


A MODEL FOR MOBILE LEARNING SERVICE QUALITY IN UNIVERSITY ENVIRONMENT

By

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College of Arts and Sciences, University Utara Malaysia, in Fulfillment of the
Requirement for the Degree of Doctor of Philosophy**

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ABSTRACT

Owing to the rapid development in the field of technology, there is a growing interest in e-learning. However, there are many limitations to it which includes accessibility and mobility that makes educationalists and researchers think of m-learning as a potential alternative tool for providing easy and accessible educational service. Nevertheless, there is a lack of research that addresses the issue of mobile learning service quality in a university environment. Therefore, this study aims to propose a service quality model for m-learning in a university environment. In order to accomplish this, a study was carried out to identify students' perception about m-learning services, and the factors that lead to service quality of m-learning in a university environment. Consequently, the researcher developed and implemented an m-learning system prototype (MLS) in a university environment. This research was conducted in three phases. The first phase was to obtain information about students' perception on m-learning services by conducting a 25- item questionnaire on 97 university students that were randomly selected from different colleges in University Utara Malaysia (UUM). The questionnaire measured six parameters which include the availability of devices, the usage of devices, students' attitude towards technology, students' opinions about prices of hardware, usage and perception about e-learning, and usage and perception about m-learning. The findings revealed that mobile phone is the most acceptable technology device among the university students, and students who have a positive attitude toward e-learning are likely to have positive attitude toward m-learning. In addition, it was found that obtaining the educational content is the most important m-learning service. Furthermore, high prices of the mobile services and devices minimize the utilization of mobile learning services. The second phase was meant to identify the factors that lead to service quality of m-learning in a university environment. The researcher administered a 57-item-questionnaire on 258 students representing different colleges of UUM. The questionnaire measured ten dependent variables and three independent variables. The dependent variables were meant to measure service quality (interface design, reliability, responsiveness, trust, and personalization), information quality (content usefulness, content adequacy), and system quality (ease of use, accessibility, and interactivity). The dependent variables were meant to measure the causal relationship between overall learners' perceived service quality, learner satisfaction, and learner behavioral intention to use the service in future. In order to analyze the obtained data, the researcher used structured equation modeling and exploratory factor analysis (EFA). The findings revealed that the factors that lead to service quality of m-learning in a university environment were interface design, reliability; trust, content usefulness, content adequacy, ease of use, accessibility, and interactivity. The third phase was carried out to implement the findings of the above two phases and present a practical example that reflects the dimensions of mobile learning service quality in a university environment. To accomplish this, the researcher developed the m-learning system prototype (MLSP) using Rapid Application Development (RAD) methodology and object-oriented (OO) approach. This prototype has been developed, tested and implemented at University Utara Malaysia (UUM). The MLSP was evaluated by employing usability testing method; the field experiments based on the standard tests followed by questionnaire. The findings of the whole study revealed that learners' overall perception about mobile learning service quality is strongly related to their service' satisfaction which positively affects their behavioral intentions in using mobile learning service in the future.

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DEDICATION

To My Mother, Nida'a, and my Father Farouq, who gave me life, constantly inspired me, had unending faith in me, and nourished a passion for learning. Who indulged me for endless hours on numerous occasions with memorable conversations and lessons that have lasted a lifetime.

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LIST OF ABBREVIATION

ICT	Information And Communication Technology
MLSP	Mobile Learning System Prototype
WAP	Wireless Application Protocol
UMTS	Universal Mobile Telecommunications System
PDA	Personal Digital Assistant
SMS	Short Message Service
MMS	Multimedia Message Service
WNIC	Wireless Network Interface Card
PC	Personal Computer
SQ	Service Quality
SERVQUAL	Service Quality Model
E-SQ	Electronic Service Quality
IS	Information Systems
SEM	Structural Equation Matrix
EFA	Exploratory Factor Analysis
PCA	Principal Components Analysis
MSA	Measure Of Sampling Adequacy
KMO	Kaiser-Meyer-Olkin
RAD	Rapid Application Development
OO	Object-Oriented
UML	Unified Modeling Language
COM	Common Object Model
CLR	Common Language Runtime
JVM	Java Virtual Machine
FAQs	Frequently Asked Questions
WiFi	Wireless Fidelity
GPRS	General Packet Radio Service

HCI	Human Computer Interaction
ISO	International Standard Organization
CSUQ	Computer System Usability Questionnaire

Chapter One

INTRODUCTION

In this chapter, the researcher will discuss some background information about mobile learning service and service quality. This will be followed by statement of the problem, research questions, research objective and significance of the research.

1.1 Introduction

The walls of the classrooms have been torn down, as computer technology evolution has widened the educational activities for instructors and students in the 90's. The Internet technology has removed time and space constraints from instructors as well as students. With the rapid diffusion of the Internet, computers, and telecommunications new approaches to learning were created (Berge & Collins, 1995; Crosta, 2004). On-line courses appeared as a new method of course delivery, since then, the interest in the development and use of distance learning in higher education has been steadily increasing (Dabbagh & Kitsantas, 2003).

This rapid diffusion of the Internet and its deployment in learning, as well as on-line courses delivery is represented by Electronic Learning (e-learning). The demands of e-learning in connection with the possibilities offered by modern technology (evolution of mobile devices), pose new opportunities and new challenges to the educational systems. Tools and devices immerse in the learning environment and surround educators, students and the environment in which they

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Finally, the tunnel vision seems to inhibit people's ability to "think outside the box". Many, especially those with packaged software, do not seem to be able to envision alternatives to accomplish m-learning service objectives other than with packaged software. Therefore, it appears nearly certain and plausible that the way m-learning service quality is implemented in the future will also change. This will require us to re-think what m-learning service quality "is" in the future before we have completely determined what m-learning service quality "is" now.

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