 17
2.1.1 Emphasizing Context 18
2.1.2 Theory embodied as Design 18
2.1.3 Contributing to the Theory Base 19
2.2 Methodology 19
2.2.1 The Role of the Researcher 20
2.2.2 Addressing the Issue of Bias 22
2.2.3 Data Analysis 25
2.3 Towards an initial Design 27
CHAPTER 3 The Gap between Employer Expectations and Educational Inputs . 28
3.1 National Sector Surveys 28
3.2 Employer Perception Survey 29
3.3 Limitations of the Learning Environment 31
3.3.1 Sri Lankan post-Independence education system 31
3.3.1.1 The Sri Lankan "Diploma Disease" 33
3.3.1.2 The English language as a barrier to social mobility 35
3.3.2 Change Initiatives in the Education Sector 37
3.3.3 The Context of Higher Education 38
3.3.3.1 Moratuwa University and FIT (2004 – 2007) 39
3.3.4 Recent reforms in higher education 41
3.3.4.1 Recognition of Issues and Level of Support for PBL among FIT Academic Staff 44
3.4 Student Perceptions – a Baseline Study 46
3.4.1 Problem-solving Skills 46
3.4.2 Teamwork Skills 49
3.4.3 Communication Skills 51
3.4.4 Learning to Learn 55
3.4.5 Awareness of Industry Expectations 56

3.5 Implications of the review of context for the design of the initial intervention 57
CHAPTER 4 Initial Design Phase of the Learning Initiative (2005) 59
4.1 Operating Constraints 59
4.2 Situating the Intervention in a Problem-based Learning (PBL)Framework 61
4.3 Cultivating Teamwork 64
4.3.1 Promoting Collaborative Learning 64
4.3.1.1 Structuring Teams to Promote Collaborative Learning 66
4.3.2 The need for facilitated teams 68
4.3.3 Teambuilding and teamwork skills building activities 69
4.3.4 Promoting Higher Level Learning 75
4.3.5 Building Communication and English Skills 82
4.3.6 Building self-directed learning ability 84
4.3.7 Assessment 86
4.3.7.1 Peer Assessment 87
4.4 Summary 89
CHAPTER 5 Analysis of Phase I (2005) and Implications for Design of Phase 2 (2006) 90
5.1 Impact of the Course Design – Analysis of the Data 91
5.1.1 An Explanation of the Concept Map 92
5.1.2 Teamwork 94
5.1.2.1 The Contributions of Assignments to Team Bonding 97
5.1.2.2 Understanding of Team Roles 99
5.1.2.3 Contribution of Facilitators 99
5.1.2.4 Peer Assessment 101
5.1.2.5 Teamwork overview 101
5.1.3 Problem Solving 103
5.1.4 Communication Skills 105
5.1.5 Independent Learning Skills 106
5.2 Discussion 110
5.2.1 Design for Phase II (2006) 111
CHAPTER 6 Analysis of Phase 2 (2006) and Implications for Design of Phase 3 (2007) 114
6.1 Data Collection and Analysis 114
6.2 Results 115
6.2.1 An Explanation of the Concept Map 115
6.2.2 Year typified by high levels of student stress 116
6.2.3 Teamwork skills 118
6.2.3.1 Peer Assessment 121
6.2.4 Problem Solving skills 124
6.2.5 Communication skills 127
6.2.6 Independent learning skills 129
6.3 Discussion 134
6.3.1 Implications of the results for teamwork 134
6.3.2 Implications of the English Language Issue 135
6.3.2.1 Failure to facilitate code-switching 137
6.3.2.2 Failure to build CALP 138
6.4 Design for Phase III (2007) 140

CHAPTER 7 Analysis of Phase 3 (2007) and Implications for an Optimal Learning Environment 147
7.1 Results 147
7.1.1 Teamwork skills 151
7.1.2 Peer Assessment 153
7.1.3 Problem solving skills 155
7.1.4 Communication skills 157
7.1.5 Independent Learning Skills 160
7.1.6 Learning Preferences 165
7.1.6.1 Learning Styles 166
7.1.6.2 Preferred Learning Context 167
7.2 Discussion 168
7.2.1 Implications for developing teamwork skills 169
7.2.2 Implications for developing problem solving skills 172
7.2.3 Implications for communication skills 173
7.2.4 Implications for Learning 174
7.2.4.1 The need for an orientation program 174
7.2.4.2 Influence of learning styles 175
7.2.4.3 Student Pedagogical Preferences 177
7.3 Conclusion 178
CHAPTER 8 Conclusions – A Framework for Professional Education and Skills Training in Sri Lanka (PESTS) 179
8.1 Reflections on effective and ineffective approaches 179
8.2 Parameters of an optimal Learning Environment 181
8.2.1 Explanation of the Concept Map 184
8.3 PESTS Framework 186
8.3.1 Application of the Framework to FIT 188
8.4 Feasibility of Scaling-up the Model 191
8.4.1 Administrative and Management Support 192
8.4.1.1 Facilitation of team work 193
8.4.1.2 ESL Support 194
8.4.2 Curriculum and Instruction Support 195
8.4.3 Assessment Support Base 196
8.4.4 Policy Support Base 197
8.4.5 Technology Support Base 198
8.5 Recommendations for future study 198
REFERENCES 201
APPENDIX A: Desirable Attributes for IT Graduates in Sri Lanka 212
APPENDIX B: Instruments 228
APPENDIX C: FIT Syllabus 261
APPENDIX D: Moodle ™ Interface 266
APPENDIX E: Student Assessment Instruments 290
APPENDIX F: Example of Moodle™ Lesson 306

LIST OF TABLES

Table 2.1: Phases of the Study Program 20

Table 3.1: Comparative ranking of graduate attributes in Sri Lankan and Australian Studies 29

Table 4.1 : Assessment Scheme for Software Engineering (2005) 59

Table 4.2: Overview of Course Design 61

Table 4.3: Marking Rubric for Assignments 86

Table 5.1 : Responses to Course Experience Questionnaire 2004 & 2005 94

Table 5.2 : Software Engineering student assignments 2005 97

Table 6.1: Results of Student Course Experience Survey, 2004 – 2006 116

Table 7.1: Student responses to 2007 Course Experience Questionnaire 149

Table 7.2: Comparison of Student Course Experience Survey responses, 2004-2007 150

Table 7.3: Myers-Briggs Type preferences of FIT students (2007) 167

Table 7.4: Learning preferences of FIT students compared to US & UK population sample based on MBTI scores 176

Table 8.1: PESTS Framework support toolkits – components and features 187

LIST OF FIGURES

Figure 1.1 : Enrolment levels of 2nd year FIT students 2004-2007 9

Figure 1.2 : FIT students first preference for university enrolment in 2006-2007 10

Figure 3.1: Student response (2004) to the statement, "*To do well in this subject all you really need is a good memory*". 47

Figure 3.2 : Student response (2004) to the statement, "*In this subject, I was tested more on what I had memorized than what I had understood*". 47

Figure 3.3 : Student response (2004) to the statement, "*The subject was interesting and made me think*". 48

Figure 3.4: Student response (2004) to the statement, "*Doing this subject has improved my problem-solving skills*" 48

Figure 3.5: Student response (2004) to the statement, "*My spoken communication skills are better as the result of doing this subject*" 53

Figure 3.6: Student response (2004) to the statement, "*I often made comments and asked questions in class*" 54

Figure 3.7 : Student perceptions of soft skills important to employers as expressed in 2004 focus group sessions 56

Figure 3.8 : Student Perceptions of key success factors for university as expressed in 2004 focus group sessions 57

Figure 4.1: Guidelines for preparation of Code of Ethics (Software Engineering 2005) 68

Figure 4.2: Moodle™ snapshot – Week 1 of course design 71

Figure 4.3: Moodle™ snapshot – Week 2 of course design 72

Figure 4.4: Moodle™ snapshot – Week 3 of course design 73

Figure 4.5: Moodle™ snapshot – Week 4 of course design 74

Figure 4.6: Moodle™ snapshot – Week 5-6 of course design 76

Figure 4.7: Moodle™ snapshot – Weeks 9-10 of course design 78

Figure 4.8: Moodle™ snapshot – Weeks 10-11 of course design 79

Figure 4.9: Moodle™ shapshot – Weeks 11-12 of course design 80

Figure 4.10: Moodle™ snapshot – Weeks 12-13 of course design 81

Figure 4.11: Moodle™ snapshots – Week 13 of course design 82

Figure 4.12: Moodle™ snapshots - Weeks 7-8 of course design 84

Figure 5.1: Concept Map of Categories emerging from the 2005 Data 93

Figure 5.2: Student response (2005) to the statement, "*Doing this subject helped me to develop my ability to work as a team member*" 96

Figure 5.3: Comparison of 2004/2005 student responses to the statement, "*I often made comments and asked questions in lectures*" 100

Figure 5.4: PARs awarded within student groups for Assignment 3 (2005) 102

Figure 5.5: Comparison of 2004/2005 student response to the statement, "*Doing this subject has improved my problem-solving skills*". 104

Figure 5.6: Comparison of 2004/2005 student response to the statement, "*To do well in this subject, all you really need is a good memory*". 105

Figure 5.7: Comparison of 2004/2005 student response to the statement, "*My spoken communication skills are better as a result of doing this subject*" 105

Figure 5.8: Comparison of 2004/2005 student response to the statement, "*I sometimes felt that my time in class was being wasted*" 107

Figure 5.9: Student attempts at online quizzes during and at the end of semester (2005). 108

Figure 5.10: Example of an online quiz question targeting understanding of terminology 108

Figure 5.11: Example of an online quiz question targeting application of knowledge 109

Figure 5.12: Example of a true/false online quiz question 109

Figure 6.1: Concept map of emerging categories from 2006 data 115

Figure 6.2: Comparison of 2004/2005/2006 student responses to the statement, "*Because there is so much work in this subject, it is difficult to understand it all*". 117

Figure 6.3: Comparison of 2004/2005/2006 student responses to the statement, "*The workload was too heavy*". 118

Figure 6.4: Comparison of 2004/2005/2006 student responses to the statement, "*Doing this subject helped me to develop my ability to work as a team member*".. 119

Figure 6.5: PAR awarded within student groups 1-10 for Assignment 2 (2006)..... 122

Figure 6.6: PAR awarded within student groups 11-20 for Assignment 2 (2006)... 123

Figure 6.7: Perceived usefulness of learning activities experienced in 2006 125

Figure 6.8: Comparison of 2004/2005/2006 student responses to the statement, "*Doing this subject has improved my problem-solving skills*"..... 126

Figure 6.9: Comparison of 2004/2005/2006 responses to the statement, "*My spoken communication skills are better as a result of doing this subject*"..... 127

Figure 6.10: Student response (2007) to the statement, "*Doing the course in English was difficult for me*"..... 128

Figure 6.11: Comparison of 2004/2005/2006 student responses to the statement, "*After doing this subject, I feel that I understand how software engineering is used in the IT industry*"..... 130

Figure 6.12: Comparison of numbers of students attempting quizzes in 2006 and 2005. 131

Figure 6.13: Comparison of 2004/2005/2006 student responses to the statement "*I often made comments and asked questions in lectures*"..... 132

Figure 6.14: Comparison of 2004/2005/2006 student responses to the statement, "*To do well in this subject, all you really need is a good memory*"..... 133

Figure 6.15: Example of a slide from the Software Evolution lecture 139

Figure 6.16: Snapshot of a lesson showing part of the text and an end-of-page quiz question 142

Figure 6.17: Snapshot of a glossary entry showing a technical term. 143

Figure 6.18: Snapshot of a glossary entry for a non-technical term..... 144

Figure 7. 1: Concept map of emerging categories from data coding in 2007 148

Figure 7.2: Comparison of 2004/2005/2006/2007 student responses to the statement *"Doing this subject helped me to develop my ability to work as a team member".* 151

Figure 7.3: Student response (2007) to the statement "*I would prefer to do individual assignments rather than team assignments*"..... 152

Figure 7.4: Relative perceived usefulness of learning resources provided in 2007 . 153

Figure 7.5: Student response (2007) to the statement "*We should get individual marks for team assignments based on how much work we do*"..... 155

Figure 7.6: Average continuous assessment results 2004 – 2007 Note: Error bars indicate standard deviations 155

Figure 7.7: Perceived usefulness of learning activities experienced in 2007 156

Figure 7.8: Comparison of 2004/2005/2006/2007 student responses to the statement "*Doing this subject has improved my problem-solving skills*". 157

Figure 7.9: Usage statistics for students accessing electronic lecture notes with voiceover in 2007. 159

Figure 7.10: Comparison of 2004/2005/2006/2007 student responses to the statement "*Doing this subject has improved my skills in written communication*". 159

Figure 7.11: Pattern of student usage of Moodle™ lessons over the semester in 2007 160

Figure 7.12: Pattern of student usage of online quizzes over the semester in 2007. 161

Figure 7.13: Snapshot of SoftChalk™ lesson showing quiz inline with SoftChalk™ lesson text..... 162

Figure 7.14: Quiz feedback shown inline with SoftChalk™ lesson text..... 163

Figure 7.15: Comparison of average grades for summative assessment 2004–2007 165

Figure 7.16: Comparison of 2004/2005/2006/2007 student responses to the statement "*After doing this subject, I feel that I understand how software engineering is used in the IT industry*"..... 166

Figure 7.17: Factors contributing to the development of teamwork skills (arrows show what the factor contributes to)..... 170

Figure 7.18: Proposed approach to building teamwork skills over the course of the degree..... 171

Figure 8.1: Parameters of an optimal learning environment for FIT students..... 185

Figure 8. 2: PESTS Framework showing the tools that scaffold the integrated curriculum 186

Figure 8.3: Proposed application of PESTS Framework to the FIT Curriculum..... 190

Figure 8.4: General Procedure for design experiments taken from Gorard (2004, p.109)..... 199