PRACTICAL LEARNING STYLES APPROACH ON PERSONALISED LEARNING ENVIRONMENT (PLE)

CHE KU NURAINI BINTI CHE KU MOHD

DOCTOR OF PHILOSOPHY

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Faculty Information and Communication Technology

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CHE KU NURAINI BINTI CHE KU MOHD

A thesis submitted
in fulfillment of the requirements for the degree of Doctor of Philosophy
Faculty of Information and Communication Technology

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2016
DECLARATION

I declare that this thesis entitled “Practical Learning Styles Approach on Personalised Learning Environment (PLE)” is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature : ..................................................
Name : Che Ku Nuraini Binti Che Ku Mohd
Date : ......................................................
I hereby declare that I have read this thesis and in my opinion this thesis is sufficient in term of scope and quality for the award of Doctor of Philosophy.

Signature : ....................................

Supervisor Name : Prof. Dr. Faaizah Shahbodin

Date : ............................................
DEDICATION

Dear Parents,
Hj. Che Ku Mohd bin Che Ku Ngah & Hjh. Wan Hasimah binti Wan Ahmad
Without both of you none of my success would be possible

Dear Beloved Husband,
Norhalis bin Abdul Ghafar
For making me be who I am, your support, encouragement and constant love have sustained me throughout my life

Dear Parents in Law,
For supporting me all the way

Dear Siblings,
Who have been supported me all the way since the beginning of my PhD journey

Dear Supervisors,
Prof Dr. Faaizah binti Shahbodin and co-supervisor Dr. Ahmad Naim bin Che Pee @ Che Hanapi for being there for me throughout the entire doctorate program.
Thank you for everything.

Lastly to my beloved friends who are encouraged, guided and inspired me. Without their patience, understanding, support and most of love, the completion of this work would not have been possible. Special thanks also to all who also contributed to complete row of this thesis.
ABSTRACT

Personalised Learning Environment (PLE) is one of the learning approaches that help learners take control of and manage their own learning towards flexible and adaptive in responding to the diverse needs and interests of students. However, there are limited research conducted that integrates learning styles with PLE approach using prototype to increase student performance. Learning styles are important components in a learning environment. Learning styles are among the concepts that are postulated by to show learners’ differences and varied needs. The issues in this study highlight students’ lack of interest in learning Science and also fail to classify, synthesise and evaluate information. There are three objectives which are (i) To propose a learning model that integrate dominant learning styles and PLE elements; (ii) To design a learning prototype based on the proposed model that integrates dominant learning styles in Personalised Learning Environment (PLE) and (iii) To evaluate the effectiveness of the prototype towards student performance and student perception. Science is a compulsory subject for Form 2 students from Ministry of Education Malaysia. A prototype called PLENut was developed. The research framework consist of three phases which are (i) Phase 1 PLENut Analysis, (ii) Phase 2: PLENut Design, Development & Implementation and (iii) Phase 3: PLENut Evaluation. Testing was conducted to analyze independent variables by Visual, Auditory and Kinesthetic types of learning styles while student’s performances and student perception are dependent variable. The data was populated from 132 Form Two students of Sekolah Menengah Kebangsaan Dato’ Dol Said, Alor Gajah, Melaka, Malaysia. The population was divided into 3 groups which is (i) Visual (n=76); (ii) Auditory (n=35) and (iii) Kinesthetic (n=21). The separate sample pretest and posttest design was implemented to assess the effectiveness of the PLENut in increasing students’ performance. Non parametric tests which are Wilcoxon Signed Ranked Test and Kruskal Wallis Test were used to analyze the data. The result revealed that: (i) there were no statistically significant differences in mean ranks between group 1, group 2 and group 3 for Visual, Auditory and Kinaesthetic learning styles in terms of student performance and (ii) there were two specific learning styles that were statistically different from each other, which is between Kinesthetic-Visual (test statistic=60.650, p-value=0.000) and Auditory-Visual (test statistic=45.440, p-value=0.000). Therefore, the study found that there is a significant relationship between student performance and learning styles. Results of student performances showed that Science subject is significant with Visual, Auditory and Kinaesthetic learning styles. As a conclusion, PLENut has demonstrated a practical learning styles approach on Personalised Learning Environment (PLE) in teaching and learning of Science subject.
ABSTRAK

ACKNOWLEDGEMENTS

Undertaking this PhD has been a truly life-changing experience for me and it would not have been possible to do without the support and guidance that I received from many people.

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TABLE OF CONTENTS

DECLARATION i
APPROVAL ii
DEDICATION iii
ABSTRACT iv
ABSTRAK v
ACKNOWLEDGEMENTS vi
TABLE OF CONTENTS vii
LIST OF TABLES viii
LIST OF FIGURES ix
LIST OF APPENDICES x
LIST OF ABBREVIATIONS xii
LIST OF PUBLICATIONS xii

CHAPTER

1. INTRODUCTION 1
1.1 Introduction 1
1.2 Background of Study 4
1.3 Problem Statement 6
1.4 Research Questions 8
1.5 Research Hypothesis 9
1.6 Research Objectives 10
1.7 Research Approach 10
1.8 Research Scope 12
1.9 Research Significant 12
1.10 Operational Definition 13
1.11 Summary 16

2. LITERATURE REVIEW 18
2.1 Introduction 18
2.2 21st Century of Education 18
2.2.1 Student 20
2.2.2 Teacher 21
2.2.3 Curriculum 21
2.2.4 Classroom 22
2.2.5 Technology for Teaching and Learning 22
2.3 Learning Theory 23
2.3.1 Behaviourism Learning Theory 24
2.3.2 Cognitivism Learning Theory 25
2.3.3 Constructivism Learning Theory 26
2.3.4 Connectivism Learning Theory 27
2.4 Learning Styles 28
2.4.1 Definition Learning Styles 29
2.4.2 Learning Styles and Student Performance 29
2.4.3 Learning Styles and Personalised Learning 31
2.4.4 Learning Styles in e-Learning 32
2.4.5 Adaptive Learning related to Personalised Learning 33
2.5 Learning Styles Models 35
2.5.1 Visual, Auditory and Kinesthetic (VAK) Model
2.5.2 Kolb Learning Style Inventory Model
2.5.3 Felder-Silverman Learning Style Model
2.5.4 Dunn & Dunn Model
2.5.5 Classification of Dominant Learning Styles

2.6 Personalised Learning Environment (PLE)
2.6.1 Definition of Personalised Learning Environment (PLE)
2.6.2 Comparison between Traditional Learning and Personalised Learning
2.6.3 Issues with PLE
2.6.4 Summary of PLE

2.7 Existing Research
2.8 Summary

3. METHODOLOGY
3.1 Introduction
3.2 Research Methodology
3.3 Design and Development PLENut
3.3.1 Analysis
  3.3.1.1 Literature Review
  3.3.1.2 Need Analysis
  3.3.1.3 Content Analysis
3.3.2 Design
  3.3.2.1 Design for Visual Learning Styles
  3.3.2.2 Design for Auditory Learning Styles
  3.3.2.3 Design for Kinaesthetic Learning Styles
  3.3.2.4 PLENut Model
3.3.3 Development
  3.3.3.1 Development of Notes
  3.3.3.2 Development of VAK Learning Activities
  3.3.3.3 Integration of PLENut with PLE Elements
  3.3.3.4 Alpha Testing
  3.3.3.5 Beta Testing
3.3.4 Implementation
  3.3.4.1 Pilot Study
  3.3.4.2 Validity and Reliability
  3.3.4.3 Face Validity
  3.3.4.4 User Acceptance Test
3.3.5 Evaluation
3.4 Research Design
  3.4.1 Setting
  3.4.2 Participants
  3.4.3 Instruments
  3.4.4 Procedure
3.5 Research Framework
3.6 Theoretical Framework
3.7 Summary
<table>
<thead>
<tr>
<th>TABLE</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Relationships between Research Problem, Research Question and</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Research Objectives</td>
<td></td>
</tr>
<tr>
<td>1.2</td>
<td>Summary of Research Objectives, Research Questions, Research</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Hypotheses, Research Methods, Analysis &amp; Research Contribution</td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>VAK learning styles in e-learning (Filppula 2006)</td>
<td>33</td>
</tr>
<tr>
<td>2.3</td>
<td>Characteristics of VAK learning styles</td>
<td>37</td>
</tr>
<tr>
<td>2.4</td>
<td>Dunn and Dunn’s Learning Style Dimensions</td>
<td>43</td>
</tr>
<tr>
<td>2.5</td>
<td>Classification of Dominant Learning Styles into Visual, Auditory and</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Kinaesthetic</td>
<td></td>
</tr>
<tr>
<td>2.6</td>
<td>Traditional Learning versus Personalised Learning</td>
<td>48</td>
</tr>
<tr>
<td>2.7</td>
<td>Previous Study on Personalised Learning Environment (PLE)</td>
<td>52</td>
</tr>
<tr>
<td>3.1</td>
<td>Test Plan for Analysis Phase</td>
<td>58</td>
</tr>
<tr>
<td>3.2</td>
<td>Performance Analysis and Grade Point Average in PMR Science</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Subject for Year 2010 and 2011</td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td>List of problems in Nutrition topic</td>
<td>64</td>
</tr>
<tr>
<td>3.4</td>
<td>Mean and SD of Student’s Learning Style Preferences</td>
<td>65</td>
</tr>
<tr>
<td>3.5</td>
<td>Preliminary analysis findings to find difficult topic in Science Form 2</td>
<td>67</td>
</tr>
<tr>
<td>3.6</td>
<td>Frequencies for Topic 2 Nutrition</td>
<td>67</td>
</tr>
<tr>
<td>3.7</td>
<td>Analysis of features and functions for Nutrition topic based on learning styles</td>
<td>69</td>
</tr>
<tr>
<td>3.8</td>
<td>Test Plan for Design Phase</td>
<td>71</td>
</tr>
<tr>
<td>3.9</td>
<td>Features and functions for Visual Learning Styles</td>
<td>73</td>
</tr>
<tr>
<td>3.10</td>
<td>Features and functions for Auditory Learning Styles</td>
<td>75</td>
</tr>
<tr>
<td>3.11</td>
<td>Features and functions for Kinaesthetic Learning Styles</td>
<td>76</td>
</tr>
</tbody>
</table>
3.12 Test Plan for Development Phase  
3.13 List of fonts  
3.14 VAK Learning Activities  
3.15 Feedback for Alpha Testing  
3.16 Feedback of Module for Alpha Testing  
3.17 Feedback for Beta Testing  
3.18 Test Plan for Implementation Phase  
3.19 Reliability Analysis  
3.20 Validity Analysis  
3.21 Face validity for each construct  
3.22 Feedback for User Acceptance Test  
3.23 Test Plan for Evaluation Phase  
3.24 Students’ Learning Styles  
4.1 Classification of Proposed PLE Elements  
4.2 Tools that available for Personalised Learning Environment (PLE)  
4.3 Appropriate tools that available for Personalised Learning Environment (PLE)  
4.4 Cronbach’s α value for each PLE elements  
4.5 Percentage of PLE Elements  
4.6 Cronbach’s α value usage of PLENut  
4.7 Percentage Student Usage of PLENut  
4.8 Normality Test  
4.9 Comparing pre-test and post-test learning style scores for Visual  
4.10 Hypothesis statements of Kruskal – Wallis H test for Visual Pre-test  
4.11 Independent – Samples Kruskal – Wallis H Statistics
4.12 Hypothesis statements of Kruskal – Wallis H test for Visual Post-test 133
4.13 Independent – Samples Kruskal – Wallis H Statistics 133
4.14 Visual Mean Ranks in Post-test 134
4.15 Comparing pre-test and post-test learning style scores for Auditory 136
4.16 Hypothesis statements of Kruskal – Wallis H test for Auditory Pre-test 138
4.17 Independent – Samples Kruskal – Wallis H Statistics 138
4.18 Hypothesis statements of Kruskal – Wallis H test for Auditory Post-test 139
4.19 Independent – Samples Kruskal – Wallis H Statistics 140
4.20 Auditory Mean Ranks in Post-test 140
4.21 Comparing pre-test and post-test learning style scores for Kinesthetic 142
4.22 Hypothesis statements of Kruskal – Wallis H test for Kinesthetic Pre-test 144
4.23 Independent – Samples Kruskal – Wallis H Statistics 144
4.24 Hypothesis statements of Kruskal – Wallis H test for Kinesthetic Post-test 145
4.25 Independent – Samples Kruskal – Wallis H Statistics 146
4.26 Kinesthetic Mean Ranks in Post-test 146
4.27 Hypothesis statements of Kruskal – Wallis H test for Pre-test 148
4.28 Independent – Samples Kruskal – Wallis H Statistics 149
4.29 Hypothesis statements of Kruskal – Wallis H test for posstest 150
4.30 Independent – Samples Kruskal – Wallis H Statistics 151
4.31 Mean Ranks in Post-test for Visual, Auditory and Kinesthetic 151
4.32 Post Hoc Analysis: Multiple Comparison Table 152
6.1 Summary of Research Contributions 167
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>FIGURE</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Structure of Chapter 1</td>
<td>1</td>
</tr>
<tr>
<td>2.1</td>
<td>Structure of Chapter 2</td>
<td>19</td>
</tr>
<tr>
<td>2.2</td>
<td>Kolb’s Learning Styles</td>
<td>39</td>
</tr>
<tr>
<td>2.3</td>
<td>Felder-Silverman Learning Style Model</td>
<td>40</td>
</tr>
<tr>
<td>2.4</td>
<td>Dunn and Dunn Learning Style Model</td>
<td>42</td>
</tr>
<tr>
<td>3.1</td>
<td>Structure of Chapter 3</td>
<td>55</td>
</tr>
<tr>
<td>3.2</td>
<td>ADDIE Model</td>
<td>56</td>
</tr>
<tr>
<td>3.3</td>
<td>Analysis Phase</td>
<td>59</td>
</tr>
<tr>
<td>3.4</td>
<td>Analysis of PLE elements</td>
<td>60</td>
</tr>
<tr>
<td>3.5</td>
<td>Method for Need Analysis</td>
<td>62</td>
</tr>
<tr>
<td>3.6</td>
<td>Content Analysis</td>
<td>66</td>
</tr>
<tr>
<td>3.7</td>
<td>Subtopic of Nutrition</td>
<td>68</td>
</tr>
<tr>
<td>3.8</td>
<td>Design Phase</td>
<td>72</td>
</tr>
<tr>
<td>3.9</td>
<td>Visual Topic Digestive System</td>
<td>73</td>
</tr>
<tr>
<td>3.10</td>
<td>Visual Topic Function Of The Organ</td>
<td>73</td>
</tr>
<tr>
<td>3.11</td>
<td>Visual Topic Movement of The Food</td>
<td>74</td>
</tr>
<tr>
<td>3.12</td>
<td>Visual Topic Action of The Enzymes</td>
<td>74</td>
</tr>
<tr>
<td>3.13</td>
<td>Auditory Topic Digestive System</td>
<td>75</td>
</tr>
<tr>
<td>3.14</td>
<td>Auditory Topic Function Of The Organ</td>
<td>75</td>
</tr>
<tr>
<td>3.15</td>
<td>Auditory Topic Movement of The Food</td>
<td>75</td>
</tr>
<tr>
<td>3.16</td>
<td>Auditory Topic Action of The Enzymes</td>
<td>76</td>
</tr>
<tr>
<td>3.17</td>
<td>Kinaesthetic Topic Digestive System</td>
<td>76</td>
</tr>
</tbody>
</table>
3.18 Kinaesthetic Topic Function Of The Organ 76
3.19 Kinaesthetic Topic Movement of The Food 77
3.20 Kinaesthetic Topic Action of The Enzymes 77
3.21 Proposed Model of Integrated Personalised Learning Environment for Nutrition (PLENut) with Learning Styles 79
3.22 Navigation of PLENut 80
3.23 Introduction Module 80
3.24 Proposed system architecture of PLENut 82
3.25 Development Phase 84
3.26 Production of texts 86
3.27 Example of graphics used in PLENut 86
3.28 Sound Forge 8.0 interface 87
3.29 An example of an animation produced for PLENut 88
3.30 Interface of PLE elements 90
3.31 Before and after modification PLENut 92
3.32 Implementation Phase 95
3.33 Evaluation Phase 101
3.34 Layout Classroom Laboratory 104
3.35 Testing Process 107
3.36 O₁ X O₂ 108
3.37 Three separate sample pre-test-post-test design 108
3.38 Three separate sample pre-test-post-test design for PLENut 110
3.39 Research Framework 112
3.40 Theoretical Framework for Practical Learning Styles Approach on Personalised Learning Environment (PLE) 113
4.1 Structure of Chapter 4 116
4.2 Flow for Research Question 1 117
4.3 Flow for Research Question 2 119
4.4 Flow for Research Question 3 120
4.5 Flow for Research Question 4 122
4.6 Testing Model for Research Question 5 128
4.7 Distribution between Visual learning style and student performance in pre-test 130
4.8 Distribution between Visual learning style and student performance in post-test 132
4.9 Testing Model for Research Question 6 135
4.10 Distribution between Auditory learning style and student performance in pre-test 137
4.11 Distribution between Auditory learning style and student performance in post-test 139
4.12 Testing Model for Research Question 7 141
4.13 Distribution between Kinaesthetic learning style and student performance in pre-test 143
4.14 Distribution between Kinesthetic learning style and student performance in post-test 145
4.15 Distribution between learning styles and student performance in pre-test for Visual, Auditory and Kinesthetic 148
4.16 Distribution between learning styles and student performance in post-test for Visual, Auditory and Kinesthetic 149
4.17 Pairwise Comparison of Learning Styles 152

xii
<table>
<thead>
<tr>
<th></th>
<th>Structure of Chapter 5</th>
<th>155</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>Structure of Chapter 6</td>
<td>166</td>
</tr>
</tbody>
</table>
## LIST OF APPENDICES

<table>
<thead>
<tr>
<th>APPENDIX</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Analysis Of PMR Questions (2007-2011)</td>
<td>210</td>
</tr>
<tr>
<td>B</td>
<td>Preliminary Analysis Of Difficult Topics</td>
<td>211</td>
</tr>
<tr>
<td>C</td>
<td>Concept Map For Nutrition Topic</td>
<td>212</td>
</tr>
<tr>
<td>D</td>
<td>Newspaper About Nutrition</td>
<td>213</td>
</tr>
<tr>
<td>E</td>
<td><em>Panduan Perkembangan Sains Tingkatan 2</em></td>
<td>214</td>
</tr>
<tr>
<td>F</td>
<td>Questionnaire (Teachers)</td>
<td>216</td>
</tr>
<tr>
<td>G</td>
<td>Questionnaire (Student)</td>
<td>219</td>
</tr>
<tr>
<td>H</td>
<td>Interview (Teachers)</td>
<td>221</td>
</tr>
<tr>
<td>I</td>
<td>Interview (Student)</td>
<td>222</td>
</tr>
<tr>
<td>J</td>
<td>Subject Expert Evaluation Form</td>
<td>223</td>
</tr>
<tr>
<td>K</td>
<td>Multimedia Expert Evaluation Form</td>
<td>224</td>
</tr>
<tr>
<td>L</td>
<td>PLE Expert Evaluation Form</td>
<td>225</td>
</tr>
<tr>
<td>M</td>
<td>Letter: Instrument Validation</td>
<td>226</td>
</tr>
<tr>
<td>N</td>
<td>Letter: Permission To Conduct Study</td>
<td>227</td>
</tr>
<tr>
<td>O</td>
<td>Letter: Consent Form</td>
<td>230</td>
</tr>
<tr>
<td>P</td>
<td>Learning Styles Preferences</td>
<td>233</td>
</tr>
<tr>
<td>Q</td>
<td>Pre Test</td>
<td>235</td>
</tr>
<tr>
<td>R</td>
<td>Post Test</td>
<td>241</td>
</tr>
<tr>
<td>S</td>
<td>Questionnaire PLE Element</td>
<td>246</td>
</tr>
<tr>
<td>T</td>
<td><em>PLENut</em> Evaluation form</td>
<td>247</td>
</tr>
<tr>
<td>U</td>
<td>Alpha Testing</td>
<td>248</td>
</tr>
<tr>
<td>V</td>
<td>Beta Testing</td>
<td>249</td>
</tr>
<tr>
<td>W</td>
<td>User Acceptance Test</td>
<td>254</td>
</tr>
<tr>
<td>----</td>
<td>---------------------------</td>
<td>-----</td>
</tr>
<tr>
<td>X</td>
<td>Expert List</td>
<td>255</td>
</tr>
<tr>
<td>Y</td>
<td>Score Sheet</td>
<td>257</td>
</tr>
<tr>
<td>Z</td>
<td>Gantt Chart</td>
<td>259</td>
</tr>
</tbody>
</table>
# LIST OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDIE</td>
<td>Analysis, Design, Development, Implementation &amp; Evaluation</td>
</tr>
<tr>
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<td>Action Script</td>
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<tr>
<td>CRIM</td>
<td>Centre Research &amp; Innovation Management</td>
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<tr>
<td>FTMK</td>
<td>Fakulti Teknologi Maklumat &amp; Komunikasi</td>
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<td>FICT</td>
<td>Faculty of Information and Communication Technology</td>
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</tr>
<tr>
<td>LS</td>
<td>Learning Style</td>
</tr>
<tr>
<td>LMS</td>
<td>Learning Management System</td>
</tr>
<tr>
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<td>Ministry of Education</td>
</tr>
<tr>
<td>MOHE</td>
<td>Ministry of Higher Education</td>
</tr>
<tr>
<td>PLE</td>
<td>Personalised Learning Environment</td>
</tr>
<tr>
<td>PLENut</td>
<td>Personalised Learning Environment for Nutrition</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for Social Science</td>
</tr>
<tr>
<td>URL</td>
<td>Uniform Resource Locator</td>
</tr>
<tr>
<td>UTeM</td>
<td>Universiti Teknikal Malaysia Melaka</td>
</tr>
</tbody>
</table>
LIST OF PUBLICATIONS


