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REQUIREMENTS MODEL OF COLLABORATIVE MOBILE LEARNING (CML)

OMAR HAMID FLAYYIH

MASTER OF SCIENCE (INFORMATION TECHNOLOGY)
UNIVERSITI UTARA MALAYSIA
2016
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Abstrak


Keywords: pembelajaran mudah alih (m-pembelajaran), pembelajaran kolaboratif (CL), pembelajaran mudah alih kolaboratif (CML), reka bentuk instruksional, aplikasi mudah alih Android.
Abstract

Mobile technology is one of innovative tools used to facilitate learning. However, the existing studies related to mobile learning (M-learning) have not deeply combined relevant learning approaches for giving a new way that benefits the learning sphere. Accordingly, many researchers believe that there is a need to incorporate pedagogical and instructive models into M-learning technology, especially for supports of team-learning. At the same time, many investigations prove that designers faced challenges in designing systems that involve collaboration with various stationaries. Therefore, researchers suggest for an initiative on more investigations for modern learning in modeling of M-learning domain. The model should provide rich amount of information through M-learning for collaborative learning (CL). This comes from understanding, collecting and modeling usable design, holds functionalities and non-functionalities issues to be the corner stone of the intended model. Consequently, this research studies the possibility of modeling an instructional model for Android mobile application combining the CL and M-learning concepts calls Collaborative M-learning (CML) model. Thus, determining the essential requirements by exploring the most important issues in the existing models and related works in the literatures, as well as interviewing learners are the priorities of this study. Content analysis method was used to analyze the gathered data in determining the requirements needed. The model and the prototype have been reviewed and verified by four experts. Also, 43 respondents in the field of Information Technology (IT) have tested the prototype and provided feedback on their acceptance, through Technology Acceptance Model (TAM) questionnaire under the usability evaluation. Results show that their acceptance upon the model is high, validating the functionality of the CML. Such findings recommend that the model is able to improve productivity, showing the technique to utilize mobile technology in CL. This study serves as a guidance for designers and developers in M-learning.

Keywords: Mobile Learning (M-learning), Collaborative Learning (CL), Collaborative M-learning (CML), Instructional Design (ID), Android Mobile Application.
Acknowledgment

In the Name of Allah, the Most Gracious and Most Merciful

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I want to express my gratitude and dedicate this thesis to my father Hamid Flayyih and my mother Khawlah Tawfeeq. My goal would not have been achieved without them. They have supported and are continuously praying for me during my studies and they encouraged me and felt confident in my abilities to complete my study. I pray to Allah to keep them safe and well. Also, I dedicate this thesis to my wife Hind Mohammed and my son (Ameen) who unremittingly supported me during the years of my study. They made this work possible. Moreover, I am also grateful to all my brothers and sisters for their care and assistance in many moments of inspiration and support during my study.

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Omar Hamid Flayyih
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<th>Full Form</th>
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<tbody>
<tr>
<td>CML</td>
<td>Collaborative Mobile Learning</td>
</tr>
<tr>
<td>M-learning</td>
<td>Mobile learning</td>
</tr>
<tr>
<td>E-learning</td>
<td>Electronic learning</td>
</tr>
<tr>
<td>U-learning</td>
<td>Ubiquitous learning</td>
</tr>
<tr>
<td>BYOD</td>
<td>Bring Your Own Device</td>
</tr>
<tr>
<td>LMS</td>
<td>Learning Management System</td>
</tr>
<tr>
<td>CSCL</td>
<td>Computer Supported Collaborative Learning</td>
</tr>
<tr>
<td>MOOS</td>
<td>Massive Open Online System</td>
</tr>
<tr>
<td>ID</td>
<td>Instructional Design</td>
</tr>
<tr>
<td>CSCL</td>
<td>Computer Supported Collaborative Learning</td>
</tr>
<tr>
<td>CE</td>
<td>Collaboration Engineering</td>
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<tr>
<td>GSS</td>
<td>Group Support System</td>
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<tr>
<td>PSA</td>
<td>Process Support Applications</td>
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<tr>
<td>RLOs</td>
<td>Reusable Learning Objects</td>
</tr>
<tr>
<td>QR</td>
<td>Quick Response</td>
</tr>
<tr>
<td>CSAM</td>
<td>Collaborative Situated Active Mobile learning strategies</td>
</tr>
<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>UML</td>
<td>Unified Modeling Language</td>
</tr>
<tr>
<td>RAD</td>
<td>Rapid Application Development</td>
</tr>
<tr>
<td>TAM</td>
<td>Technology Acceptance Model</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
</tr>
<tr>
<td>FRAME</td>
<td>Framework for the Rational Analysis of Mobile Education</td>
</tr>
<tr>
<td>ZPD</td>
<td>Zone of Proximal Development</td>
</tr>
<tr>
<td>HTML</td>
<td>HyperText Markup Language</td>
</tr>
<tr>
<td>XML</td>
<td>Extensible Markup Language</td>
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<tr>
<td>AOSP</td>
<td>Open Source Project</td>
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<tr>
<td>JIT</td>
<td>Just-in-Time compiler</td>
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<tr>
<td>API</td>
<td>Application Programming Interface</td>
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<td>CE</td>
<td>Collaboration Engineering</td>
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<td>Abbreviation</td>
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<td>PSS</td>
<td>Process Support Systems</td>
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<td>Group Support System</td>
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<td>PSA</td>
<td>Process Support Applications</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Communications Technology</td>
</tr>
<tr>
<td>SNS</td>
<td>Social Networking Services</td>
</tr>
<tr>
<td>mCSCL</td>
<td>mobile Computer-Supported Collaborative Learning</td>
</tr>
<tr>
<td>SDK</td>
<td>Software Development Kit</td>
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<tr>
<td>JDT</td>
<td>Java Development Tools</td>
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<td>JSP</td>
<td>Java Server Pages</td>
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CHAPTER ONE
INTRODUCTION

1.1 Overview

This chapter introduces related topics to this study, which represent background, followed by the problem statement, research hypotheses, and significance of the study. Finally, scope of the study is also presented in this chapter.

1.1.1 Mobile Learning (M-learning)

Since the beginning of this century, with the introduction of mobile devices, the term of Mobile learning (M-learning) became frequent along with Electronic learning (E-learning) and Ubiquitous learning (U-learning), the concept comes on the agenda since the vast emergence of wireless communications, Internet access and mobile device proliferation have defeat time and space limits on communication (Lai, Chang, Wen-Shiane, Fan, & Wu, 2013). The term of M-learning has increasingly grown among learners. It has become an interesting subject for researchers since a user may have more than one device. According to the annual report of International Telecommunication Union (2013) the quantity of mobile phone users around the world exceeds the real population. Figure 1.1 indicates the estimated number of mobile phone users.

In their study, Koh, Rawi, and Zhang (2011) stated that M-learning refers to the use of mobile devices such as laptop, tablet, smartphones or any portable computer anytime-anywhere, particularly with the rapid growth of wireless communication technologies and the innovative design of modern devices which represent the main factors that have supported the emergence of M-learning concept. The concept of M-learning concentrates
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