

**E-Learning Environment For UUM English Course
Based On Various Multimedia Tools**

Al-Ghamdi, Abdulrahman Salem

Universiti Utara Malaysia

2009

**E-Learning Environment For UUM English Course
Based On Various Multimedia Tools**

A Thesis submitted to college Arts & Sciences in partial

Fulfillment of the requirement for the degree master

(Information & communication Technology)

University Utara Malaysia

By

Al-Ghamdi, Abdulrahman Salem (89180)

Copyright ©Al-Ghamdi, Abdulrahman Salem

All Rights Reserved 2009

PERMISSION TO USE

In presenting this thesis of the requirements for a Master of Science in Information and communication Technology (MSc. ICT) from Universiti Utara Malaysia, I agree that the University library may make it freely available for inspection. I further agree that permission for copying of this thesis in any manner, in whole or in part, for scholarly purposes may be granted by my supervisor or in their absence, by the Dean of Graduate School. It is understood that any copying or publication or use of this thesis or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to Universiti Utara Malaysia for any scholarly use which may be made of any material from my thesis.

Request for permission to copy or make other use of materials in this thesis, in whole or in part, should be addressed to:

Dean of Graduate School
Universiti Utara Malaysia
06010 Sintok
Kedah Darul Aman

ABSTRACT

E-learning is similar to E-training, that has gained significant popularity and it is expected to continue in the future. E-learning is a multi-dimensional activity where each dimension should be most organization adequately supported by an E-learning system to provide fruitful learning materials to those are interest to read by online, a new experience for most users. the main problem that facing the students with the current learning system for the English course, most of the student incapable to interact with the current learning facilitates, which manage manually by the lecturers, otherwise the student incapable to practice the different technology to enhance their ability during the learning. The main objective of the project is to identify the requirements for Web-based Learning System (WLS) for UUM English Course. Moreover, the proposed web application has been tasted based on the usability, the UUM students agreements for using this system which was (Mean =4.79) by 25 students from UUM.

ACKNOWLEDGEMENT

My gratefulness to my supportive and helpful supervisor, Assoc Prof Hatim Mohamad Tahir for assisting and guiding me in the completion of this research. With all truthfulness, without her, the project would not have been a complete one. Assoc Prof Hatim Mohamad Tahir has always been my source of motivation and guidance. I am truly grateful for her continual support and cooperation in assisting me all the way through the semester. I am grateful to Hietem Ibrahim for their help in making my project successful.

I would like to present my thanks to my father, my mother, my wife and all my family who has always been there for me. Finally, I would like to express my appreciations to all my friends, colleagues, other staff, and everyone who has helped me in this journey.

LIST OF TABLES

Table 4.1: Functional Requirements	26
Table 4.2: Non-Functional Requirements	27
Table 5.1: Descriptive statistics for the sample from the gender view	63
Table 5.2: Descriptive statistics for the sample from the Age view	63
Table 5.3: Descriptive statistics for the sample from the Education view	64
Table 5.4: Descriptive Statistics for the WLS	65

LIST OF FIGURES

Figure 2.1: Basic Web Architecture	13
Figure 2.2: E-Training Facilities	14
Figure 3.1: Project Methodology	19
Figure 4.1: Use Case Diagram for Web-based Learning System (WLS) for UUM English Course	30
Figure 4.2: Sequence Diagram for Login	41
Figure 4.3: Sequence Diagram for View Reports	42
Figure 4.4: Sequence Diagram for Upload	43
Figure 4.5: Sequence Diagram for Add Student	44
Figure 4.6: Sequence Diagram for Search	45
Figure 4.7: Sequence Diagram for Download	46
Figure 4.8: Sequence Diagram for Ask Question	47
Figure 4.9: Sequence Diagram for View	48
Figure 4.10: Class Diagram for the proposed system	49
Figure 4.11: Home/Login	53
Figure 4.12: Lecturer Page/Upload	54
Figure 4.13: Lecturer page/ View Reports	55
Figure 4.14: Lecturer Page/ Delete materials	56
Figure 4.15: Lecturer/ Add student	57
Figure 4.16: Student/ View/Download Lesson or Video	59
Figure 4.17: Student/Search	60

TABLE OF CONTENTS

Page Num

CHAPTER ONE

INTRODUCTION

1.1 Introduction	1
1.2 Problem Statement	2
1.3 Project Objectives	3
1.4 Research Scope	4
1.5 Project Significances	4
1.6 Thesis Structure	5
1.7 Summary	6

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction	7
2.2 Definition of Electronic Learning (E-learning)	7
2.3 WEB and Internet	8
2.4 Web Applications and their definition	9
2.5 Advantages of Web-based Applications	11
2.6 Principled Design of the Web Architecture	12
2.7 Basic Web Architecture	12
2.8 E-Learning and E-Training	14
2.9 Advantages and disadvantages of E-learning	15
2.10 Previous Related Works	15
2.11 Summary	18

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction	19
3.1.1 Awareness of Problem	20
3.1.2 Suggestion	20
3.1.3 Development	21
3.1.4 Evaluation	21
3.1.5 Conclusion	22
3.2 Summary	23

CHAPTER FOUR

ANALYSIS AND FINDING

4.1 List of Requirements	24
A. FUNCTIONAL REQUIREMENTS	26
B. NON-FUNCTIONAL REQUIREMENTS	27
4.2 UML	28

4.2.1 Introduction	28
4.2.2 Use Case Diagram	28
4.2.3 The Use Case Identification	31
4.2.4 Use Case Specification	32
4.2.5 Sequence Diagram	40
4.2.6 Class Diagram	48
4.3 System Development	50
4.3.1 Active Server Pages (ASP)	50
4.3.2 Introducing Asp.Net	51
4.3.3 Net Platform	51
4.3.4 The net framework	52
4.3.5 ASP.NET platform requirements	52
4.4 System Testing	53
4.4.1 Home/login	53
4.4.2 Lecturer Page/Upload	54
4.4.3 Lecturer Page/View Report	55
4.4.4 Lecturer Page/Delete Lesson	56
4.4.5 Lecturer Page/Add student	57
4.4.6 Lecturer Page/Download Lesson or Video	58
4.4.4 Student/Search	59
4.5 Summary	60

CHAPTER FIVE

DISCUSSION OF RESULT

5.1 Introduction	62
5.2 Evaluation Result	62
5.3 Students Demographic Background	63
5.4 Student Evaluation	64
5.5 Descriptive Statistics	65

CHAPTER SIX

CONCLUSION

6.1 Introduction	67
6.2 Problems and Limitations	68
6.3 Recommendations	68
6.4 Future Work	69
6.5 Conclusion	70

Reference	71
------------------	----

Appendix	79
-----------------	----

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Nowadays, information can be accessed at the corner of the room by the innovation and advancement of on-line web-based technology. UUM learn care is an excellent example of web-based learning as students can get their lecture materials from the learn care web site. E-learning is learning that involves the acquisition, generation and transfer of knowledge using information and communications technology (ICT). Can be much more effective, and cheaper than more traditional learning methods, for example Jeffrey (2002); Jorge (2006), if a student has difficulty with a particular concept, the student may be required to revise the concept of form surrounding that, while a student who answers questions on the concept that with ease to move to the next concept immediately (Annuradha, 2005).

The contents of
the thesis is for
internal user
only

REFERENCE

Atanas Rountev, O. V., & Miriam Reddoch (2006). Static control-flow analysis for reverse engineering of UML sequence diagrams. 31(1): 96 – 102.

Atle Refsdal, K. S. (2008). Extending UML Sequence Diagrams to Model Trust-dependent Behavior with the Aim to Support Risk Analysis. 197(2): 15-29

Annuradha, K. T. & Usha, H. S. (2005). Use of e-books in an academic and research environment: A case study from the Indian Institute of Science. Emerald Program Electronic Library and Information Systems 40(1), 48-62, from (www.nlj.org/jm/acuril/papers/Tuesday/Nicholas_White.pdf).

Bailey, T. P. (2006). Electronic Book Usage at a Masters Level I University: A Longitudinal Study. The Journal of Academic Librarianship, 32(1), 52-59, from (www.library.nuigalway.ie/coxebooks.pdf).

Bahrami, A. (1999). Object Oriented System Development, McGraw-Hill, United States of America.

Band, J. (2006). The Google Library Project: The Copyright Debate. OITP Technology Policy Brief, from (www.library.nd.edu/instruction/svcsteaching/documents/yahoogle-handouts-pvc-012406.pdf).

Barb G. (2007), e-books: Search and Download in the Life Sciences, SLA Conference Denver, Colorado, USA.

Belanger, J. (2007). Cataloguing e-books in UK higher education libraries: Report of a survey. Emerald Program Electronic Library and Information Systems, from

(www.managing-information.com/milite/pdfs/mi%20jan-feb%2008%20low%20res.pdf).

Bolliger, D. (2003). The Design and Field Test of a Web-Based Training Program for Future School Lecturers in a Northwest Florida School District. *The Journal of Interactive Online Learning*.

Bennett, S., McRobb, S., & farmer, R. (2002). *Object-oriented System Analysis and Design 2nd Edition*. UK, McGraw Hill.

Betty H. C. Cheng, J. M. A. (2007). Research Directions in Requirements Engineering, from (www.ru.nl/aspx/download.aspx?File=/contents/pages/141611/rujvonderzoek07.pdf).

Carriere, S. & Kazman V. (2005). Advances in Internet and interconnectivity of networks, from (www.strategicstudiesinstitute.army.mil/pdffiles/pub755.pdf).

Craig, A., John, D. (2004). Creating Web Services Using Asp.Net, CCSC: Rocky Mountain Conference, 2004, from (www.ccsc.org/board/minutes/Fall03Minutes.pdf).

Cox, K. T. P. (2007). Practical experience of eliciting classes from use case descriptions, from (www.bournemouth.ac.uk/ssrc/publications/ssrc_publications.pdf).

Clancey W. (2002). Simulating activities: relating motives, deliberation, and attentive coordination. *Cognitive Systems Research* 3, 471-499.

Clark R., & Mayer R., (2007). *E-Learning and the Science of Instruction*. 2nd edition. San Francisco: Pfeiffer.

Davis, A.M. (1993). Software Requirements: Objects, Functions & States. Englewood Cliffs, NJ: Prentice Hall, from (www.ida.liu.se/labs/aslab/people/joaka/re_bib.html - 39k).

Dennis, A., Wixom, B.H., & Tegarden, D. (2005). System analysis and design with UML version 2.0: an object-oriented approach with UML, 2nd edition. Hoboken, NJ: John Wiley and Sons, Inc.

Dias. F. G, E. A. S., M. L. M. Campos, A. L. Correa, A. J. Alencar (2008). Elaboration of use case specifications: an approach based on use case fragments, form (www.scribd.com/doc/3485579/Toc).

Digital E-books (2009). Write and Publish Digital Ebook Products, retrieved on 7 Feb 2009.

E-learning (2008). E-learning information advantages. Retrieved on 5 Jan 2009, from (http://www.leftbrainmedia.com/e_advantages.html).

E-Learning Advantages and Disadvantages (2009). What are e-learning advantages and disadvantages?, retrieved on 24 Jan 2009.

E-learning information advantages (2009). Retrieved on 21 Jan 2009, from (http://www.leftbrainmedia.com/e_advantages.html).

Eriksson, H., & Penker, M. (1998). UML Toolkit. USA, John Wiley & Sons, Inc. Foster I., Jennings N. & Kesselman C. (2004). Brain meets brawn: Why grid and agents need each other, Proceedings of AAMAS'04, New York: ACM.

George C. & Scerri J. (2007). User-Generated Content Online: Legitimate power or the Wild West?.BELET a annual conference Hertfordshire.

Hughes (1993). Dynamic web-based application development. New York: Prentice Hall. From (www.medwelljournals.com/fulltext/ajit/2005/1131-1136.pdf).

Hoffer, J. A., George, J. F & Valacich, J. S. (1999). Modern Systems Analysis and Design (2nd Edition). United Kingdom : Addison Wesley Longman.

Hoffer, J. A., George, J. F & Valacich, J. S. (2002). Modern Systems Analysis and Design (3rd Edition). Upper Saddle River, New Jersey: Prentice Hall.

Introduction to Microsoft .Net Platform (2008).Microsoft Internet Explorer, Accessed on 22 April 2008, (<http://www.asp101.com/articles/nakul/intronet/default.asp>).

Jacobson, I., Christerson, M., Johnsson, P. & Overgaars, G. (2004). Object-oriented Software Engineering: A Use Case Driven Approach (revised). Harlow, England: Addison-Wesley.

Jeffrey, S. (2002). An Interactive Web-Site for Distance Learning Students, from (www.au.af.mil/au/aul/bibs/distancelearn.htm).

Jorge, F., Sandra, R., & Roseli, D. (2006). Computer Graphics, Interactive Technologies and Collaborative Learning Synergy Supporting Individuals' Skills Dvelopment, from (www.portal.acm.org/citation.cfm?id=261190).

Kalata, K. (2005). Introduction to ASP.NET, Boston: Thomson: Course Technology, from (www.isedj.org/isecon/2007/2314/ISECON.2007.Kohun.txt - 17k).

Knight A. & Dai, N. (2002). Objects and the Web. IEEE Software. March/April 2002, pp.51-59. IEEE. Lecturers in a Northwest Florida School District. The Journal of Interactive Online Learning.

Lamsweerde, A. v. (20004). Requirements engineering in the year 00: a research perspective, from (www.info.ucl.ac.be/Research/Publication/2000/icse2000-avl.pdf).

Mohammad, A., Peter D., & Wolfgang, N. (2006). Learner Profile Management for Collaborating Adaptive e-learning Applications, from (www.l3s.de/ar/L3S_AnnualReport2006.pdf).

Mika, P., Petri, M., & Laura, T. (2004). Student-Centered Concept Development Process for Emerging Technologies, from (www.ifets.info/journals/5_4/renate.html).

Michael, E., & Jens B. (2007). Instructional Design of a Programming Course- A learning Theoretic Approach, from (portal.acm.org/citation.cfm?id=1288580.1288595).

Myles, F., & Jorma T. (2000). Using the WWW as the delivery mechanism for interactive, visualization-based instructional modules, from (www.uwosh.edu/faculty_staff/naps/vita.pdf).

Ohler J. (2001). Taming the Technological Beast: The Case of the E-Book. The Futurist, pp. 16-21.

Omnexus (2009), e-training Courses Agenda, retrieved on 20 Jan 2009, from (<http://www.omnexus4adhesives.com/services/etrainings.aspx>).

Quint, B. (2004) Google and Research Libraries Launch Massive Digitization Project. Information today, from (<https://bora.uib.no/bitstream/1956/1832/1/MikkiStangeland.pdf>).

Panangiotis, Z. (2004). Usability and e-learning: the road towards integration, from (www.citeulike.org/user/yiweicao/watchlist).

Paul, D. (2006). Fundamentals VB.NET retrieved 13 Sep 2008 from (http://pdsa.com/Download/eBook/Preview_57.pdf).

Rubin, J. (2004). Handbook of Usability Testing: How to Plan, Design and Conduct Effective Tests. London: John Wiley & Sons, from (www.cs.uta.fi/usabsem/lukemisto.html - 44k).

Releases faculty survey. (2007). Ebrary Library Journal/Academic Newswire. Retrieved May 12, 2008, from <http://www.libraryjournal.com/info/CA6499082.html>.

Rabelani, D. (2004). E-learning Strategies and Tools in the Corporate Training Environment, from (www.editlib.org/index.cfm/files/paper_20398.pdf?fuseaction=Reader.DownloadFullText&paper_id=20398).

Ruth, D. (2004). Usability Evaluation of an E-Learning Tutorial: Criteria, Questions and Case Study, from (saicsit.cs.uct.ac.za/SAICSIT-final.doc).

Roy T. & Richard N. (2002). Principled Design of the Modern Web Architecture. ACM Transactions on Internet Technology.

Silva, P.P.D. & Paton, N.W. (2003). UML: The Unified Modeling Language for Interactive Applications.

Schmuller, J. (2002). SAMS Teach Yourself UML in Hours . SAMS Publishing, Indiana.

Stephen M. & Geoff M. (2004). Applying SPICE to e- Learning: An e- Learning Maturity Model, from www.ascilite.org.au/conferences/brisbane05/stephenmarshallwkshp.doc).

Stephen T., Andrew P., & Thom D. (2002). E-learning-Making it happens now, from(www.sagepub.co.uk/repository/binaries/bookSellers/AI/5031SEASONAL_Sept05-Feb06.pdf).

Torner. F, M. I., M. Ivarsson, F. Pettersson, P. Öhman (2006). Defects in automotive use cases, from (www.cedes.se/publications.html).

U.S House of Representative (1999). Systems Development Life Cycle, pp. 1-12.

Ventures Education Systems Corporation (2008). Specialized high efficiency: management web sites for school systems, retrieved on 6 Jan 2009, from (<http://www.vesc-education.com/>).

Vaishnavi, V. & Kuechler, B. (2004). Design Research in information system. Retrieved 1 Jan 2009, from (<http://www.isworld.org/Researchdesign/drisISworld.htm>).

Wagner, T. (2007). ebrary Announces Live Web-based Training Program, Palo Alto, CA, from (www.ebrary.com/corp/newspdf/ebrary_training.pdf).

Xu, D. and Xu, W. (2006). State-based incremental testing of aspectoriented programs. Proctor the Fifth International Conf. on Aspect-Oriented Software Development (AOSD'06), pp. 180- 189, Bonn, Germany, March 2006, from (www.resist-noe.org/Publications/Deliverables/D13-Research_Agenda.pdf).

Zerzelidis, A., & Wellings, A. (2005). Requirements for a Real-Time .NET Framework, Feb 2005, ACM, from (www.informatik.uni-trier.de/~ley/db/journals/sigplan/sigplan40.html).

Zhargetal, D.J. Zhao, L., Zhou, L.F. Nunamaker, J. (2004). Can e-learning replace classroom learning. Communications of the ACM, from (www.isedj.org/isecon/2007/2543/ISECON.2007.Zhang.ppt).