



University of Glamorgan

Prifysgol Morgannwg

Faculty of Advanced Technology

M.Sc. Project

Opportunities and Challenges using VLEs:
A Case Study of Universities in Saudi Arabia.

Mashaal Maashi 07264402

This dissertation is submitted in part fulfillment of M.Sc. in
Technology for Teaching and Learning

First Supervisor: Dr. Geneen Stubbs

Second Supervisor: Dr. Phil Davies

Year of Study: 2008-2009

Scheme: Technology for Teaching and Learning



University of Glamorgan
Prifysgol Morgannwg

Faculty of Advanced Technology

STATEMENT OF ORIGINALITY

This is to certify that, except where specific reference is made, the work described in this project is the result of the investigation carried out by the student, and that neither this project nor any part of it has been presented, or is currently being submitted in candidature for any award other than in part for the M.Sc. award, Faculty of Advanced Technology from the University of Glamorgan.

Signed.....
(Student)

To **Allah**

The Lord, the Creator, the Sovereign, the
Holy One, the Source of Peace and Perfection, the
Guardian of
Faith, the Preserver of Safety, the Exalted in Might

Great thanks for his blessing and for helping me to
complete this work

Then to **my great parents**

For all their patience, prayers, and ongoing love
May Allah give them strength, good health and a happy
life.

And to **my soulmates**

Thanks for always being with me

ACKNOWLEDGEMENTS

I wish to express sincere appreciation to my supervisor **Dr. Geneen Stubbs** for her continuous kind support, suggestions, directions and guidance throughout the project including the practical and written components.

I extend my appreciation to my entire family **Dad, Mum**, lovely sisters **Safi, Tuta, Nolah, Lody**, brother **Zezo**, my sweet nephews and beautiful niece for their emotional and moral support.

Special thanks to **my soulmate** - my sister **Meme** and for all my friends **Mesho, Emy, Mona, Zhora, Areen** and **Abeer** for always supporting me, they shared every good and bad moment.

I would like to acknowledge all the participants who helped me to evaluate this project. Many thanks for giving me their precious time.

Finally, I wish to express my immense gratitude for every one who supported me and helped me to made carry out this project successfully.

ABSTRACT

Nowadays, the global education system is moving towards using technology as a prime factor in the learning process. The United Kingdom is the one of the pioneer countries, is concerned with e-learning and using Virtual Learning Environments (VLEs). This project aimed to explore the experience of British universities with use of VLEs, in particular Moodle. The purpose of this project is not only to investigate the use of VLEs in educational institutions in the UK, but also to investigate the use of VLEs in Saudi Arabia and adapt this experience in Saudi higher educational institutions. This adaptation is considered an educational system requirement in Saudi universities. An online course entitled Comp101 has been developed using Moodle to make use of VLEs in Saudi Arabia. The Comp101 Moodle has been developed according to Saudi educational requirements. Furthermore, some criteria have been considered to evaluate the developed system by students and teachers to ensure the effectiveness of the course. As result of the evaluation, the Comp101 Moodle might be a usable tool to deliver the Comp101 lessons online. The wide range of learning strategies used in the Comp101 Moodle help students to learn effectively according to their own learning styles. In addition, integrating the Comp101 Moodle into the classroom or virtual classroom could boost the learning process and increase the effectiveness of the system.

ABBREVIATIONS

CMS: Course Management Systems

CCS: Cascading Style Sheets

FAQ: Frequently Asked Questions

FE: Further Education

HE: Higher Education

HCI: Human Computer Interaction

ICT: Information and communication Technology

IT: Information Technology

JISC: Joint Information Systems Committee

LCMS: Learning Content Management System

LMS: Learning Management System

LO: Learning Object

LSS: Learning Support System

LP: Learning Platform

MLE: Managed Learning Environment

Moodle: The Modular Object-Oriented Dynamic Learning Environment

OLC: Online Learning Centre

OSS: Open Source Software

RSS: Really Simple Syndication

SCORM: Shareable Content Object Reference Model

URL: Uniform Resource Locator

VLE: Virtual Learning Environment

VMLE: Virtual Managed Learning Environment

WebCT: Web Course Tools or Blackboard Learning System

WYSIWYG: What You See Is What You Get

INTRODUCTION

The global education field has been quick to embrace the use of technology in order to make education accessible to millions of people across the globe. A number of institutions have fully embraced the use of Virtual Learning Environments (VLEs) for delivering educational materials (Totkov,2003) and using web-based learning instead of classroom-based learning. In Saudi Arabia, a VLE is considered a new trend in education, and needs to be fully mastered in Saudi institutions. This project aims to explore the use of VLEs in Saudi Arabia and how they are being used in relation to Saudi educational requirements.

This project is divided into seven chapters. Chapter One identifies the main research question of this project, regarding the use of VLEs in Saudi Arabia and proposes a feasible solution to initiate the use of VLEs, by developing an online course, namely Comp101. The chapter highlights the researcher's experience of teaching the Comp101 module in a paper-based format, and presents the scope of the project, the objectives and goals of the project and the project time frame and tasks. Chapter Two, the literature review, focuses on three issues: the concept of VLE's their features and platforms, particularly Moodle, Chapter Three, investigates current use of VLEs in the United Kingdom and the potential use of VLEs in Saudi Arabia. Chapter Four, presents the reasons for selecting Moodle as the learning platform for this project, the features of the Comp101 Moodle, and a brief review of the instructional design model with its main phases and the design stage of the course based on Al-Moshakeh's instructional design model. Chapter Five presents the utilization stage of the instructional system, based on Al-Moshaikeh's model. It also describes the development stages of the Comp101 online course, and presents the installations of the essential software including installations of the local server and the moodle software. In addition, it presents the end-users training to help them access the system. Chapter Six, shows the course evaluation, based on Al-Moshaikeh's instructional design model, along

with the evaluation techniques used to evaluate the course by students and teachers. It also describes the criteria for evaluating the quality of the course. Following this, the chapter analyzes the evaluation data and discusses the evaluation results. The concluding chapter, Chapter Seven, presents the summery of the study and outlines the deductions of the research and recommendations for future developments of the online course.

TABLE OF CONTENTS

ABSTRACT	I
ABBREVIATIONS	II
INTRODUCTION	IV
CHAPTER 1: PROJECT DEFINITION	1
1.1INTRODUCTION	1
1.2 PROBLEM DEFINITION	2
1.3PROPOSED SOLUTION	2
1.4WHY COMP101	3
1.5SCOPE OF THE PROJECT	3
1.6 PROJECT OBJECTIVES	3
1.7PROJECT PLAN AND TASKS	5
CHAPTER 2: LITERATURE REVIEW	6
2.1 INTRODUCTION	6
2.2 VIRTUAL LEARNING ENVIRONMENTS VLEs	6
2.2.1 THE CONCEPT OF VLEs	8
2.2.2 THE FUNCTIONS OF VLES	9
2.2.2.1 THE FUNCTIONS OF VLES: USER'S PERSPECTIVE	11
2.2.3 EDUCATION IN THE VIRTUAL WORLD: CHALLENGES	14
2.2.4 OPPORTUNITIES PROVIDED BY VLEs	14
2.2.5 VLE PLATFORMS	16
2.2.6 MOODLE	19
2.2.6.1 MOODLE IN FIGURES	20
2.2.6.2 MOODLE LAYOUT	21
2.2.6.3 MOODLE'S FEATURES	22
2.2.6.4 MOODLE AND WEB 2.0	24
CHAPTER 3: USE OF VLEs IN THE UK AND THE KSA	25
3.1 INTRODUCTION	25
3.2AN OUTLINE OF THE BRITISH EDUCATIONAL SYSTEM	25
3.3 USE OF VLES IN BRITISH UNIVERSITIES	27
3.3.1 INFORMATION TECHNOLOGY PROFESSIONALS AT BRITISH UNIVERSITIES	30
3.3.2 COMPARISON OF THE PAST AND THE CURRENT EDUCATIONAL SYSTEM USING VLES: BRITISH UNIVERSITIES	31
3.3.3 MOODLE AS A VLE IN BRITISH INSTITUTIONS	31
3.3.4 RECOMMENDATIONS BY BRITISH UNIVERSITIES	32

3.4 AN OUTLINE OF THE SAUDI EDUCATION SYSTEM	33
3.5 THE USE OF VLES IN SAUDI UNIVERSITIES	
3.5.1 TECHNOLOGY EVOLUTION IN SAUDI ARABIA	34
3.5.2 INVESTMENTS IN VLES IN SAUDI ARABIA	36
3.5.3 MOODLE AS A VLE IN SAUDI UNIVERSITIES	37
3.5.4 CURRENT SITES PROVIDING MOODLE IN SAUDI ARABIA	38
	40
CHAPTER 4: SYSTEM DESIGN	41
4.1 INTRODUCTION:	41
4.2 WHY MOODLE WAS CHOSEN AS THE LEARNING PLATFORM FOR THE COMP101 COURSE	41
4.3 FEATURES EXPECTED FROM COMP101 MOODLE	42
4.4 INSTRUCTIONAL DESIGN	46
4.5 AL-MOSHAIKEH'S MODEL: COMP101's INSTRUCTIONAL DESIGN	49
4.6 ANALYSIS STAGE	49
4.7 PREPARATION STAGE	55
4.8 DESIGNING COMP101 MOODLE'S DATABASE	59
4.9 TRYOUT AND REVISION STAGE	61
4.9.1 DESIGNING THE SYSTEM'S INTERFACE:	62
4.9.2 DESIGNING THE LESSON STRUCTURE:	62
4.9.3: TRYOUT AND REVISION OF COMP101'S INSTRUCTION DESIGN:	63
4.9.3.1: INDIVIDUAL TRYOUT AND REVISION:	64
4.9.3.2: SMALL-GROUP TRYOUT AND REVISION:	64
4.9.3.3: TRYOUT AND REVISION IN THE REAL ENVIRONMENT:	64
4.10 UTILIZATION AND EVALUATION STAGES	65
CHAPTER 5: SYSTEM DEVELOPMENT	66
5.1 INTRODUCTION:	66
5.2 UTILIZATION STAGE: AL-MOSHAIKEH'S INSTRUCTIONAL DESIGN MODEL	66
5.3 INSTALLING THE LOCAL SERVER	67
5.4 INSTALLING THE MOODLE SOFTWARE	68
5.5 CUSTOMIZING COMP101 MOODLE	69
5.6 DEVELOPING THE COMP101 COURSE SPACE	72
5.7 DEVELOPING THE COMP101 LESSONS	74
5.8 END-USERS TRAINING	78

CHAPTER 6: SYSTEM EVALUATION AND DATA ANALYSIS	79
6.1 INTRODUCTION:	79
6.2 EVALUATION STAGE: AL-MOSHAIKEH'S INSTRUCTIONAL DESIGN MODEL	79
6.3 THE CRITERIA FOR EVALUATING THE QUALITY OF THE COMP101 MOODLE	81
6.4 EVALUATION TECHNIQUES	82
6.4.1 FOCUS GROUP INTERVIEWS	82
6.5 DATA ANALYSIS AND INTERPRETATION	84
6.5.1 DATA ANALYSIS OF STUDENTS FOCUS GROUP INTERVIEW	84
6.5.1 .1 PROVIDING GENERAL INFORMATION THROUGH THE COMP101 MOODLE:	85
6.5.1.2 NAVIGATION THROUGH THE COMP101 MOODLE AND ACCESSIBILITY TO THE COURSE MATERIAL	85
6.5.1.3 THE ORGANIZATION OF THE COMP101 MOODLE	86
6.5.1.4 THE LANGUAGE OF THE COMP101 MOODLE	86
6.5.1.5 COMP101 MOODLE LAYOUT	87
6.5.1.6 GOALS AND OBJECTIVES	88
6.5.1.7 COURSE CONTENT	88
6.5.1.8 INSTRUCTIONAL STRATEGIES AND OPPORTUNITIES FOR PRACTICE AND TRANSFER	89
6.5.2 DATA ANALYSIS OF TEACHER FOCUS GROUP INTERVIEW	90
6.5.2.1 IDENTIFY THE PROBLEM:	91
6.5.2.2 PROVIDING GENERAL INFORMATION THROUGH THE COMP101 MOODLE:	92
6.5.2.3 NAVIGATION THROUGH THE COMP101 MOODLE AND ACCESSIBILITY TO THE COURSE MATERIAL	92
6.5.2.4 THE ORGANIZATION OF THE COMP101 MOODLE	93
6.5.2.5 THE LANGUAGE OF THE COMP101 MOODLE	93
6.5.2.6 COMP101 MOODLE LAYOUT	94
6.5.2.7 GOALS AND OBJECTIVES	94
6.5.2.8 COURSE CONTENT	95
6.5.2.9 INSTRUCTIONAL or LEARNING STRATEGIES AND OPPORTUNITIES FOR PRACTICE AND TRANSFER	95
CHAPTER 7: FINDINGS, CONCLUSIONS & RECOMMENDATIONS	97
7.1 INTRODUCTION:	97
7.2 FINDINGS OF THE STUDY:	97
7.3 SUMMARY OF THE STUDY	98
7.4 RECOMMENDATIONS FOR FURTHER WORK:	99
REFERENCES	101
LIST OF APPENDICES	113

CHAPTER 1: PROJECT DEFINITION

1.1 INTRODUCTION:

Technological developments are getting more and more advanced every day. Technology is being incorporated in every kind of organization, even educational organizations. Every major sector is making use of technology in several ways including educational departments as well as organizations in other sectors (Secker, 2004). Technology is another means of performing tasks faster and in a more organized manner. In the educational sector, the face of technology being utilized includes multimedia, projectors and so on. In addition to this, the newest systems to be employed are virtual learning environments (VLEs). These software systems are being used to support teaching as well as learning (Thorsteinsson et al., 2006). Many countries have started using these software systems as they have been very helpful. Such countries include the United States and many European countries, including the United Kingdom (UK). These countries make use of VLEs in academia in order to make the system easier for teachers as well as students (Thorsteinsson et al., 2006). The developing countries, such the Kingdom of Saudi Arabia (KAS), have not mastered this technology yet in their educational institutions (Al Ajlan *et al*, 2007). This project will investigate the use of VLEs, particularly Moodle, in the UK and the KSA. Furthermore, in order to make use of the Moodle VLE in Saudi higher education institutes, an online course will be developed using Moodle, which will take into consideration the educational requirements and needs of Saudi educational institutions.

This chapter will identify the main research question of this project with regards to using VLEs in Saudi Arabia. Following this, a feasible solution will be proposed to tackle this problem and make use of VLEs by developing an online course namely Comp101 using the Moodle software. Within this chapter, the researcher's experience of teaching Comp101 in a paper-based format is

highlighted in order to allow the reader to understand the context of the project. The scope of this project will also be highlighted, along with an explanation of how the objectives and goals of the project will be achieved. Finally, the project time frame and tasks will be illustrated using the Gantt chart.

1.2 PROBLEM DEFINITION

Although the Saudi educational institutions show a remarkable interest in using VLEs (Al-Asmari, 2005), to date this interest has not been transferred into reality effectively. The use of VLEs is limited to distance learning and few Saudi HE institutions are providing such learning. Teaching using traditional methods; classroom and paper based, is still how the majority of Saudi educational institutions, both schools and universities, still use those methods (Al Ajlan et al, 2007). Teachers still use the white board and pen as the primary tools for delivering the information and lessons. Students do not use technology to enhance their learning process and they hardly use the internet at all for educational purposes (Al-Asmari, 2005).

1.3 PROPOSED SOLUTION

Since the UK is one of the countries which are truly enjoying the benefits of VLE (Barajas, 2003), an investigation into the use of VLEs in UK higher education institutions is required to adopt such experiences in KSA higher education institutions in a way to meet the Saudi educational requirements. Furthermore, to make use of VLEs in higher education institutions in Saudi Arabia, an online course, namely Computer Application (COMP101), will be developed using Moodle, to tackle this problem. This online course will benefit from the Moodle features, promote the use of VLEs and enhance the learning process in Saudi Arabia. Utilization of VLEs through transferring a paper-based course to an

online course using Moodle could propel and motivate Saudi mentors to use VLEs and adopt such technology in their institutions.

1.4 WHY COMP101

As the researcher teaches the Comp101 module in a paper-based format at Tabuk's Health College, she has experience of teaching this course using traditional methods (whiteboard and pen). The idea of transferring Comp101 to an online course is proposed in order to make use of VLEs and adopt new teaching methods. The researcher, while teaching Comp101 in a paper-based format, noticed that the traditional method do not fulfil the course requirements such as its collaborative nature. The students cannot collaborate effectively working in groups using the traditional method. It is also does not help the teacher to deliver the information in an effective way. For example, it was very hard to explain the computer concepts to the student using traditional methods. In addition, the traditional methods do not help the student to practice the practical elements of the course. According to a survey conducted by the teacher at the end of the paper-based course, most students found the teaching method inappropriate for practicing the practical elements of the course.

1.5 SCOPE OF THE PROJECT

Although there are various VLE platforms, this project will use Moodle as the learning platform. Due to time limits, this project will focus only on developing an online course and the web-based lessons over Moodle, at the same time covering the pedagogy and documenting dimensions in detail. Assessment of the course will not be covered by this project, excepting the assessment issues related to the lesson.

1.6 PROJECT OBJECTIVES

This project aims:

- To explore current use of VLEs in UK higher education institutions.
- To explore potential use of VLEs in Saudi higher education institutions.
- To make use of VLEs by developing an online course namely Comp101 using Moodle taking into consideration Saudi educational requirements.
- To allow students and teachers to evaluate the developed course for quality assurance purposes.

The development of the course aims to achieve the following goals:

- To provide an interactive learning environment to encourage learners to collaborate and communicate with each other through communication tools such as discussion threads, emails and video conferencing.
- To provide rich media within the course to enhance the learning process.
- Use a collaborative learning style to help learners work in groups effectively and share their knowledge and experience.
- Adopt a self-teaching approach to allow learners to learn independently in their own time.

1.7 PROJECT PLAN AND TASKS

The project will be conducted in twelve weeks as shown on the Gantt chart below: (See a detailed project time plan in Appendix 2)

Task / Month	2009											
	July				August				September			
	W 1	W 2	W 3	W 4	W 5	W 6	W 7	W 8	W 9	W 10	W 11	W 12
Analysis												
Literature Review												
Data Collection												
Design												
System Development												
Train Users												
System Evaluation												
Evaluation Analysis												
Conclusion & Recommendations												

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

The global education system has undergone major transformations in the past few decades and this rapid change can be directly attributed to technological innovations such as using web-based learning instead of classroom-based learning. Many new communication technologies have been developed and introduced into the market, such as virtual learning environments (VLEs) (Totkov, 2003). The global education sector has been quick to embrace these new systems in order to make education accessible to millions of people across the globe. Since the major objective of this project is to analyze the use of VLEs, this chapter will identify general information about the concept of VLEs, along with the opportunities and challenges faced by the user when using VLEs. Furthermore, the functions of VLEs are considered in this chapter and clear consideration is given to the examples of VLEs, in particular Moodle, with explanations of its features and functionality.

2.2 VIRTUAL LEARNING ENVIRONMENTS VLEs

It is a fact that most modern higher education institutions use virtual learning environments (VLEs) to improve e-learning and raise productivity (Al Ajlan *et al*, 2007). A survey, conducted in 2003, to explore the use of VLEs in the UK, reported that 67% of HE institutions use VLEs (Browne & Jenkins, 2003).

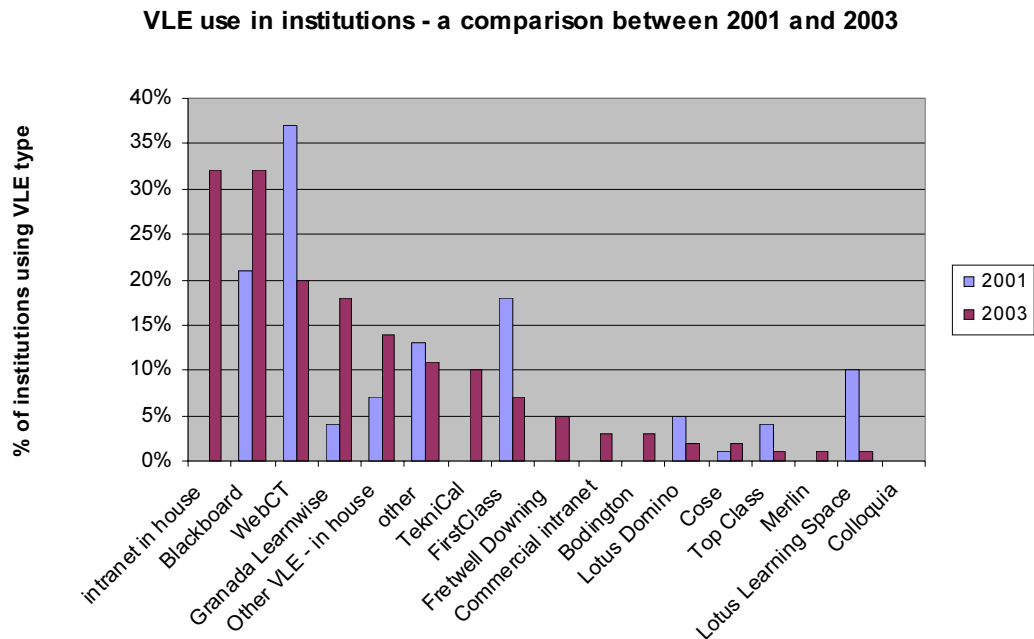


Figure 2.1: VLEs use in HE institutions in the UK (Adopted from www.jisc.ac.uk)

The term 'VLE' is commonly used in the education sector as it is becoming an essential part of the learning and teaching process. Many other countries such as Australia and Saudi Arabia use other terms for VLEs, such as Course Management Systems (CMS), Learning Management Systems (LMS), Learning Content Management Systems (LCMS), Managed Learning Environments (MLE), Learning Support Systems (LSS), Online Learning Centres (OLC) or Learning Platforms (LP). These terms are also used in the UK to represent online learning systems.

Most people cannot differentiate between MLEs and VLEs. In fact, MLEs and VLEs are separate systems. According to Weiss, Nolan, and Hunsinger (2006), the term 'MLE' covers a much wider area in terms of its meaning compared to the term 'VLE'. The term 'MLE' covers the large infrastructure of virtual educational learning, an MLE is a much wider concept than a VLE (see figure 2.2). An MLE covers an organization and administration as well as learning, while a VLE is used for educational facilities. For example, instructors and instructors are able to access course materials, generate reports, grade assignments and

communicate with their students throughout a VLE (Al-Asmari – 2005). Furthermore, a VLE allows students be involved in e-learning as they have to download their course materials, submit their coursework and receive feedback electronically (Britain et al, 2001).

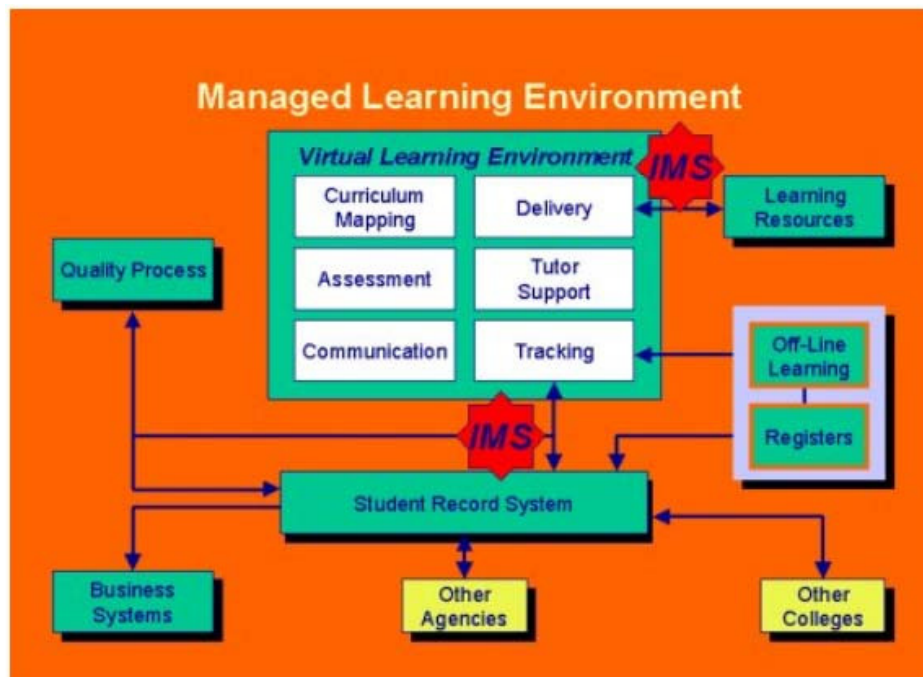


Figure 2.2: The relationship between MLEs and VLEs (Adopted from www.ukcle.ac.uk)

2.2.1 THE CONCEPT OF VLEs

A virtual learning environment (VLE) is defined as a online learning system, which provides a variety of interactive activities, which take place between students and instructors as well as offering tools to support the learning process such as a tool to provide feedback automatically and a tracking tool to trace students' progress (Al Ajlan et al, 2007). Although a VLE is primarily designed for distance learning, it is commonly used in blended learning as a supplementary platform for traditional learning.

VLEs are provided the portal of online learning in many perspectives. As technology becomes more advanced students will be able to make better use of VLEs. However, misuse and disorganization of courses can lead to a loss of benefits from using VLEs. Disorganization in the context of inaccurate tools and the use of inaccurate multimedia can lead to disorientation for the user. The enthusiasm that is associated with a certain educational activity might be lost if VLEs are used in an unorganized manner.

Ghaoui (2003) says that the usage of media, as well as resources, can offer the best kind of knowledge to students, where knowledge is presented in a more organized form. This platform also allows interaction between the instructors and students and has been the main concept in the use and integration of VLEs in education. Only through this communication can the knowledge gap be narrowed and resolved and goals and aims related to the use of VLEs can be achieved.

2.2.2 THE FUNCTIONS OF VLES

VLEs provide numerous functions, which are designed to deliver and support online learning. These functions typically include a content development and management tool, a course management tool, a class/course administration tool, an assessment tool, a quiz and survey feature, an assignment submission feature, a communication tool, and a repository tool (Northumbria University, 2008). The new VLEs provide a blog, Wiki, RSS and 3D virtual learning features. For example, Oxford Brookes University provides a wide range of online courses throughout a VLE called 'Brookes Virtual' which supports courses delivered both on and off-campus and allows students to use online assessment in a formative and summative manner (JISC, 2009B).

Al-Ajlan *et al* (2007) point out that VLEs accommodate various advantages such as unlimited accessibility over the internet at any time and the ability to incorporate different applications into one system.

A VLE is capable of providing various courses through consistent and friendly interfaces. It also offers a course management tool to create the course syllabus, upload/download course materials and share course documents (Al-Asmari, 2005). It also offers a back-up feature for all courses. In addition, the course management tool offers a search tool for both the users and instructor on the course with the capability to view student data, courses or groups depending on a specific input such as a year or name.

The content development and management tools in VLEs usually provide a tool for creating and composing documents and URL links. Some VLEs have authoring tools that are compatible with standard word processors. Moreover, the content development and management tools support multimedia (text, image, audio and video). They can be integrated with the content.

The communication tools in VLEs are divided into two categories: asynchronous communication and synchronous communication. Asynchronous communication supports collaborative learning environments by offering a discussion board, email, forums and announcements, while synchronous communication includes chat rooms, video conferencing, audio conferencing and an interactive whiteboard for exchanging textual and visual information among students. Furthermore, VLEs provide a repository tool for courses and quizzes in order to provide easy reuse of resources and support resource sharing. In addition, most VLEs support SCORM (Shareable Content Object Reference Model) as the standard of courseware packages (King Abdulaziz University, 2009)

Since VLEs are used by various groups of users, they offer differential access, authorities and user permissions. The system administrator has complete access to the whole system while the instructor has limited access to her/his course space only.

2.2.2.1 THE FUNCTIONS OF VLES: USER'S PERSPECTIVE

A VLE typically has various user groups. A user can be an administrator, instructor or student. The VLE should be designed to function well for all these groups.

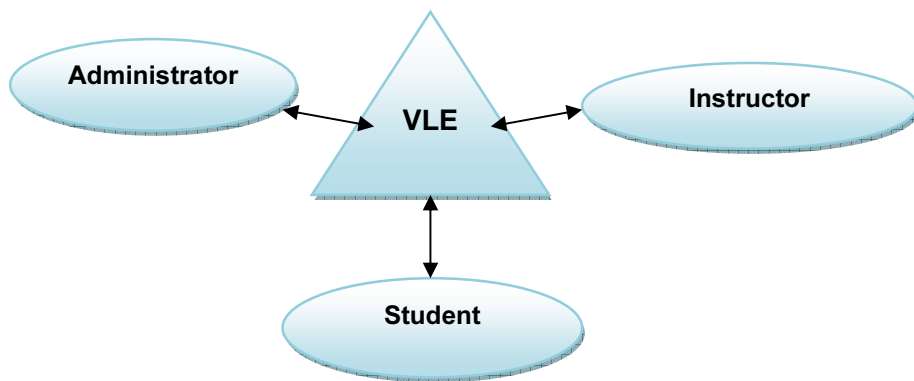


Figure 2.3: User perspectives of VLE's

The functions of a VLE from the perspective of each different user (administrator, instructor and student) are as follows:

1) The Functions of a VLE for an Administrator:

- Customizing the system's interfaces (layout, colour, font and size etc).
- Setting up discussion threads, courses and classes.
- Collecting and organising student marks.
- Accepting user registrations.
- Providing help and support.
- Setting up questionnaires and surveys.
- Activating/deactivating user's accounts.
- Communicating with all users.
- Setting up system announcements.

2) The Functions of a VLE for Instructors:

- Setting up discussion threads for courses.
- Uploading lecture notes and course materials.
- Creating a list of course resources with URL links.
- Setting up modules, courses and groups.
- Adding students to courses.
- Creating the course syllabus.
- Tracking students' progress.
- Providing course announcements.
- Creating quizzes which are marked automatically.
- Sending emails to students and administrators.
- Customizing the interface of the entire course site (colour, font, size and layout).
- Setting up assessment procedures (summative and formative).
- Controlling student authority within the course.
- Accessing the repository including importing and modifying questions from the question bank, usually created by module instructors.
- Creating a collection of questions (multiple choice, multiple answer, matching, ordering and short answer questions) and the incorporation of multimedia (graphics, audio, video) into questions and the course content.

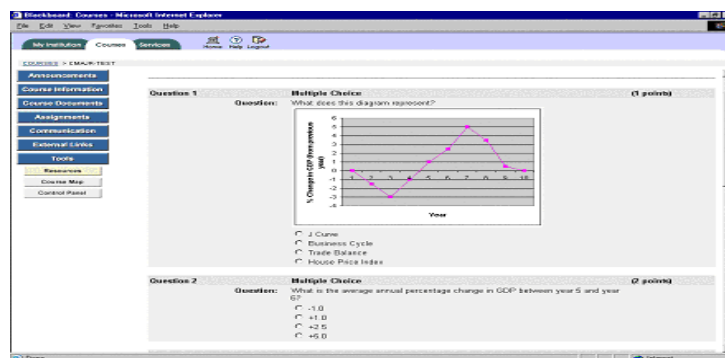


Figure 2.4: An example of multiple choice questions in VLE (Adopted from www.economicsnetwork.ac.uk)

3) The functions of a VLE for Students:

- Performing quizzes and assessments (peer and self), which can be marked automatically.
- Downloading course materials.
- Receiving course and system announcements.
- Accessing course resources.
- Reading course materials.
- Receiving instructor's feedback.
- Uploading coursework and assignments through a digital dropbox.
- Receiving coursework submission receipts.
- Self-enrolling.
- Viewing a list of modules on which they are enrolled.
- Viewing grade books.
- Communicating through email and discussion boards with students and instructors.

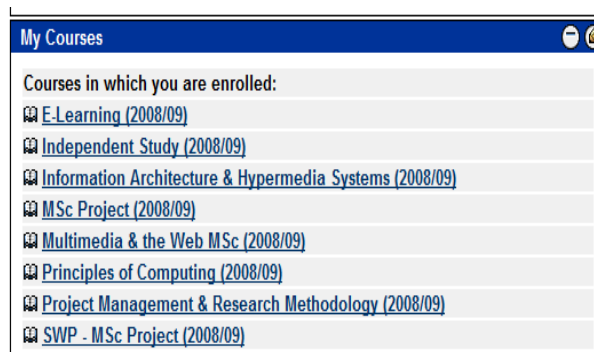


Figure 2.5: A list of modules in a VLE

2.2.3 EDUCATION IN THE VIRTUAL WORLD: CHALLENGES

According to Orange and Hobbs (2000), education has its own importance. However, when it comes to virtual education in the technological world, there are many challenges related to education. For the purpose of this project, these challenges will be discussed from the student's perspective. The main problem noticed in the case of virtual education is the accessibility criteria as the absence of screen readers makes VLEs or visual systems unable to be used by people who are visually impaired.

Most educators in developing countries are unaware of how to provide education in a virtual world. Virtual learning environments require the integrating of classes, lectures, assessments and discussions into an online form and some instructors find it hard to carry out these activities as this requires new skills, for example Saudi Universities believe in the importance of using technology such as VLEs in education but they do not make serious steps to adopt this technology. In some cases membership for websites offering e-learning courses is free, but in other cases the website asks for a membership fee of around £6 a month from the students (Swinburne, 2008).

2.2.4 OPPORTUNITIES PROVIDED BY VLEs

Kafai et al. (2004) state that the popularity of the virtual world has increased over the last few years, in terms of online gaming and social networking. This has led to education going online in order to reduce the distance and time in terms of learning. It has been predicted that 80% of internet users located globally will be using the internet for virtual learning processes very soon, and the use of course management systems including video streaming, online testing and exam tools will be increased significantly by 27 % in 2010 (Kim & Bonk, 2006).

Those educational institutions that have already made use of VLEs are adapting to the systems so that they get used to them and can easily pass their knowledge

on. There are more than 30,000 institutions in over 202 countries using virtual learning environments for educational purposes (Popat. *et al*, 2007). Still there are many mentors who are in the process of using more virtual learning platforms in the future.

Newer and better opportunities are provided by VLEs as these are more beneficial and easily used. In this case each of the virtual tools has the ability to configure to a format that the user requires. The tools are such that the settings can be changed with regards to any subject or course content. The instructor-centred model of instruction has moved to a student-centred model of instruction and this has been the main opportunity provided by the virtual world. It has been estimated that the mode of instruction needs to move even further from an instructor-centred model to a student-centred model in order to deliver courses efficiently over VLEs

Wilson (2005) says that constructivist learning theories are incorporated in the student centred mode of instruction. In this case the learners and the students are given a chance to make use of their personal experiences to construct an understanding of the courses and lectures. In this way it can be said that by using virtual learning environments such as Moodle, people interact and share their experiences as well as conveying more of a sense of presence compared to any other medium of instruction. For example students can have a discussion with each other and their instructors via the discussion board in the VLE.

Jonassen and the Association for Educational Communications and Technology (2004) have argued that another concept being applied and implemented by VLEs is active participation or active learning that has been adopted by the gaming generation. The students in this case are more than actively participating and this is needed in education as well, i.e. students have to participate in learning activities in order to learn effectively. Active participation is used in VLEs as models of this nature are being used by the software of VLEs. Unintentional

learning is promoted by VLEs as students are made to utilise their education by using their intellect more than with books and papers (Jonassen et al, 2004). Multiple learners located globally learn to communicate as well as to discuss many things online.

2.2.5 VLE PLATFORMS

Since the global need has increased in terms of integrating technology into education, various platforms have been developed to foster e-learning and to enhance the quality of online education. Although these learning platforms have one purpose, which is to produce an learning portal over the internet, they are different in their features and tools. These are divided into two categories: open sources and licensed as follows:

I. Open Source VLEs:

- **MOODLE:** www.moodle.org

Moodle (Modular Object-Oriented Dynamic Learning Environment) is a non-commercial learning management system based on the constructionist theory (Moodle.org, 2009). Therefore, Moodle tools support social learning. In addition, it is open source software that can be modified and extended by many developers in its community (Britain et al, 2001). (See 2.2.6 Moodle)

- **eFront:** www.efrontlearning.net

eFront is an open source e-learning software. It developed to perform educational tasks in easy way. It includes a wide range of tools to create lessons and content. In addition, it is fully language supported (efrontlearning.net , 2009).

- Dokeos: www.dokeos.com

Dokeos offers all the components required for online learning and blended learning. It supports SCORM packages. It has been used by more 100 universities in 60 countries with over 1,297,000 users (Dokeos.com, 2009)

- ILIAS: www.ilias.de

ILIAS is a German web-based learning management system. It can be run on any server that supports MySQL and PHP. It has a huge community to support its products (ILIAS.de, 2009)

II. Licensed VLEs:

- Blackboard: www.blackboard.com

Blackboard is an academic suite. It is a licensed content management system designed to improve teaching and learning. It includes three e-learning products which are the Blackboard course management system, the Blackboard Community System and the Blackboard Content System.. Blackboard 6.0 is the latest version (Blackboard.com, 2009). WebCT has integrated with Blackboard recently.

- WebCT: www.webct.com

Recently WebCT has become a part of Blackboard. It has two systems Campus and Vista. It is a course management system commonly used in British higher educational institutions. The latest released version is WebCT 2.1 (Webct.com, 2009).

- FirstClass: www.firstclass.com

FirstClass is a licensed conferencing system. It is the first system used for messaging and communications activities. It commonly used for business and educational purposes (Firstclass, 2009).

- Desire2Learn: www.desire2learn.com

Desire2Learn (D2L) is a learning management system. It delivers eLearning solutions for government and the private sector, including schools and HE institutions in Canada, the United States, Australia and the United Kingdom (D2L, 2009).

- CyberExtension:
http://rightreasontech.com/Managed_Learning_Environment/CyberExtension.php

CyberExtension is a virtual managed learning environment (VMLE). It offers a blended learning platform. It is commonly used in schools for homebound students. It supports the educational standards (Right Reason Technologies, 2009).

- It's Learning: www.itslearning.co.uk

It's Learning is a Norwegian e-learning system. It offers collaborative learning tools. Its headquarters are in Norway. It has many personnel located in the United Kingdom, France, Italy and the United States. It's Learning supports SCORM and is written in ASP.NET (It's Learning, 2009).

- WebTrain: www.webtrain.com

WebTrain is a licensed web conferencing system. It designed for educational training and business purposes. It provides virtual live classes (WebTrain, 2009).

In conclusion, the purpose of all VLEs mentioned previously is to offer an e-learning environment over the internet, which is supported by tools from authoring to reporting. Some VLEs are open source software (OSS), which means they are easy to modify, use and distribute such as Moodle, eFront, Dokeos and ILIAS. On the other hand, some VLEs are licensed. Educational institutions must purchase the software license in order to run these systems on their own servers, such as Blackboard, WebCT, FirstClass, Disire2Learn, CyberExtension, It's Learning and WebTrain.

2.2.6 MOODLE

Moodle has its roots in Australia. However, currently the main development in Moodle comes from a global collaboration. Initially Moodle had been able to connect New York based executives with a non-profit organization based in Baltimore providing technical assistance to these executives (Moodle.org, 2009) . These are the main sources who are working on making and establishing the communities that cooperate with the innovative learning resources so as to bring together global learning minds

Martin Dougiamas, while working on his PhD at Curtin University, designed the program and it has been his inspiration ever since as another socio-constructivist approach. Moodle by its footage has the features that excelled in the approach that was given to it so as to support learning. Laurillard (2002) says that Moodle has a user friendly version that makes its use easier for mentors and professionals. In its user friendly interface it makes use of mug shots of participants, which helps in community building.

Moodle offers discourse forums for students as well as instructors. In addition to this, courses are available on Moodle in more than forty languages. For example: English, French, Spanish, German, Chinese and Arabic. An additional criterion that is being offered by Moodle is the "Instructors Hands-on Playground". This is the place where instructors have full control over the features of Moodle.

The table below shows Moodle figures for different aspects in 2009:

Registered validated sites	35,577
Number of countries	196
Courses	2,248,963
Users	24,423,583
Instructors	1,103,292
Enrolments	13,307,981
Forum posts	34,594,551
Resources	18,941,946
Quiz questions	29,131,136

Table 2.1: Moodle statistics in 2009 (Adopted from Moodle.org)

2.2.6.2 MOODLE LAYOUT

The general layout of the Moodle software is shown in figure 2.6. A benefit of this is that the elements on the page can be displaced and even deleted. In terms of the convenience of the instructor, the sections on the Moodle page can be hidden and changed as required.



Figure 2.7: Main layout of Moodle (Adopted from Moodle.org)

2.2.6.3 MOODLE'S FEATURES

Moodle programming has been done in PHP. Moreover, it is OSS, which means it can be extensible, modifiable and downloadable. It can also be run on various operating systems without modification such as UNIX, Windows, Mac OS and Linux. According to Remenyi and the International Conference on e-Learning (2007), Moodle has a flexible design mode that allows ease of use as well as convenience. New functions can be added and deleted by dropping them into the directory of the site where all the functions of the software are stored. New languages can be added in a similar manner and there is constant exchange of advice. The interface languages can be picked out by the user as he logs on. In addition Moodle has been given the ability of keeping a track of the logins as well as user tracking logs.

Moodle for Language Teaching			
Moodle » Lang Teaching » Quizzes » Example Listening Quiz for trying things out. » Reports			
Update this Quiz			
Example Listening Quiz for trying things out.			
Overview Regrade attempts Detailed statistics Simple statistics			
Name	Attempts	Highest grade / 100	
 Martin Dougiamas	<input type="checkbox"/> 33.3 18 February 2004, 11:49 AM (14 secs) <input type="checkbox"/> 26.7 18 February 2004, 12:28 PM (5 hours 6 mins) <input type="checkbox"/> 16.7 18 February 2004, 05:36 PM (16 mins 25 secs) <input checked="" type="checkbox"/> 60.0 27 February 2004, 06:45 AM (1 min 6 secs) <input type="checkbox"/> 33.3 29 February 2004, 05:13 PM (1 min 23 secs)	60.0	
 Renata Jdanova	<input type="checkbox"/> 33.3 18 February 2004, 05:41 PM (49 secs)	50.0	
 jeremy gilpin	<input type="checkbox"/> 33.3 19 February 2004, 01:26 AM (19 secs)	50.0	
 Don Hinkelman	<input checked="" type="checkbox"/> 100.0 23 February 2004, 01:45 PM (22 hours 49 mins) <input type="checkbox"/> 16.7 25 February 2004, 10:22 PM (125 days 13 hours) <input checked="" type="checkbox"/> 100.0 16 August 2004, 03:43 PM (1 min 11 secs)	100.0	
 Giovanni Farias	<input type="checkbox"/> 33.3 19 February 2004, 09:27 AM (1 min 38 secs)	50.0	

Figure 2.8: Tracking logs in Moodle (adopted from Moodle.org)

The bulletin board or the discussion forum is a popular part of Moodle. Students can interact and communicate with their instructors as well as other users from various countries.

Extra plug-ins can be added to Moodle such as Google translator, Twitter plug and more. In this case attendance slips are printed with a code and are handed out to the students. Using the code the students log on and lecture feedback is posted by students.

The lesson module allows the instructors to ask the students questions in the form of comprehension or quizzes, which allows them to assess what they have learnt. The journal module is where the students can keep a daily lesson diary. Moreover, the assignment module is where the student is supposed to submit a file that needs to be evaluated by the mentor. The instructor gives feedback to the student by the help of a pull-down menu that is present in Moodle.

With the help of Moodle the instructors and students collaborate with each other in a mutual manner. Duffy and Kirkley (2004) add that Moodle is a source of connecting the public as well as the private sector. In this case it can be assumed that Moodle is a source that connects public level education sectors as well as private level education facilities. The teaching and education resources can be used in the education facilities of both sectors.

2.2.6.4 MOODLE AND WEB 2.0

The term Web 2.0 refers to a new generation of web applications and technologies, which deal with the web as a platform (O'Reilly,2005). In addition, web 2.0 applications promote information sharing, interoperability and interactivity over the World Wide Web (Sharma, 2008). The web 2.0 examples are social-networking sites such as [Facebook](#) , video-sharing sites such as [Youtube](#), wikis such as [Wikipedia](#) , blogs such as [Technorati](#) , folksonomies such as [del.icio.us](#) and Photo-sharing sites such as [Flickr](#) and more. Moodle is implemented to integrate the web 2.0 features for educational purposes. Some features are already implemented in Moodle such as blogs, forums, wikis and RSS feeds, while others features can be added into Moodle easily (Moodle.org.2009). For example, adding video filters to embed YouTube videos into Moodle pages and setting up Twitter blocks to post and receive Twitter entries.

CHAPTER 3: USE OF VLEs IN THE UK AND THE KSA

3.1 INTRODUCTION

This project will investigate the use of VLES, particularly Moodle, in British higher education institutions and adopt this British experience to apply it in the higher education institutions in the kingdom of Saudi Arabia (KSA) taking into consideration Saudi educational requirements. In order to investigate the opportunities and challenges faced when using VLEs and to identify the educational needs and requirements of the UK and KSA this chapter provides a brief overview of the British educational system and the Saudi educational system. This is followed by a review of the use of-virtual learning environments (VLEs) in these educational systems. Lastly, some examples of the use of VLEs in higher education institutions in the UK and the KSA are highlighted

3.2 AN OUTLINE OF THE BRITISH EDUCATIONAL SYSTEM

It is an undeniable fact that no two countries can have the same educational system. Each country in the world has its own educational system philosophy and structure that meets the country's needs and requirements such as the National Curriculum in the UK. The educational system is considered the most important system in a country. It is designed and evaluated according to a national development plan and is considered essential for fulfilling the potential of the country's greatest resource: its people.

The philosophy of the British education system is based on developing required human resources through education and training, and building a comprehensive economic infrastructure (The European Education Directory, 2005). The education system in the United Kingdom differs slightly from region to region. For Example, the Scottish curriculum is not imposed by law and the schools have considerable freedom to decide what courses should be made available but the

educational system in England is quite strict when it comes to the curriculum. Schools are expected to follow the National Curriculum, which requires the studying of certain subjects and content (The European Education Directory, 2005).

The United Kingdom provides equal education at all levels to both men and women. Moreover, the British education system is mostly coeducational which means men and women study together in the same classes. Furthermore, the British government provides textbooks free of charge to the pupils who study in pre-higher education, and the same textbooks are used by male and female students, who also follow the same academic curriculum (The European Education Directory, 2005).

Nursery education in the United Kingdom starts between ages of three to five, while compulsory education is between the ages of five and sixteen. Legally, all children at this age have to participate in full time education, which is appropriate to their requirements and needs (Holt et al, 1999). The general education system is divided into two education levels, the primary level, comprised of two years of infant school and four years of junior school, and the secondary level comprised of five years of comprehensive school and five years of modern secondary school or grammar school (The European Education Directory, 2005). On the other hand, some students, after statutory school, receive a full time education, known as secondary education. This secondary education provides technical and vocational courses leading to a professional qualification such as vocational, physical, social and recreational training.

Regarding higher education in the United Kingdom, there are over 200 institutions providing higher study, including bachelor, master and doctoral degrees. The majority of the HE institutions are independent. Each institution has its own administration and teaching policy. Furthermore, most HE institutions provide fee-paying education, but some people who want to pursue a university

or college degree are given a grant by the government to pay their tuition fees and living expenses.

The academic year in general education operates from the beginning of September to the end of June while the academic year in higher education operates from October to June for undergraduates and from October to September for postgraduates. Both undergraduates and postgraduates have two breaks for Christmas and Easter. Each break lasts for around four weeks. While, most of the HE institutions teach under a three-term system, there are a few HE institutions that teach based on a two semester system (Holt et al, 1999). Usually the third term is for revision and examinations in the institutions that teach based on a three-term system. The timetable in British universities and other HE institutions runs weekly from Monday to Friday at 9.00 a.m. to 9.00 p.m. for full-time and part-time courses. Some master and part-time courses take place between 5.00 p.m. and 9.00 p.m. (Holt et al, 1999).

Lastly, examinations in the United Kingdom are usually placed at the end of the academic year. They follow a pattern where pupils are given tests every week or month, and continuous assessment of essays and projects with grades during the whole term. This last method is very common in universities and colleges.

3.3 USE OF VLES IN BRITISH UNIVERSITIES

Global learners have used the platform of education in the twentieth century and this has increased the passion within people for lifelong learning. Web-based technologies are being used, along with virtual communities to enhance the learning process. These virtual communities are equipped with the ability to connect people and learners from all around the world to one virtual platform and help them achieve one common and mutual purpose: the attainment of knowledge with education.

A VLE is the name of the one form of software technology making its entry into educational facilities ranging from universities to high schools so as to save the time of teachers and students. According to Weller (2007), a VLE is an advanced phase of software technology that has been incorporated in many organizations, from e-commerce to online business dealings as well as transactions and much more. Hartley, Woods and Pill (2005) have added that the addition and mentioning of the term e-learning would not be a wrong move. This term has been used by UK-based scholars who have described the spread of knowledge in an unlimited way, without the limits of time and space where it can be accessed “anytime” and “anywhere”. However, an addition that has been made by the scholars in this case is the use by on-campus learners as well as distance learners.

In the case of the United Kingdom, especially the British Educational Communications and Technology Agency that deals with schools and educational facilities based in UK, the terms VLE and MLE are the favoured ones. In this perspective the main fact that needs to be realized is that the terms VLE and MLE are two different concepts in the case of virtual education.

The UK is one of the countries which are truly enjoying the benefits of VLE as well as the ICT (Information and Communication Technology) infrastructure and it is important to retain these benefits (Barajas, 2003). At the university level, as well as the other levels of the education sector, the opportunities in a VLE need to be explored and exploited. By making the exploiting the right areas, the UK can become the world leaders in online education.

It is an undeniable fact that Virtual learning environments are currently being utilized by many British institutions and these include scholastic, industrial and technological institutions. VLEs are one of the most reliable e-learning tools that can be helpful for students as well as professionals. Some of the British universities and other HE institutions using VLEs include the University of Oxford,

University of Cambridge, the Open University and the University of Wolverhampton. These universities use the Blackboard software as a VLE but recently they have moved toward using Moodle instead of Blackboard for many reasons. These reasons will be dealt with in the later sections of this chapter.

The main aim of the education departments all around the world including British universities, has been to provide fast and reliable education to students by saving time for both students and mentors and providing the most reliable assessment tools for coursework and quizzes to be marked in an easier manner. The concept that has been realized by teachers at British educational institutions is that a VLE provides many helpful tools for use in educational institutions, assignments or coursework such as course content uploading, communication, assessment of the students' work, the administration and handling of student groups as well as grading, questionnaires and tracking tools that help in marking the coursework in a smoother and a much more organized manner.

Britain et al, (1999) commented on virtual learning environments being integrated into the managed learning environments in further and higher education in the UK: "Since the 1999 report was published, the landscape of e-learning in HE and FE in the UK has changed considerably". Moreover, Barajas (2003) states that in the UK, it has been noticed that in the past years there has been an increase in the trend of e-learning as some students prefer to be educated at home rather than in a classroom.

In the case of distance learning in the UK, education can be taught at different levels and across the globe providing easy access to education for distance learners. Distance learning is a process that has been developed alongside the development of virtual learning environments. For the use of virtual learning environments, the educational departments at British universities have set a criterion for the use of VLEs so that they define the needs of all students. If VLEs

are to be used by the educational system, they must match the educational requirements of the university or educational facility.

3.3.1 INFORMATION TECHNOLOGY PROFESSIONALS AT BRITISH UNIVERSITIES

As has been realized by IT professionals working within British education institutions, the concept of VLEs has arisen from the use of computational systems. These systems include various computer-related technologies especially the types of software in of the many activities mediated by communication as well as information technology. These virtual environments ensure that various kinds of media as well as resources are used so as to make the best use of technology. Therefore, HE and FH institutions in the UK have founded the JISC (Joint Information Systems Committee) to enhance and improve e-learning in the UK by supporting research areas related to using the technology in education and providing the strategic planning of ICT and complete access to ICT resources. In addition, the JISC manages over 200 projects, 17 programmes in the e-learning field and provides more than 48 ICT services (JISC, 2009A). Educational institutions in Britain have been trying to use software systems in the education sector to reduce the knowledge gap between education and students and to enhance the learning process in the first place. They can also be used as the primary logical support for distance learning systems. Moreover, VLEs can also be of great support in the case of traditional and customary activities that are usually observed in classrooms or any educational environments for that matter. These activities can be carried out over the internet, increasing the interaction taking place between students and their mentors, thus decreasing the gap between education and knowledge.

3.3.2 COMPARISON OF THE PAST AND THE CURRENT EDUCATIONAL SYSTEM USING VLES: BRITISH UNIVERSITIES

In the past mentors at British institutions regarded the preparation of lectures, assessments and assignments as hard work, alongside keeping track of the students. Until recently, the powers of the internet and information technology were not well-known. Major errors were made in the case of course design that include a failure to engage the learner and an inability to realize the outcome of the course contents.

When VLEs are used in schools based in the UK, the terms usually used to denote them is the “Learning Platform”. UK-based professors and academic researchers have a belief that the learning platform makes use of all ICT-based systems in education and to support learning activities. All educational supportive services, the hardware as well as the software are integrated into the ICT systems in such a way so as to bring educational activities together inside as well as outside the classroom. In this way the student gets a personal and an online learning space as the teachers make use of stored courses, e-learning sources, and communication with others through peer communication portals as well as the facility of tracking progress. Dale, Holland, and Matthews, (2006) state that most UK-based educational institutions, as well as universities, have started to work around the lines of VLE. It is being used as an adjunct to the traditional courses including present and distance learners.

3.3.3 MOODLE AS A VLE IN BRITISH INSTITUTIONS

Educational and learning infrastructures in some British education sectors face greater challenges these days to provide higher quality low cost education. Financial capital as well as human resources is deemed to be less important in this geographical distribution. Furthermore, British people tend to use an open source community such as Moodle which let them step up and make changes in the field of education in a virtual sense. Internationally, in many countries,

including Britain, technological professionals as along with highly qualified teachers have integrated a platform to meet this challenge. In the beginning moodle.org was created for the purpose of user interaction as well as support. It has been noticed that as many as a hundred users can logon on a daily basis to search through the course contents and study forums.

It is a fact that Moodle is a recent creation; while in the past online e-learning systems had been managed by WebCT, Blackboard and others. There are many changes that need to be made in these software packages as they need to be updated to keep up with new technology. In addition, Moodle is being used by the mentors at British educational institutions and has been appraised for its rationale and the aims associated with this. These are just some of the features that make educational officers recommend the spread of VLE globally, in the form of Moodle.

3.3.4 RECOMMENDATIONS BY BRITISH UNIVERSITIES

The recommendations of using Moodle by the UK-based education sector are considered but the main recommendations made by British universities mostly taken into account by the other countries. Mentors at British universities and Luppicini (2007) say that Moodle has many advantages and is inclusive of the fact that the global learners can be gathered on one single platform. The high quality instruction being given out by the master teachers can be taken by global learners without any limitations for space, geographical location or time.

As has been experienced by British teachers, subject teachers and subject experts at various levels can collaborate with each other in many ways so as to make innovations in coursework. This is the best practice that can help these masterminds succeed in their line of work and they can also pass this innovation on to the next generation of professionals as well as learners.

3.4 AN OUTLINE OF THE SAUDI EDUCATION SYSTEM

The Saudi government believes that education is an essential element to develop nations and people. The Saudi government sets aside a huge provision for the support of education services in the KSA and it sets national policies and strategic planning in the education system to foster the teaching and learning process. Saudi Arabia designs and develops its education system to be compatible with its religion and cultures and economic factors. Therefore, the educational policy in the kingdom of Saudi Arabia is based on the Islamic perspective (Althobaiti, 2008). All the educational strategies, standards and curricula are elicited from that perspective and the academic calendar is Islamic based. In addition the school breaks are compatible with the Islamic festivals namely Eid ul-Fitr and Eid al-Adha. All the educational intuitions run weekly from Saturday to Wednesday.

The educational system is the same for all the different regions in the kingdom. Although the study system in KSA is non-coeducational, which means men and women study in separate schools at all education levels; it provides equal education at all levels to both the sexes. In addition, textbooks are distributed to all pupils in pre-higher education, free of charge, and the same textbooks are used by men and women, who also follow the same academic curriculum (Saudi Arabia Cultural Mission, 2006).

The Saudi education system is split into three main classes: general education, technical and vocational education and higher education. Moreover, the Saudi government has established a special school for adults and evening education and special education is provided for people who have physical problems or learning difficulties.

General education is managed by the Ministry of Education which was founded in 1945 (Al-Asmari, 2005). Nursery education in Saudi Arabia is between the ages of three to five years while compulsory education begins at the age of six.

The duration of compulsory schooling is eight years. Saudi children must study from the age of six to thirteen. In general education, there are three education levels divided into six years of elementary (the equivalent of primary level in the United Kingdom), three years of intermediate and three years of secondary.

Higher education is under the supervision of the Ministry of Higher Education, which was established in 1975. It is responsible for the supervision and planning of strategies to meet Saudi educational needs and requirements in the higher education field. It is also responsible for providing Saudi graduates and human resources who will be responsible for leading the national development objectives (The Ministry of Higher Education, 2008).

Higher education in Saudi Arabia has the same structure as other countries around the world including universities, colleges, and institutions that offer graduate studies programs, which grant Bachelor, Master and Doctoral degrees in some fields (Saudi Arabia Cultural Mission, 2006). Most Saudi universities are divided into faculties which may be subdivided into departments. There are 21 government universities and over 80 HE institutions in the kingdom (Saudi Arabia Cultural Mission, 2006). Saudi government grant all seats in its universities and colleges for all civilians without exception, and they also pay a monthly allowance to every student.

3.5 THE USE OF VLES IN SAUDI UNIVERSITIES

Rogers and Howard (2009) say that Saudi Arabia is one of the countries where education has been one of the main standards of life. High standards of education have been achieved in Saudi Arabia. However, there are still many changes needed in the education sector in this country. Educational levels need to be advanced in this particular country in relation to the implementation of advanced technology in the education sector. Information technology as well as online surfing is one of the main trends that have increased among the students (Saudi Arabia Cultural Mission, 2006).

Nowadays the younger generation is more than just familiar with information technology as social networking and all kinds of social collaboration is undertaken by them on a daily basis via the World Wide Web. There is a need for professors located in the country to understand that the increase in Internet usage can be utilized in many ways especially for the spread of education to people who are unable to acquire it due to factors such as time and distance.

According to Thorsteinsson et al (2006) VLEs have been used to support learning activities in schools for many years in countries as Norway, England, Finland, Iceland and Saudi Arabia .However, there are still some limitations when using VLEs . Saudi educational institutions need to spend a large amount of money to buy the VLE software and provide a technical support team (Al Ajlan, 2007). In this case the main role that needs to be played is by the higher education institutions the funding bodies in Saudi Arabia and those that fund the education around the world. The higher education and funding bodies need to bring as well as support the logic of online learning and distance learning. They need to promote a world-class ICT infrastructure. The mentors and higher authorities should collaborate with UK-based teachers and organizations.

Secker (2004) says that education these days needs a new and a better approach as well as a rationale that understands that, among other things, education has become virtual as well as online and in order to be advanced one has to excel in the field of e-learning. In the case of the KSA, there are some universities that have been offering web-based courses over the Internet such as King Faisal university (Al-Asmari, 2005), but the courses need to be accessed and organized in coherent manner over the VLE. However, this action can support online learning led by the higher education institutions.

The national centres of excellence, such as the National Centre for Electronic Learning and Distance Education, are the ones that play their role here so as to support this implementation on all levels of the institutions. They can help by

providing quality control, constant updating of the courses, research and development in the education sectors, and more importantly, educational psychology for the students and teachers.

3.5.1 TECHNOLOGY EVOLUTION IN SAUDI ARABIA

Saudi Arabia is facing a rapid growth of the technology in all fields including education (King Abdulaziz University, 2009). White (1999) points out that technology is an essential tool for classroom instruction which needs to be integrated into the curriculum. From such a perspective, the Saudi government has planned a five-year project to bridge a gap between technology and education. This project includes over 24,000 schools, 300,000 instructors and four million students. The main aim of the project is to facilitate e-learning in Saudi schools (Al-Asmari, 2005). Furthermore, it has established the National Centre of Electronic Learning and Distance Education (NeCL) to achieve the national plan for the implementation of an e-learning and distance learning infrastructure and promote higher education through e-learning. NeCL manages a number of projects, for example the Tajseer and Jusur LMS System (NeLC,2009)

Since early 1999, Internet access has become available and Internet providers have been allowed to provide the Internet to the public. As a result of this, eight universities used Internet services in 2000. Currently, all HE institutions have Internet access for all faculties and departments, and more recently the Internet has become available for all staff and students as well.

Nowadays most of Saudi schools and educational institutions have computer labs and classrooms equipped with technological devices such as projectors for use by instructors and students. Furthermore, several schools have applied online-courses in their teaching process such as the Al-Bayan private school for girls. A recent study to evaluate e-learning in the Al-Bayan school, found that teaching and learning through e-learning methods is more effective and efficient

than through traditional methods (Al-Abudlkirum, 2006). On the other hand, another Saudi study into using technology as instruction tool, said that the use of the internet for educational purposes is uncommon. The main reasons behind this were the language difficulties, lack of experience, problems in adopting new teaching methods and limited support (Al-Asmari, 2005). The Saudi government has to make a VLE for the education sector. The barriers can be decreased and the education can be improved. The limitations that usually exist in the case of VLEs can be removed.

3.5.2 INVESTMENTS IN VLES IN SAUDI ARABIA

Burgess and Taylor (2004) say that the funding councils as well as the research councils in relation to higher educational institutions need to make central investments in the case of VLEs. This could help in the maintenance and creation of the infrastructure of VLEs in Saudi educational institutions. More leadership in policies and investments is also needed for the research data organization on the internet which needs VLEs. The integrated information strategies have to be developed by the higher education institutions in Saudi Arabia and this should be inclusive of all the innovative as well as the visionary approaches. This should also be inclusive of all the shared administrative services at the end of the higher education institutions that can be made even more innovative by the implementation of VLE related technologies.

It can be added here that VLEs will be much more advanced in future years than they are now. Therefore, any future plans need to be more strategic than visionary. for further exploitation in the case of VLEs, the role of the higher education institutions needs to be expanded, that is to say that the roles being played by the higher education institutions need to be flexible, innovative and imaginative. Neto and Brasileiro (2006) say that in the case of the Saudi mentors the main requirement is that the teachers, as well as the students, should be aware of the exploitation and usage of the VLE infrastructure. The VLE

infrastructure is inclusive of the high quality learning content in the form of coursework, student assessment and discussion forums. The computer service departments, the information technology professionals as well as the higher education institutions need to train and help the mentors and students to make use of the infrastructures.

Elleithy et al. (2006) say that good planning and management skills are required to build a VLE infrastructure, to understand it and then to maintain it so as the students, distance learners and professionals can gain as much as possible from the systems. Universities in Saudi Arabia are required to put in the research so that the interested researchers can contribute in order to support the use of VLEs.

3.5.3 MOODLE AS A VLE IN SAUDI UNIVERSITIES

According to (Al Ajlan,2007), Moodle is the best choice for HE institutions in Saudi Arabia as it is an Open Source Software (OSS) which means it is free, accessible, downloadable and usable. In addition, HE institutions can modify it as they desire.

Recently, most HE institutions have used Jusur LMS as their chosen VLE. It is very similar to Moodle in its concept and technique. Jusur is an LMS designed by the National Centre of E-learning and Distance Learning. The main aim of this system is to manage the e-Learning process in Saudi universities. The system allows the student access to the courses, grades and assignments. In the same way, instructors and administrators can also access courses and reports. The table below shows the key features of Jusur:

Log in	Registering students in the portal
Schedule	Planning the course and the method of teaching it
Delivery	Making the course available for users
Tracking	Following up the students' progress as well as issuing student progress reports.
Communication	Students can contact each other through forums, emails and file sharing.
Evaluation	Testing students through quizzes and examinations, and grading them

Table 3.1: The Key Features of the Jusur System (Adopted from NeLC, 2009)

Despite most Saudi universities using Jusur as a VLE, some universities prefer to use other VLE software such as Blackboard and Moodle. Some of them justify this choice by the need for technical support. As there are many universities using Jusur, NeCL cannot provide sufficient technical support to all of these universities. For instance, the King Saud University previously used Jusur, but recently, it has shifted to Blackboard for the same reason. The figure below demonstrates Saudi universities which use VLEs and any other e-learning systems.

University	Blackboard	Moodle	Jusur	Other system
King Abdulaziz University				-The E-Learning Management Electronic System (EMES) -The Virtual Class Room System (CENTRA)
University of King Faisal	√ WebCT LMS Blackboard 9.0			-Class Capturing/ recording System -Virtual Classroom Synch.System
King Saud University	√ Under testing		√	
King Fahd University of Petroleum and Minerals	√ Blackboard CE WebCT CE 8			Live Virtual Communication (Centra Live)

University	Blackboard	Moodle	Jusur	Other system
King Khalid University	√			
Jazan University			√	
Al-Imam Muhammad ibn Saud Islamic University			√ Just in Computer Science Department	

Table 3.2: Saudi Universities which used VLE and E-learning system

3.5.4 CURRENT SITES PROVIDING MOODLE IN SAUDI ARABIA

Until now there has been no official system to provide VLE Moodle to educational institutions in Saudi Arabia. Recently some companies have started to provide this system to Saudi institutions for educational and commercial purposes

The first site is **the E-learning System of Saudi School K12**. It is a web site providing schools a service, which enables them create their own VLE system based on Moodle. The first six months is provided free but after that, schools have to pay a specific amount annually in order to use this system. Schools have to create their own VLE to register on the site first; every registered school has its own URL. In addition, this website provides technical support 24 hours a day. The website is available on <http://sak12.net/moodle/> (See Appendix 3).

The second website is **Saudi Moodle**. It is used for supporting online learning in the kingdom of Saudi Arabia. It is managed by the Smartway company. Saudi Moodle provides free courses for all researchers and learners in various knowledge fields. To benefit from this website, a user has to register, in addition, the user can create his or her own courses. Technical support is available as well. The web site is available on <http://www.sa-m.org/moodle/> (See Appendix 4).

CHAPTER 4: SYSTEM DESIGN

4.1 INTRODUCTION:

The previous chapter presented a complete understanding of VLE functionality and of both the Saudi and British educational systems; this chapter will present the reasons for selecting Moodle as the learning platform for this project.

Furthermore, the features of Comp101 Moodle, which was developed during this project, will be highlighted. In addition, a brief review of the instructional design model with its main phases will be presented. Finally, this chapter will illustrate the detailed instructional design model stages of the Comp101 courseware based on Al-Moshakeh's instructional design model.

4.2 WHY MOODLE WAS CHOSEN AS THE LEARNING PLATFORM FOR THE COMP101 COURSE:

Although there are a variety of VLEs, Moodle has been chosen as the learning platform to design the Comp101 courseware for the following reasons:

- Moodle is a free system, which means the source code is available to the public under the GNU license (General Public License).
- Moodle can be run on different operating systems Windows, Unix and Linux without any major adjustments.
- Moodle supports a wide range of database platforms like MySQL, Oracle, PHPMyadmin, ODBC and more.
- Users do not need to be database experts when dealing with Moodle because the Moodle database, including tables and queries, can be built automatically in the installation stage.
- Moodle is an open source system that makes it easy to use, modify and distribute.
- Moodle is designed based on learning theories and pedagogical principles.
- Educators need to make fewer modifications to create their own Moodle by using CSS and adding plug-ins.

- Moodle has a wide community that provides support and help concerning Moodle usages and functionalities
- Moodle can develop useable, accessible and effective online courses for students with less effort and in a shorter space of time.
- It supports the Arabic language. This is the most important reason as the Comp101 courseware will be developed for Arabic students.

4.3 FEATURES EXPECTED FROM COMP101 MOODLE

Essentially, developing an online course, namely Comp101, using a VLE, particularly Moodle, will create a new teaching approach in Saudi universities. Hence, this project will fulfil the educational system requirements at HE institutions in Saudi Arabia. The Comp101 Moodle will provide the following features:

1. Integrate Web 2.0 into the Comp101 online course. According to Anderson (2007), Web 2.0 applications are widely used in the domain of education to promote the learning process and underpin collaborative learning (see Section 2.2.6.4 Moodle and Web 2.0). Moreover, Franklin & Harmelen (2007) point out that Web 2.0 technologies provide social activities for students to generate and share information and work together collaboratively. Therefore, the nature of the course implicates collaborative sound and web 2.0 applications have integrated into the Comp101 Moodle such as a blog, content syndication (RSS feeds) and a digital glossary to support the process of learning and teaching through the Comp101 course .

A recent study has been completed on 47 students in their late teens by Chan & Ridgway (2006) to evaluate the effectiveness of using blogs to enhance the students' reflection on their learning in a Computer Applications course. The results of this study provides strong evidence that blogs have a positive effect in

terms of students' reflective thinking. Although the students did not have previous experience of using blogs, 80% of them found that blogs are a usable tool that helped them to review the lesson content. Moreover, the majority of them enjoyed using it and writing lesson journals. The study sample attributes are similar to the target students' in this study. Both groups are in their late teens, they are studying a Computer Applications course and they do not have previous experience of using blogs. Therefore, a blog is selected as the tool for lesson reflection in the Comp101 Moodle in order to enhance course reflection by encouraging students to use the blog to reflect upon their lessons. An RSS feed is a useful tool to keep students up to date with the latest news in their favourite shared content (Franklin & Harmelen, 2007). Since the comp101 Moodle concerns the computer science field an RSS feed of a computer journal has been set up to keep the students up to date with the latest news regarding computer development. Furthermore, RSS feeds save the instructor time by updating the contents automatically instead of the need to access the sites and check the updated news (Souza, 2006). Since the Comp101 course has a very large vocabulary and uses many technical terms, and as each unit has up to 20 new vocabulary items which may be unfamiliar to most students, a digital glossary has been implemented on the Comp101 Moodle. The entered glossary item is shaded grey in the course contents to increase the students' understanding of the word (Stanley, 2007).

2. As has been mentioned previously the nature of the course involves a collaborative teaching approach that has been adopted to help learners work in groups effectively and share their knowledge and experience using a collaborative tool such as the discussion board (Fichter, 2006). According to Harman & Koohang (2005) the discussion board allows students to strengthen their thoughts and bridge the gap between the learning objective and their previously attained knowledge. Therefore, a discussion board has been built on Comp101, and each lesson has its own thread in order to encourage the

students to discuss issues about the lesson and reinforce their ideas and knowledge regarding the lesson. Moreover, the discussion board offers asynchronous interaction (Fichter, 200^o) which is appropriate for the Comp101 course and the project objective i.e. it is not necessary for the students to be on the Comp101 Moodle at the same time to contribute to the discussion board.

3. Adopt a self-taught approach. In Saudi health colleges, the number of Comp101 instructors is insufficient. For example, in Tabuk's health college there is only one instructor to teach 60 students. It requires more time and effort to deliver the information to such a huge number of students. Therefore, a self-taught approach has been adopted to solve this dilemma. Students can learn independently in their own time. They will also be able to complete lessons, accomplish tasks and quizzes and receive feedback electronically in their own time.

4. Provide virtual video classes for revision purposes. Due to the fact that the Comp101 course is asynchronous and students learn the whole course independently, the virtual video classes have been created in order to hold a revision lesson through a direct connection between the instructor and students. Evans (2008) points out that revision is more efficient when it is held in direct communication using tools such as podcasts, virtual classes and video conferences. Such tools offer a recorded feature that students can download and reply at their convenience (Evans,2008). Almosa & Almubark (2004) state that virtual classrooms are a low-cost method and they can be conducted at any time and anywhere for users in different geographic areas. The virtual video classes are free using the WiziQ application. The WiziQ application is integrated into Moodle easily and has recording feature (WiziQ.com,2009). The virtual class will be set after each unit as a complementary lesson to clarify any points in the lessons of that unit. Attendance in the virtual class will be non-compulsory and non-assessed.

5. Provide lessons and activities supported by multimedia elements including video, sound and animation in order to promote the learning process. Mayer (2003) states that students learn more effectively from a multimedia-based lesson that includes words, pictures, video, illustrations narration and animation rather than a traditional lesson conducted via words alone. Furthermore, Lai et al (2008) point out that contents supported by multimedia components can enhance the students' ability in terms of content comprehension and memorization.

6. Provide a wide range of learning activities and digital games. For example, Leitner-based flash cards are used as a course activity, as learning drills to improve student memorization and prioritize the knowledge level of studying (Flashcardexchange.com, 2009). Leitner's system comprises of sets of flashcards, each set represents a degree of knowledge. When a flashcard is answered correctly it is promoted to the next flashcard set with a higher level of knowledge. When a flashcard is answered incorrectly it is demoted to the first flash card set. According to Prensky (2003) digital games are beneficial for learning by engaging the students in the learning process. Hill et al (2003) point out that puzzles and games are suitable for several topics in computer science, such as simple crossword puzzles to foster the computer terms. Therefore a simple crossword game has been set as an activity for lesson two: Computer Capabilities to underpin the learning objectives and the computer terms in the lesson (see Chapter 5).

7. Provide easy navigation and speedy access for the user. According to Lynch and Horton (2009) the navigation menu allows users to move easily through the major sections without needing to return to the home page. Users have their own menu in their space. A user, as a student, has a menu that includes links to her/his profile, a grade book, calendar, course topics, and the home page. While

a user as an instructor has his/her own menu that includes links to her/his profile, courses, calendar, students' grade books and the home page.

8. Provide a translation facility through the Comp101 Moodle via Google translator. Since the Saudi HE curricula requires the teaching of science courses such as Computer Science and Medicine in English (The Ministry of Higher Education, 2008), even though all students are Arabic the course materials are written in English, so the student page is supported by Google translator to increase the students' understanding of the course. According to research scientist, Franz Och (2006) Google translation has achieved a good level of accuracy compared to other translation systems Moreover, according to machine translation evaluation research conducted by NIST (2005) to evaluate the Arabic-to-English translation, Google has achieved the highest score over other sites such as SAKHR and ARL.

9. Students have the ability to personalize their spaces by changing themes and block layouts. Cha al et (2006) state that it is very important to provide some control to students to customize their learning environments depending on their preferences and needs. This is effective and beneficial to them in terms of their learning efficiency.

4.4 INSTRUCTIONAL DESIGN

As the primary objective of this project is to develop Comp101 lessons via a VLE, particularly Moodle, the instructional design process has been conducted in order to convert the learning principles and materials into systematic courseware (McNeil.2008). The instructional design stages are similar to any software development stages. The instructional designer must determine the input and output of the instruction and the output of the instruction must meet the learning objectives (Almosa & Almubark, 2005).

There are a variety of instructional design models such as Dick and Carey's design model (Dick & Carey, 2005), Hannafin and Peck's design model (Hannafin & Peck, 1988), the Rapid Prototyping design model (Tripp *et al.*, 1990) and Al-Moshaikhe's design model (Al-Moshaikhe, 1989); however, most instructional design models share the same phases which are as follows (see Figure 4.1):

- 1) Analysis phase: This includes defining the problem, analyzing the learning objectives and discovering feasible solutions.
- 2) Design phase: This involves selecting a delivery system, designing the sequence of the instruction and determining the target users.
- 3) Development phase: This includes developing the lesson plans and creating lesson materials.
- 4) Implementation phase: This phase involves delivering the instruction in a real environment such as a computer-based or online-based environment.
- 5) Evaluation phase: This phase involves two types of evaluation. Formative evaluation, which is conducted throughout the entire instructional design phase and summative evaluation, which occurs after the implementation phase.

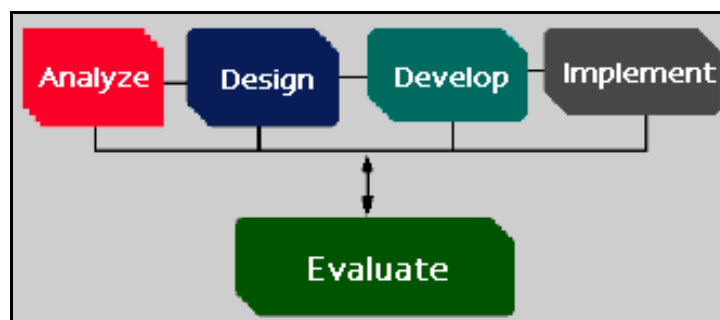


Figure 4.1: Instructional Design Phases (Adopted from futureu.com)

According to Al-Moshaikhe (1989), in spite of the variety of instructional design models, these models are designed to fulfil the requirements of their environments and educational needs. Therefore, a model has been designed

which is appropriate to the Arab educational requirements entitled the Al-Moshaikah model.

In 1989, Al-Moshaikah presented an instructional design model congruent with Arabic educational capabilities, particularly Saudi educational requirements. To date, Al-Moshaikah's model is the best-known model in the Arab world. Various institutions have applied it to their educational and training programmes (Almosa & Almubark, 2005). This model is comprised of five stages: analysis, preparation, tryout & revision, utilization and evaluation. The first three stages involve an iterative revision process, while feedback is involved throughout all stages of the model (see Figure 4.2).

Although, Al-Moshaikah's model has common stages with other models, starting with the analysis stage and ending with the evaluation stage, it differs in the middle stages and the method of instruction design. Al-Moshaikah's model feels that trying out the instruction design and revising it before the final implementation and utilization, is extremely important. The tryout and revision stage is known in some models as "Formative evaluation" (Dick, 1977). The tryout and revision stage is critical for the entire educational plan. Although, this stage is important to the total instruction design, it is not common in the other instructional design models (Al-Moshaikah, 1989). In the United States, only 1% of educational materials that are tried out and revised before they are released (Komoski, 1974, cited in Al-Moshaikah, 1989).

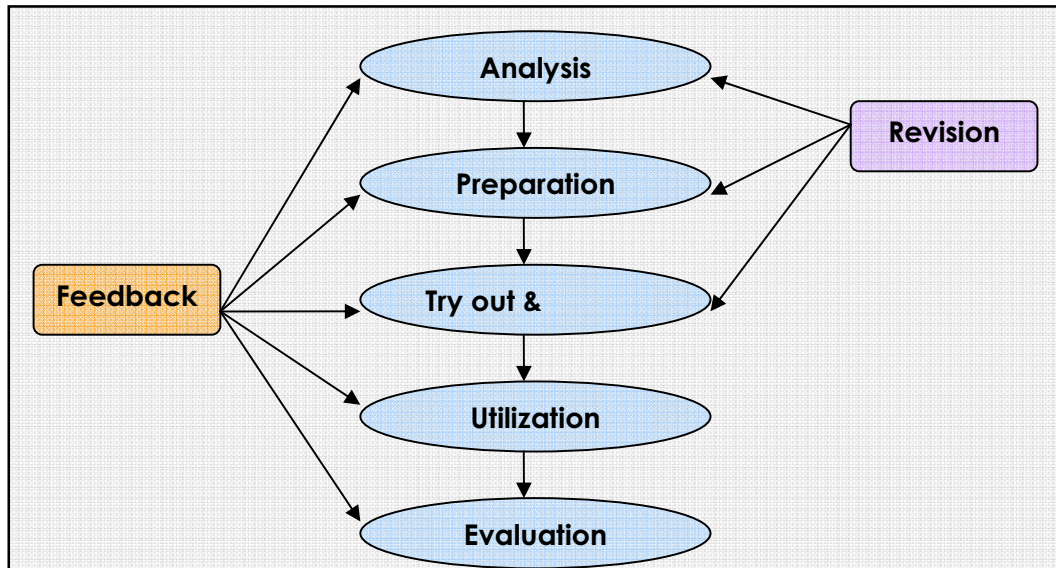


Figure 4.2: AL-Moshaikeh's Instructional design model

4.5 AL-MOSHAIKEH'S MODEL: COMP101's INSTRUCTIONAL DESIGN

Since the aim of the project is to design courseware for the Comp101 module to be compatible with the Saudi educational system requirements, Al-Moshaikeh's model has been selected to design the Comp101 courseware. The next sections describe Comp101's instructional design stages based on Al-Moshaikeh's model.

4.6 ANALYSIS STAGE

This refers to a precise description of system components and detailed specifications of each component as follows:

- **Needs Analysis:**

The analysis of needs will allow the instructor to focus his/her effort on the devolvement of the instruction and materials in order to achieve the instruction objectives effectively (Burton & Merrill, 1977). The needs of Comp101 are identified as follows:

- Current Status (status quo): Academic staff do not use VLEs to teach their courses online particularly the Comp101 course.
- Future Status: Academic staff teach online courses particularly the Comp101 course using VLEs.
- The Requirement: To develop an online Comp101 course using a VLE (Moodle) to allow instructors to deliver the course and help learners to learn and communicate with each other and receive feedback from their instructors.

▪ **Target Population Description**

In order to design the Comp101 courseware effectively and in an efficient way, the researcher has to take into account the learners' backgrounds such as age, education, experience ...etc (Almosa& Almubark,2005).

The learners' description can be divided into four categories, as follows:

- Educational Characteristics:
 - All students attend a Health collage.
 - All students who study Comp101 are full-time students.
 - Comp101 is a prerequisite course for all students at Health colleges in Saudi Arabia.
 - Most students do not have prior experience of computers and using the Internet. In other words, they are computer-illiterate.
 - A textbook is considered the only resource of Comp101 for all students.
- Demographic Characteristics:
 - All students are female.
 - All students are in the age range of 18-19

- Psychographic Characteristics :

- Students are used to learning in a traditional way (whiteboard and pen)
- Students have a fair interest in computers. According to a survey conducted by the Comp101 instructor (the researcher) of the paper-based Comp101 course, the students did not find it useful as they will work in the medical field after graduation.

- **Goal Analysis:**

The goal analysis is set as learner-oriented. It indicates what course outcomes should be mastered by students. These goals are generated by the results of the instructor's efforts (Burton & Merrill, 1977). Comp101 is designed to achieve the following goals:

- To understand computer fundamentals and concepts.
- To utilize Microsoft office applications effectively.
- To increase computer skills through learning the course via a VLE.
- To make use of computer in their social life by contributing in the forums and using emails.
- To save time by providing automatic feedback and mark assignments and quizzes automatically.

- **Course Materials Analysis**

This stage includes the analysis of course objectives, the content of the course and course tasks as follows:

- 1) Course Objectives :

By the end of the course, the learners will be able to:

1. Possess a complete knowledge of the fundamentals of computer concepts and components.
2. Prepare a word document using MS-WORD, features to include: creating a new document, renaming the document, saving the document, closing the

document, opening the document, editing the document, inserting symbols, formatting the document, changing the layout, changing font size and colour, adding page frames, organizing the document in different sections, inserting embedded or linked objects like pictures, shapes and charts, editing pictures and changing the picture colour, creating and formatting tables, adding a row or column, merging the cells, deleting a table, rows and columns, previewing the document and finally printing the document.

3. Use Excel spreadsheets to solve general problems of daily practice in the health field such as biostatistician analysis of experimental data using mathematical, financial, and statistical functions, and validation controls for data and charts.

4. Create a computer presentation using MS-POWERPOINT, features to include: creating a new slide, changing the slide layout, editing the slide, inserting a slide, deleting a slide, copying a slide, creating a graph, embedding dates and charts , creating tables, inserting video, sound and images, bringing a slide to life with animation, creating timing for a slide, adding an animated effect to the slide, using master slides, and finally previewing the presentation.

2) Content of the Course :

The online content of Comp101 consists of:

1. Introduction to Computers: computer concepts, computer capabilities, basic computer systems, hardware components, software types, types of computer systems

2. Computer Hardware: input & output (I/O) devices, Control Processing Unit (CPU) and CPU speed measure units, main memory (RAM & ROM), memory capacity measure units, motherboard layout and power supply and secondary storage units

3. *Computer Software*: working with Windows, definition of OS, understanding files, folders and disk maintenance, working with files and folders, working with computer applications, installing and removing program software, installing new hardware and PC troubleshooting.

4. *Microsoft Word*: Introduction to Microsoft Word, working with documents, formatting text, editing documents, formatting paragraphs, creating and formatting tables, working with graphics and advanced features (outlines, tables, styles, and sections).

5. *Microsoft Excel*: Introduction to Microsoft Excel, creating a worksheet, improving worksheet appearance, producing/printing well-designed WS, working with functions, sorting, filtering lists and validation, developing a multiple-sheet workbook, graphs and charts and spreadsheet and decision making.

6. *Microsoft PowerPoint*: Introduction to Microsoft PowerPoint, creating a graph in a PowerPoint layout, embedding and linking data, creating and refining a table, bringing slides to life with animations, creating timings for your slideshow, using master slides and importing a word outline into a presentation.

3) Task Analysis:

In the instructional design, task analysis refers to the process of analysing tasks that learners have to complete in order to achieve the learning objectives (Jonassen et al, 1999). Sometimes, task analysis is called analysis of objectives (Gagne, 1977). Being that Moodle (constructivist based) has been selected to be the learning environment of Comp101, an activity-based method has been adopted. According to Jonassen et al (1999) an activity-based method is appropriate to the tasks designed in a constructivist learning environment. The tasks which have to be completed by students to achieve the learning objectives of Comp101 are as follows:

1. Taking part in a discussion about the lesson to strengthen the students' thoughts and knowledge that they have learned in the lesson through the discussion board, in certain threads which have been set for each lesson.
2. Writing an essay about computer concepts using the Word-processor and sending it by email to make use of the computer.
3. Performing gaming and practical activities, which are attached to the lesson to increase the students' computer skills.
4. Implementing the biostatistician application using Microsoft Excel.
5. Producing a presentation about computer usefulness in the medical field using MS-PowerPoint.

- **Educational Environment Analysis**

Classroom: The initial classes will be held at the beginning of course to help students accessing the online course and materials (Al-Abudlkirum 2006). At some point, there will be lab classes to help the students accomplish their course tasks and to offer an opportunity for students to meet face-to-face. In the meantime, students can access the online course and virtual classroom using the VLE anytime and anywhere.

Equipment: each student must have her own computer, which is already connected to the Internet in order to access the online Comp101 course.

4.7 PREPARATION STAGE

This stage includes setting a strategic plan for lessons and selecting course resources and supporting documents (Al-Moshaikheh, 1989). The following are the most important elements to be planned during the preparation stage:

- **Setting the course teaching approach**

The setting of the teaching approach is one of the most important issues in the design of the instruction, which depends heavily on a) the analysis of characteristics of the students b) the analysis of the learning objectives and c) the analysis of the needs of the educational environment (Al-Moshaikheh, 1989). All three factors have a significant impact on the setting of the educational strategy.

In the analysis stage, the analysis needs and requirements in the educational environment are identified. Almosa & Almubark (2005) point out that a prerequisite of such a course is that the strengths and weaknesses of any educational system should be considered before setting the strategy of teaching.

According to Kemp (1977) there are three methods of teaching that are considered the prime methods of teaching:

- **Presentation:** this method is about presenting the educational materials for a group of students, no matter what size. This method of teaching is suitable for the instructor, who offers and provides diverse experiences for teaching.
- **Independent study:** individual teaching (i.e. the student can teach him/herself independently) is one of the important advantages of this method. It can be more effective when the educational materials are developed systematically, such as methods of programmed instruction.

- Interaction: this method relies on teaching the learners in small groups and working together under the supervision of the teacher or leader of the group. The group can discuss research and write reports with each other as well as sharing their experiences. One of the main advantages of this method is that it underpins collaborative learning.

The last two are more appropriate to the Comp101 online course. They fit in with the learning objectives and the educational plan. Therefore, independent study and interaction have been adopted as the teaching approaches for Comp101. The teaching approaches of Comp101 involve the following issues:

Individual teaching: the student pursues the course individually as well as completing the lesson activities and self assessment independently in her own time and the student can reflect upon her lesson by using the blog. Each student has her own user name and password to log into the system.

Collaborative learning: students can discuss lessons and share their knowledge and experiences' with each other through the discussion board and emails. Moreover, students can work in groups to accomplish the course tasks which require group work, such as implementing the biostatistician application using Microsoft Excel.

According the course teaching approach, Comp101 has been organized over the learning platform as follows:

- Course Objective
- Course Outline
- Course Forum
- Unit one : Introduction to Computers (6 lessons)
- Unit two : Computer Hardware (5 lessons)
- Unit three: Computer Software (7 lessons)

- Unit four: MS-Word (5 lessons)
- Unit five: MS-Excel (5 lessons)
- Unit six: MS-PowerPoint (6 lessons)
- Test
- Survey: Evaluate the Course

In addition, each lesson involves a lesson objective, summary and several activities such as quizzes, practical activities and blogs to allow students to reflect individually on the lesson, while each unit is supported by a virtual class to revise the whole unit.

▪ **Setting the Learning Environment**

Moodle is considered the VLE most suitable to develop the courseware. As mentioned previously, Moodle, compared to other VLEs, has various features that make it most appropriate for this online course (see Section 4.2).

▪ **Selecting Instructional Tools**

The instruction designer should carefully choose the instructional tools and teaching aids. The instructional tools are not only crucial to the design of the instruction but also they can contribute to the learning process (Al-Moshaikheh, 1989). Thus, the use of the instructional tools in the instruction depends on several issues including: the learning objectives which have to be achieved, a link between the instructional tools and the content of educational materials, the characteristics of learners and the teaching approach (Al-Moshaikheh, 1989).

Some instructional tools are already available while other tools may need to be produced. Due to the variety of instructional tools and the lack of conclusive evidence, which helps in the selection process (Almosa & Almubark, 2005), selecting an appropriate instructional tool is one of the problems that may face the teacher in the instruction design. According to Dale (1969) there are factors that must be taken into account when choosing an instruction tool:

- It must deliver the learning objective.
- It must fit with the educational materials (content)
- It must be suitable for the learners' age group and their grade level.

In the Comp101 Moodle, some instructional tools are already implemented in Moodle such as a forum and blog while other tool are integrated to Moodle such as the virtual classes and the flash card quizzes. Both are selected to meet Dale's factors. The instructional tools used in Comp101 are as follows:

- Communication tools: to allow the instructor and students to communicate textually through discussion forums, to support the collaborative learning. Each lesson has its own thread. Students are asked to participate in the lesson's thread after each lesson to share their knowledge and ideas with each other and the instructor. Dawson (2006), states that discussion forums provide a good opportunity to enhance collaborative learning among students in the same class. Also students can communicate visually through the virtual video class (WiziQ) and send assignments and receive feedback via emails.
- Tracking tools: to allows the instructor to track students' learning progress, which is already implemented in the VLE.
- Course tools: tools to publish and organize the course content like IMS content packages tools. They are used to develop the Comp101 lessons. One advantage of IMS content packages are that they promote interoperability among the different learning content management (Brooks,2005).
- Assessment tools: according to MSU (2006) the assessment type can be unlimited, the instructor can design their own assessment type that is appropriate for their students. There are wide range of assessments like objective assessment, subjective assessment, self-assessment, interactive assessments, practice exams, group projects, peer assessment and more. In the paper-based

Comp101 course, the formative assessment was group projects, and the summative assessment was divided into two types: objective assessment for the first three units and practice exams to assess the last three units. As the purpose of this project is developing the Comp101 lessons over a VLE, particularly Moodle, the assessments tools will discussed within the project scope.

According to Boud (1995) self assessment is effectively used in HE particularly undergraduate courses. Moreover, it helps students to find a balance based on their necessity because the key areas of difficulty could be identified using such assessment (Nagel, 2008). Therefore, un-graded self e-assessment has been selected and embedded in the lessons to measure the students' understanding (The Michigan State University, 2006). Practice quizzes, games, simulations, true-false questions and multiple-choice questions are examples of self assessment (Boud, 1995). The assessment satisfies the learning objectives using Bloom's taxonomy (Bloom,1956).The questions assess the first two levels of Blooms taxonomy which are knowledge and comprehension, which is appropriate for undergraduate level and the computer sciences (Johnson and Fuller, 2007). Based on Blooms taxonomy levels, multiple choice questions, true/false question and ordering are used within the self assessment.

An advantage of electronic self assessment is that the students can receive immediate feedback to assess their understanding level (MacKenize, 2003). Therefore, immediate feedback is provided for the students when performing the self assessment.

4.8 DESIGNING COMP101 MOODLE'S DATABASE

One advantage of using the Moodle software is that its database is built automatically at the installation stage of the system (Moodle.org, 2009). Users who use Moodle do not need to design a database scheme for their systems .In essence, Moodle's database is enormous, it consists of 200 tables including user tables, module tables, activity tables and more. The figure below shows part of

the course completely. The purpose of this category is provide an opportunity for future students to explore the course before their actual enrolment.

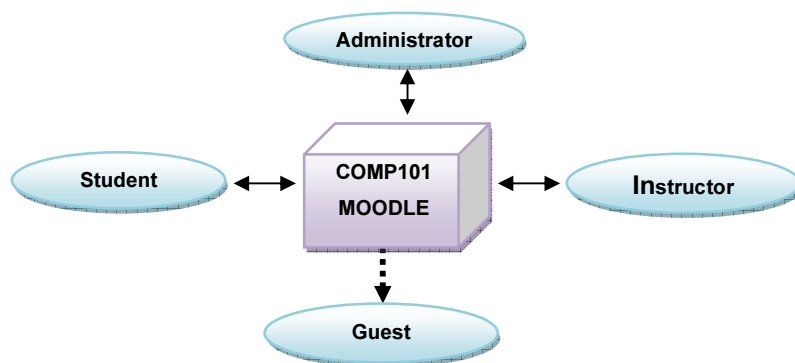


Figure 4.4: Comp101 Moodle User Categories

4.9 TRYOUT AND REVISION STAGE

This stage differentiates Al-Moshaikeh's model from other instructional models..The tryout and revision stage is known in some models as "Formative evaluation" (Dick, 1977). According to Al-Moshaikeh (1989) although tryout and revision is very important to the total design of the instruction, it is not common in the other instructional design models.

In this stage, the instruction system has been tried out and revised while it is still being developed. The purpose of this stage is to ensure that the system design meets the educational plan and user requirements. This stage can be an iterative process depending on any improvement suggestions during this stage. This stage is comprised of three forms which are Individual-tryout, small group-tryout and tryout in the real environment. All these forms include trying out and revising the system interface and the lesson structure (Al-Moshaikeh, 1989).

4.9.1 DESIGNING THE SYSTEM'S INTERFACE

The design of the system interface is a critical phase when designing an effective learning system. The interface has to meet the potential user requirements and needs. As with any software development phases, a storyboard should be created before designing the system interface. The storyboard technique is one of the design techniques widely used for designing interactive systems. It is used to present the interactive content and non-visual elements such as audio and narration (Cunliffe *et al*, 2003). In addition, the storyboard allows the designer and users to have a clear image of the sequence of the system in reality. Hence, some project storyboards for lessons and activities are produced to ensure that they meet user requirements and system goals (See Appendix 5)

4.9.2 DESIGNING THE LESSON STRUCTURE

The flexible structure of the learning materials enhances the delivery of the course if it is designed to meet the students' requirements and needs (Massey, 2003). The navigation design is a very important issue in the learning process because it affects the acquisition of information by the learners and their outcomes (Hsu *al et*, 2009). Liegle & Janicki (2006) proved that the low level students find linear navigation easiest to follow, as it follows a sequential path using the "next" button. As the students of Comp101 are computer illiterate, the lesson structure has been designed to be easy-to-use and navigate in a linear presentation. The lesson hierarchy is represented by a set of structured slides (interactive pages). During the learning process the student is led from one slide to another sequentially. Moreover; a student has fully flexible navigation during the lesson. For example, if the student has to review a lesson, she can skip an illustrative animated example to move on to the next slide. Some flow charts and structure charts have been designed to demonstrate the lesson structure (see Appendix 7).

In Comp101, each lesson presents a learning object (LO). Rehak and Mason (2003, p.21) state that a “LO is what might be called a ‘lesson’, and several lessons or LOs can be combined to form a module or a whole course”. According to Hamel and Ryan-Jones (2002) one principal when creating a learning object is keep it as small as possible. Therefore, every lesson is divided into small chunks of information (usually five pages).

Moreover, the lesson is supplemented by multimedia elements to support the lesson contents. Mayer (2003) states that students can learn more effectively from a multimedia-based lesson that includes words, pictures, video, illustrations narration and animation rather than a traditional lesson conducted via words alone. Furthermore, the contents, which are supported by multimedia components, can enhance the students’ ability in terms of content comprehension and memorization (Lai et al, 2008).

To allow the student to evaluate her performance during the lesson, self assessment is embedded into the lesson, as it is considered a vital element of web-based courses (Sherman, 2003). In addition, some activities are attached to the lesson in order to aid the learning process such as interactive multimedia quizzes and games. According to Lai et al (2008) students who take part in interactive multimedia-based questions do better than students who take part in static-based questions. Furthermore, a study conducted by the University of Rochester neuroscientists found out that interactive gaming has had positive effects on progressive learning and students’ understanding (Prensky, 2003).

4.9.3: TRYOUT AND REVISION OF COMP101’S INSTRUCTION DESIGN

As was mentioned previously, the tryout and revision stage is comprised of three forms which are individual, small-group and the real environment. The Comp101 has been tried out and revised considering these three forms as follows:

4.9.3.1: INDIVIDUAL TRYOUT AND REVISION

According to Al-Moshaikheh (1989) the student who will be selected to do this process should be of a lower ability and skill than her/his fellow students so as to make sure students of all abilities can use the system. Therefore, a low-skilled student of the target population was selected to tryout the system interface and the story board. This process was conducted verbally to gain the best result (Dick, 1977). As result of this process, some change were made to the content organization and the interface layout.

4.9.3.2: SMALL-GROUP TRYOUT AND REVISION

Since the designer has to produce a familiar interface which is appropriate to the user's environment and needs (Shaikh *al et*, 2009), a small survey on five students of the target population was conducted to evaluate the initial storyboard, particularly the storyboard of the home page (see Appendix 6). The purpose of this survey was to collect possible suggestions before implementing the final version of the system on a small group of between four-seven students (Al-Moshaikheh, 1989). A study conducted on Human Computer Interaction (HCI) by Wright *al et* (1997) showed that colour plays an important role in increasing the understanding of information displayed. As result of that survey, some users prefer light colours while others prefer dark colours. Therefore, users will be able to customize their spaces on the system according to their colour preference by changing the system themes, which have been designed based on the HCI guidelines.

4.9.3.3: TRYOUT AND REVISION IN THE REAL ENVIRONMENT

The purpose of this process is to try out the instruction in its real environment with consideration to the suggestions obtained from the previous processes (Al-Moshaikheh, 1989). In this project, Moodle is selected to be the learning

environment for the Comp101 course. The course has been run for a larger group in the previous processes (nine students). As result of these processes, some notes and recommendations have been take into account in the development of the course such as adding the direct link to the course page on the home page, providing a summary of the previous lesson in the preceding lesson and allowing the students to change their space layout depending on their preferences.

4.10 UTILIZATION AND EVALUATION STAGES

The utilization stage refers to the development of the actual version of the instructional system and utilizing it (Al-Moshaikeh,1989). This stage occurs after the tryout and revision stage. The utilization stage is discussed in detail in Chapter 5: System Development.

The evaluation stage is the final stage of Al-Moshaikeh's instructional design model. It is a summative evaluation for the entire system after it is completely developed (Al-Moshaikeh,1989). The purpose of this stage is to evaluate the students' outcome and to assure that the instructional system can achieve the educational objectives effectively (Al-Moshaikeh,1989). The evaluation stage is discussed in detail in Chapter 6: System Evaluation.

CHAPTER 5: SYSTEM DEVELOPMENT

5.1 INTRODUCTION:

Having considered the design issues of the Comp101 Moodle in the previous chapter, this chapter presents the utilization stage of the instructional system, based on Al-Moshaikeh's model. Following this, the chapter describes the development stages of the Comp101 Moodle. The essential software installations are presented, such as how to install a local server and how to install the Moodle software. After the software has been successfully installed, the Comp101 Moodle customizations are highlighted, such as how to change the Moodle interface and how to modify the Moodle layout. In addition, the development of the Comp101 course space is presented, highlighting the main features of the course, including how to set up the forum, how to create the glossary, how to add the lessons and how to set up the activities. This chapter also highlights the main issues encountered when developing Comp101 lessons, include the lesson content and the self assessment, which is embedded into the lesson. Finally, it presents the end-users training to help them access the system

5.2 UTILIZATION STAGE: AL-MOSHAIKEH'S INSTRUCTIONAL DESIGN MODEL

This stage occurs after the tryout and revision stage. It comprises two issues: the development of the actual version of the instructional system and the use of the instructional system (Al-Moshaikeh, 1989). The development of the instructional system includes the development of the lessons, the course material and assessment tools. The system development will be discussed later in this chapter. The use of the instructional system, is based on the course teaching approach, which was selected previously in the preparation stage (Al-Moshaikeh, 1989). Independent study and interaction were selected as the course teaching approaches because they are appropriate to the Comp101

online course and they fit in with the learning objectives and the educational plan (see chapter 4).

The use of the instructional system requires using the same teaching approach by the teachers and students over the full academic year (Al-Moshaikeh, 1989). Due to the time constraint of this project, students were unable to use the system for a full academic year. Therefore, the usage has been discussed from a theoretical prospective.

5.3 INSTALLING THE LOCAL SERVER

For the purpose of this project, and to assure that the system is working properly, the Comp101 Moodle cannot be run on a static environment such as Windows or Mac. Therefore, the need for a dynamic environment (a web environment) is essential to run the system either locally or remotely (Almosa & Almubark, 2005). A local server has been selected to provide the web environment for the following reasons:

- It is free, rather than a remote web server, which requires a hired domain name. In addition, the remote web server requires hiring storage space on the host server, which probably costs more again.
- It is easy to install, use and modify.
- It provides a similar environment to the remote web server with the all functionalities of the web, such as running a video stream and loading/uploading files.
- It is perfect for a website in the development stage (Almosa & Almubark, 2005) because it is easy to make changes and modify the site without the need to use upload software such FTP and WINSXP to upload the files to the website, as is the case for a remote web server.
- Database software, such as MySQL, and database management software, such as PHPmyadmin, can be easily integrated into the local

server. Furthermore, the local server provides flexible access to the database to modify and manipulate it.

Although there are a variety of local servers like Apache and SQLServer, WAMPServer has been chosen as the local web server to run the Comp101 Moodle. WAMPServer does not just provide server features; it also includes the MySQL database and PHPMyAdmin to allow easy management of the databases. Moreover, it is compatible with Window Vista, which is the computer system used by the researcher. Although Windows Vista is considered new in the Saudi market, it is clear that Saudi institutions are going to be using it in the future (Althqafi, 2007). For example, in Tabuk Health College, new labs are equipped with computers run on Window Vista. However, the Comp101 Moodle can be run on other operating systems such as Windows XP and Windows 2000.

The WAMPServer has been installed successfully on the researcher's machine and is located on the root directory "C" (see Appendix 8). The table below describes the WAMPServer specifications:

Web server	WampServer 2.0(Apache 2.2.8)
Database software	MySQL 5.0.51b
Database management software	PHPMyAdmin 2.11.6 / PHP 5.2.6
Localhost wwwroot	http://127.0.0.1

Table 5.1: the WAMPServer specifications

5.4 INSTALLING THE MOODLE SOFTWARE

After installing the local server, Moodle itself is fairly easy to install (Almosa & Almubark, 2005). It has been mentioned previously that Moodle is a free software package under GNU General Public License. Thus, it has been downloaded free from www.Moodle.org. Moodle was installed successfully and was located in the server's directory (see Appendix 9). The installation of Moodle involved the following steps:

- Downloading and copying files
- Creating an empty database
- Configuring the root file (config.php)
- Setting up Moodle files with an installer script
- Creating the admin account and password

After downloading Moodle 1.9.5+, which is the latest version of Moodle, the Moodle folder was unzipped and renamed to “mymoodle”; then the entire folder was copied to the www folder and into the WAMPServer directory.

Moodle creates database tables automatically (Moodel.com,2009). Therefore, it created an empty database called “mymoodle” in PHPmyadmin, which was embedded into the WAMPServer, in order to make a connection between this database and Moodle when configuring the Moodle root file. To configure the Moodle root file, some changes in the config.php file were made by adding the line of name of database “Mymoodle”, created previously, and adding the wwwroot path of Moodle, which is <http://127.0.0.1/mymoodle> .

At this stage Moodle is connected with the database on the local server but the moodle files with the installer script still need to be installed to build the database tables. During the creation of the Moodle files, Moodle created an administrator account in order to access Comp101 Moodle’s website. At the end of this stage the Mymoodle database will include 236 tables and the website will be ready to develop the Comp101 courseware.

5.5 CUSTOMIZING COMP101 MOODLE

One advantage of Moodle is the capability to customize and modify it as the user desires (Moodle.org, 2009). For example, users can change the Moodle interface and add their own logos and themes. In the Comp101 Moodle, the website’s interface has been changed according to the storyboard design (see 4.9.1 Designing the System’s Interface). The Comp101 Moodle logo and the websit

icons have been created using Adobe Photoshop. Moreover, the Alt attribute of the tag has been used to provide alternative text for the image in order to support the accessibility (Lynch and Horton, 2009).

On the Comp101 home page, a summary of the Comp101 Moodle has been provided. And the main icons have been set as links to the important sections of the course, such as a link to the course outline and another link to the course resources (see Figure 5.1). In addition, there is an link to the Moodle guide (Online tutorials) to instruct teachers and students on how to use Moodle (see section 5.8 End-Users Training)



Figure 5.1: A screen shot of the main icons on the Comp101 Moodle home page

Some features have been added to the Comp101 Moodle to increase its usability and enhance navigation through the web. According to Lynch and Horton (2009) the navigation menu allows users to move easily through the major sections without needing to return to the home page. Therefore, the site-course menu and tab display have been implemented on the Comp101 Moodle for this purpose and to save the students' and instructors' time also (see Figure 5.2).

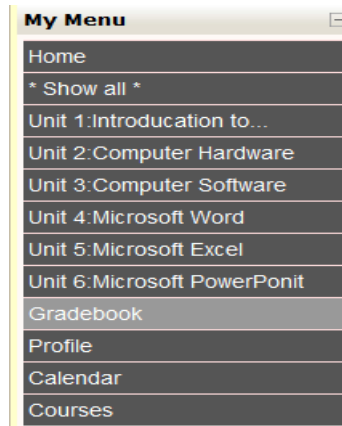


Figure 5.2: Screen shots for the site menu in different locations

A tab display is used for the course outline. It provides flexibility to navigate the course outline and it presents the outline in an organized format (see Figure 5.3)

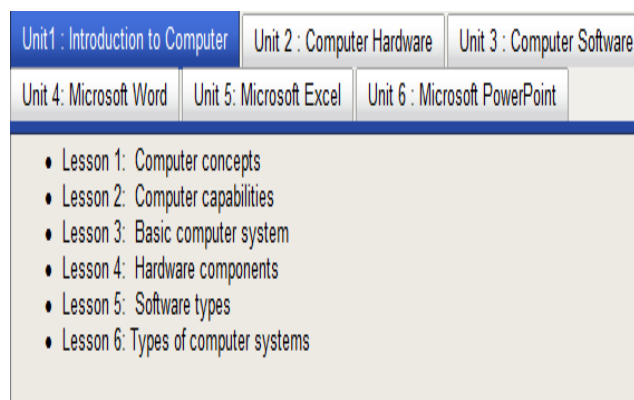


Figure 5.3: Screen shot for tab display which presented Comp101 outline

An RSS feed of the Computer Journal has been implemented on the home page to provide the latest news and information about computers for all users, including visitors. RSS feeds are used rather than an embedded link to save the instructor time as they update the content automatically without the need to check the updated content manually (Souza, 2006).

5.6 DEVELOPING THE COMP101 COURSE SPACE

Using Moodle, administrators can create hundreds of courses on their own Moodle depending on their Moodle purpose. For example, the Sultan Qaboos University in Oman has over 200 courses on its own Moodle space, with 46 courses under the Computer Sciences category alone (SQU E-Learning, 2009).

For the purpose of this project, the Comp101 course has been created on the Comp101 Moodle to deliver the Comp101 lessons and course activities to students. On the Comp101 course space, the course objectives, course outline and main resources are provided. The main resources are provided with links to their pages on Amazon.com in case students need to buy it. Amazon.com is commonly used by millions of customers in Saudi Arabia (eCommerce Journal, 2008). Moreover, Amazon provides its own payment accounts and security unlike other sites such as eBay.

A course forum and threads have been created. Each lesson has its own thread to support the lesson discussion among the students (see Chapter 4: System Design)

As mentioned previously, the Comp101 course has a very large vocabulary and uses many new technical terms. The Comp101 glossary has been implemented and generated by the instructor, since the target students do not have any prior experience using computers.

As Moodle supports more than 40 languages (Moodle.org, 2009), the Arabic language has been added to the Comp101 Moodle as the students are Arabic. In spite of fact that the target students are Arabic, the Comp101 courseware is written in English. The Saudi HE curricula require the teaching of science courses such as Computer Science and Medicine in English (The Ministry of Higher Education, 2008). To increase the students' understanding of the course,

the Google translator has been implemented in the course space. Google has achieved the highest score of Arabic-to-English translation over other sites such as SAKHR and ARL (NIST, 2005).

The Comp101 course includes six units, and each unit consists of five or six lessons. The lessons have been developed using the CourseLab program. The lessons' development is discussed later in this chapter (see section 5.7 Developing Comp101 Lessons). Each lesson has many attached lesson activities, which satisfy the lesson objectives. Examples of these activities are flash card quizzes and crossword games. The flash card quizzes have been added to the Comp101 Moodle and the cards are customized by adding the Comp101 Moodle logo. The flash card quiz is Leitner-based (see Chapter 4: System Design) used as learning drills to improve student memorization and prioritize the knowledge level of studying (Flashcardexchange.com, 2009). As mentioned previously in Chapter 4: System Design, digital games are beneficial for learning and to engage the students in the learning (Prensky, 2003). Crossword games are used effectively to underpin the computer terms (Hill *al et*, 2003). The crossword game has been set as an activity for lesson two. In this game the student is asked to complete words linked to the names of computer capabilities, which are taught in lesson two (see Figure 5.4). The crossword game was developed using the Hot Potatoes software. This software specializes in creating interactive quizzes and it sends scores directly to the students' grade books in Moodle (Hot Potatoes™, 2009). Moreover, it is easily integrated into Moodle.

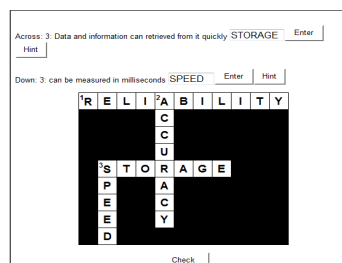


Figure 5.4: A screen shot of the crossword game activity for lesson two

Each unit involves a virtual class accessed via an integrated WiziQ application in the Comp101 Moodle. WiziQ is an e-learning application that allows teachers and students to communicate through virtual classes (WiZiQ.com, 2009). The virtual class is implemented for revision purposes (see Chapter 4: System Design). The virtual class is an effective revision tool that allows student to download a video and reply it at any time (Evans,2008).

The time and date of the class is set after an agreement is reached between the teacher and students to make sure that the students are ready for the revision class. The date of the virtual class is scheduled in the course calendar with information regarding the class and the students can find that event in the 'Upcoming Events' block on the course page.

A survey has been created on the course page. The purpose of this survey is to evaluate the educational plan of the course in order to enhance the learning process (Al-Moshaikeh,1989) (see Chapter 6).

Since the Comp101 Moodle includes some external hyperlinks, such as links to Amazon.com, which may confuse the student if they get lost when they click on them, it is recommended that they open a new window to avoid this problem (Kazienko & Pliarczyk, 2006; ewisoft.com, 2009). Therefore, by externally linking to open a separate window, when the student is finished they can come back to the original page.

5.7 DEVELOPING THE COMP101 LESSONS

Although there are a variety of the authoring softwares such as Authorware, KnowlagePresenter and CourseLab, the Comp101 lessons were developed using the CourseLab program for the following reasons: (CourseLab.com, 2009) :

- It is freeware

- It uses a WYSIWYG environment (What You See Is What You Get)
- It creates high-quality interactive e-learning content
- It easy to use and customize
- It does not require Java or any other player software.
- It can be easy integrated into Moodle
- It supports the e-learning standards such as SCROM and AICC

The lesson structure is linear-based, in terms of presentation (see Chapter 4: System Design). It is divided into two sections: the lesson content and the lesson test. In addition, the lesson provides lesson objectives, a list of lesson content and information about the lesson. These were created on the tabs form to provide easy access and flexible navigation (see Figure 5.5). The lesson instructions have been set on the first slide of the lesson to explain to the students how to use the lesson.

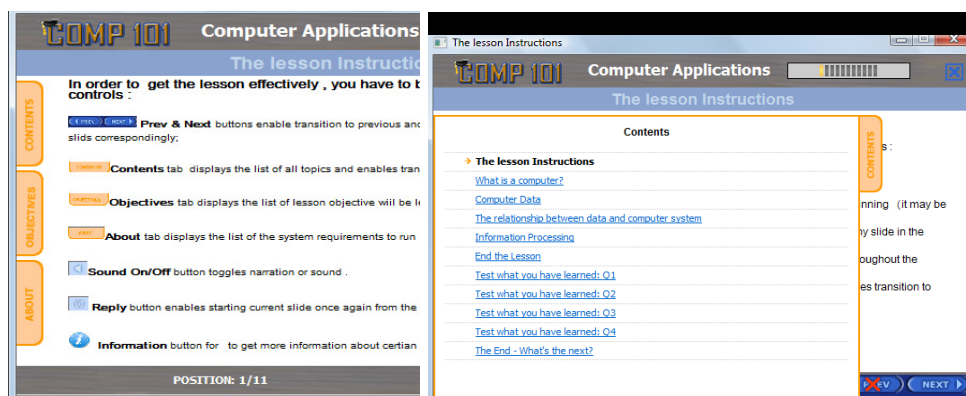


Figure 5.5: Screen shots of the lesson tabs (Contents, Objectives & About)

Lai et al (2008, p554) state that: “in an e-learning environment, the static text/graphic content is at its best a carbon copy of traditional book and it can’t create an active exploratory context for the learners. On the contrary, the interactive multimedia presentation content provides the learners with visual and operable environment”. Therefore, the lesson content is supported by multimedia elements such as images, sounds and animated examples and these elements

interact to enhance the learning process and the students' understanding. CourseLab provides a variety of objects and tools to create such interactivity.

Brickell (1993) recommends use navigational aids to assist the learner in navigating through the content material, such as using colour to present the learning path, providing the learners with information about her/his lesson progress and their navigation depth, and providing the learners with required information, which appears in a separate window. These navigational aids are used to enhance student navigation through the lesson. The lesson progress bar and the slide position have been implemented in the lesson to orientate the student around the lesson. In addition, the navigation controller has been implemented to include sound control, replay, and the next and previous buttons to provide full control of the page to the student. Moreover the student is guided through the whole lesson by accessing any required information via the information sign. For example, if the student wants to skip the example and needs more information about how to do that, she can click on the information sign beside the skip link to help her (see Figure 5.6).

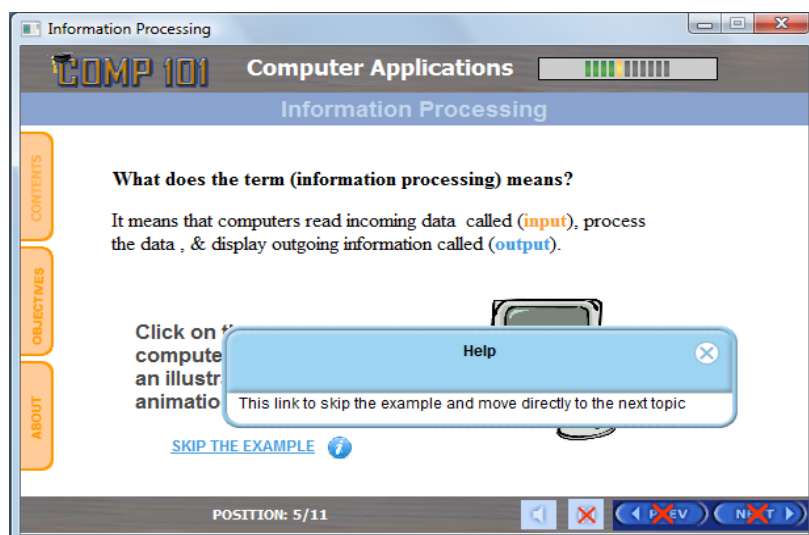


Figure 5.6: An example of the help window in the lesson

The lesson test section is a self assessment test with non-credited questions, placed at the end of the lesson. The placement of questions in the lesson is a critical issue. If questions are placed in between, throughout the lesson, it tends to break the thought pattern and disrupts the ideas that are being taught. Moreover, it would be like 'spoon feeding' because the student will understand that the answer is close to the question. This kind of learning does not allow students to be creative, innovative and to think for themselves (Harris, 1997). For better outcomes in learning, the questions should be given at the end of the lesson. The IMS content software used to develop the Comp101 lesson has variety of question types, which are already implemented,

CourseLab provides a wide range of built-in questions such as true/false questions, multiple-choice questions and matching and test creation capabilities (CourseLab.com,2009). In the test section, the question types include true/false questions, multiple-choice questions, ordering questions, and matching questions, which are selected based on Bloom's taxonomy (see Chapter 4: System Design). In addition, interactive feedback is provided within the assessment, via an animated women with special expressions for success or failure and an icon showing the correct answer (see Figure 5.7). Interactive feedback helps to increase the students' motivation and enhance their understanding through assessment (Rhodes,2006).

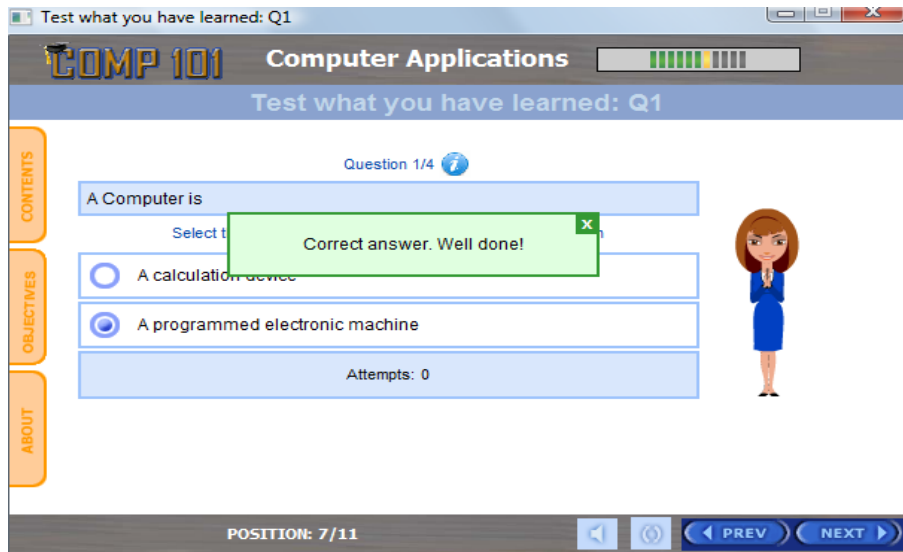


Figure 5.7: An example of question feedback with the animated figure in a success pose.

After the student has performed all of the lesson sections, a list of “what to do next” is created to direct the student as to what she needs to do after each lesson (Wright, 2003). The list includes participation in the lesson thread, performing the lesson activities, completing the next lesson, and writing the lesson reflection on the blog.

The lesson package is exported to Moodle in SCROM 2004 format which is supported by Moodle and is located on the Comp101 course space. Each lesson is placed under its section.

5.8 END-USERS TRAINING

The end-user training is critical to the success of the system. (Nelson & Cheney, 1987). In this project, the end-user training includes training for both the students and teachers, and is provided through two forms: the online tutorials on the Comp101 Moodle and the tutorial classes at the beginning of course. Several online tutorials are created using Adobe Captivate to guide the students and teachers in exploring the Comp101 Moodle in order to use it effectively. Since the students have not had any prior experience using computers, the tutorial classes

will be set at the beginning of course in order to help students access the online course and materials (Al-Abudlkirum 2006).

CHAPTER 6: SYSTEM EVALUATION AND DATA ANALYSIS

6.1 INTRODUCTION:

This chapter shows the Comp101 evaluation based on Al-Moshaikeh's Instructional Design Model. And it presents the evaluation techniques, including the focus group and the interviews used to evaluate the Comp101 Moodle by the students and teachers. It also describes the criterion for evaluating the quality of the online course. Following this, the chapter analyzes the evaluation data and discusses the evaluation results.

6.2 EVALUATION STAGE: AL-MOSHAIKEH'S INSTRUCTIONAL DESIGN MODEL

Al-Moshaikeh's Instructional Design Model (Al-Moshaikeh, 1989) includes two types of evaluation: formative and summative. Formative evaluation is involved in the try and revision stage of this model. The purpose of this stage is to evaluate and ensure that the system's design meets the educational plan and user requirements during the development of the course. The try and revision stage

comprises an individual-tryout, a small group-tryout and a tryout in the real environment. This stage was discussed in detail in Chapter 4: System Design.

Summative evaluation is involved in the evaluation stage of Al-Moshaikheh's model. In this stage, summative evaluation is made for the entire system after it is completely developed. The purpose of this stage is to evaluate the students' learning outcomes and the success of the educational plan. Summative evaluation includes:

- Measurement of the students' achievements.
- Identification the deficiencies and problems in the educational plan.
- The continued development of the educational plan.

The summative evaluation considers two issues: the students' learning outcomes and the effectiveness of the educational plan (Al-Moshaikheh, 1989).

The evaluation of the learning outcome: assessment of the students' learning outcomes can be completed using several types of assessment including: subjective assessment, practice exams, group projects and objective assessment which includes true/false questions or multiple choice questions... etc. (MSU, 2006).

The educational plan evaluation: evaluation of the educational plan is directly dependent on the results of the evaluation of the students learning outcome (Al-Moshaikheh, 1989). The success of any educational plan relies heavily on the success of the evaluation process itself. It has a significant role in correcting these plans to avoid errors and problems that may have occurred during the use of the system. Several techniques can be used to evaluate the educational plan and the worth of the system. Examples of these techniques are surveys, interviews and observations. Surveys are the cheapest techniques, among others, which can be used to collect data from large samples particularly

students (Rossett & Kendra, 2001). In addition, this method is appropriate to the Comp101 Moodle because it provides a convenient way of allowing the students to evaluate the course in their own time. It is also easy to implement with Moodle. Therefore, an online survey has been created in the Comp101 Moodle to evaluate the educational plan of the online Comp101 course by the students.

The evaluation of the students' learning outcomes and the effectiveness of the educational plan require the use of the system by students and teachers over the full academic year (Almosa & Almubark, 2005). Due to the time constraints of this project, the evaluation will focus on the effectiveness of the system in terms of usability and the effectiveness of the course materials, based on the criteria of good online courses presented by Wright (2003). Various papers have presented different methods of measuring the effectiveness of implementing e-learning courses such as proactive assessment (Sims, 2001) and the Cognitive Apprenticeship Model (Collins et al, 1991). Wright presented a good criterion for online courses that were reviewed by a diverse group of professionals (Stephen 2009). Furthermore, Wrights ideas are appropriate for the evaluation purpose of this project as they cover the usability and effectiveness standards. These criteria will be discussed in the next section

6.3 THE CRITERIA FOR EVALUATING THE QUALITY OF THE COMP101 MOODLE

According to Wright (2003) the evaluation criteria are selected to determine the quality of the course components and the learning procedures. These were produced by the national and international experiences of staff in the Instructional Media and Design department at Grant MacEwan College to help the course developers evaluate the effectiveness of their own online courses. These criteria can be use as guidelines for course developers (Sederberg, 2004). The criteria of the quality of the online course are as follows:

- **General information:** Are the students provided with general information regarding the course? Such as a brief description of the course including the course outline, learning objectives and prerequisite courses.
- **Accessibility:** Can the students access the course easily and find the course materials quickly? For example: are the functions of the icons in the course clearly explained to the students? Along with do page headers determine where the student is in the course?
- **Organization:** Is the material organized to help the student to distinguish the different sections of the course? For example: are the topics of the course classified into units and lessons?
- **Language:** Is the level of the language used suitable for the target students? For example: are familiar words used and is the writing style clear and simple?
- **Layout:** Does the layout aid learning? For example: is colour used effectively and is the layout of the course content suitable for the target students?
- **Goals and Objectives:** Are the goals and objectives related to the course? For example: are appropriate action verbs used to describe the objectives?
- **Course Content:** Is the content suitable to the course subject? For example: is the lesson content related to the lesson objective?
- **Instructional strategies for practice and transfer:** Do the instructional strategies allow students to effectively engage in activities that support practice and underpinning of key skills? For example: are students informed about their own responsibilities in terms of the course?

6.4 EVALUATION TECHNIQUES

Evaluation techniques can be informal and formal depending on the project purpose. Evaluation techniques can be used to collect qualitative and

quantitative data such as participant observations, focus groups, interviews, and questionnaire surveys (Ogunniyi, 2004). For the purpose of exploring both the quality of the system and the user requirements, two strategies were used to evaluate the Comp101 Moodle: focus group and interview.

6.4.1 FOCUS GROUP INTERVIEWS

A focus group is a research technique used to collect commonsense information from a diverse group sharing common characteristics and backgrounds, on a topic selected by the researcher (Vaughn et al, 1996; Morgan, 1997; Howze, 2000). They are also an effective technique to collect data to measure the satisfaction of a variety of stakeholders, such as consumers or students, regarding a new product or program (Vaughn et al, 1996; Howze, 2000). It is also suitable for exploratory researches (Vaughn et al, 1996) like this project.

The students in this research project share the same characteristics, they are female, in the 19-20 age group and their computer skills are low. A focus group is also used to evaluate the system with a group of teachers who are all female and currently teaching computer courses.

One advantage of a focus group is that it can be compounded with other methods depending on the research purpose (Vaughn et al, 1996). Due to the project's time constraint, the focus group is compounded with interviews in order to obtain a large amount of information in a short period of time (Vaughn et al, 1996; Morgan, 1997). For example, eight participants in a focus group produce a bigger number of ideas than 10 individual interviews (Morgan, 1997) and the information yielded, via an interview or focus group, is immediate unlike the information gleaned from a questionnaire (Denscombe, 2003). Focus group interviews usually occur in small groups of six to twelve people (Vaughn et al, 1996; Morgan, 1997). According to Vaughn et al (1996) the advantage of using focus group interviews in education is that the participants have diverse opinions and experience. This is appropriate for students since their learning styles are

diverse and it also appropriate for teachers due to their diverse teaching experience. Unlike most structured interviews or surveys, participants are encouraged to express their thoughts freely and they have the flexibility to clarify and extend their opinion freely and openly (Vaughn al et, 1996).

The student evaluation was conducted separately from the teachers. The student evaluation was conducted face to face, while the teacher's evaluation was conducted online through Skype as the teachers are located in different geographic areas and it proved too difficult to all meet in one place. Although both groups evaluated the program using the same criteria, the evaluation questions were set in relation to each group. For example, regarding the course objectives, students were asked if the course objectives were clear while teachers were are asked if the verb actions used in the objectives were appropriate (see Appendix10).

6.5 DATA ANALYSIS AND INTERPRETATION

In this study, two focus groups were conducted to collect data from all end-users (students and teachers) in order to evaluate the Comp101 Moodle. The analysis of data relies on the purpose of the evaluation (Taylor-Powell &Renner, 2003). In this project, the data analysis is required to ensure that the system is adhering to the satisfaction criteria. Since the data resulting from both focus groups is qualitative i.e. consists of words not numbers, analysis of this data requires organisation question by question and identification of the similarities and differences of the participants' answers (Taylor-Powell &Renner, 2003).

Note taking and tape recording were methods used to help the researcher save the data during the two focus groups. To put the participants into the project context, a summary of the project objectives and Comp101 Moodle features were presented to them at the beginning of the evaluation sessions. The analysis of data collected from the student and teacher focus groups is as follows:

6.5.1 DATA ANALYSIS OF STUDENTS FOCUS GROUP INTERVIEW

The focus group interview conducted among six female students in late their teen (18-19). Their computers skills are very low. The students have been chosen depend on the characteristics of the target population. The session was conducted face to face and lasted to around an hour. The questions cover eight issues in relation to the criteria of the quality of the online course. The following are the participants' responses to these questions:

6.5.1 .1 Providing General Information through the Comp101 Moodle:

- *What do you think about the information provided in the Comp101 Moodle in regards to:*
 - *the course (description, objectives...etc)*
 - *technical support*
 - *using the system*

All participants stated that the information regarding the course description was adequate, clear, understandable and uncomplicated. However, some were dissatisfied regarding the technical support and they recommended providing a 24hr technical support service in case students need any help regarding the use of the system. While two students found the technical support to be good and sufficient. One enthusiastic student suggested implementing a list of common questions with their answers which is known as the 'Frequently Asked Questions' (FAQ) section to help students find answers to their inquiries without needing to contact the administrative or technical team.

6.5.1.2 Navigation through the Comp101 Moodle and Accessibility to the Course Material:

- *How do you access the course materials?*
- *The function of the icon in the system is clear? Do you agree/disagree Why?*

Some participants ad some difficulty accessing some materials due to their English language restrictions. One participant said “I found it quite hard for me because the items were written in English, if it was written in Arabic it would’ve been far easier for me”. Another participant disagreed, saying: “the Comp101 Moodle looks easy to use. I think by the time I will get to use it”. Two participants who have a good background in English confirmed that access to the course materials is very easy to use and simple. All participants agreed that the icons are descriptive and students can easily identify their functions. They added that there are wide range of ways to access the materials making the navigation of the Comp101 Moodle flexible. One participant reported that the menu is very useable and useful as it includes important items for students such as the course units, lessons, and student profile and gradebook. As a result of these responses, a full Arabic version should be implemented since the current Arabic version does not fully satisfy the students’ requirements

6.5.1.3 The Organization of the Comp101 Moodle

- *What do you think about the material organization in the course, in terms of:*
 - Units
 - Lessons
 - Activities

Regarding Comp101 organization in terms of the course space, the participants’ opinions were almost unanimous. All participants stated that the units, lessons and their activities were very organized and sorted in a meaningful order. In addition, they confirmed that the students can easily distinguish the units, lessons and activities. One of them said "In my opinion, I found it very organized; it is so easy to recognize the lessons, which belong to a particular unit and also to recognize the activities, which belong to a particular lesson.

6.5.1.4 The Language of the Comp101 Moodle

- *What do you think about the level of the language used in the Comp101 Moodle?*
- *What do you think about the instructions provided throughout the course?*

Concerning this topic, the participants were divided into two groups. One group was satisfied with the system language and found it simple and clear. In addition, it confirmed that the instructions were straightforward and sufficient. One participant with good English skills stated “The system was written in plain English to make it clear for a non-English speaker”. However, the other group of participants revealed that they faced much difficulty regarding the English language and suggested that all the information on the course, including the instructions and teacher and student communication, should be in Arabic, similar to the paper-based courses taught in Arabic. However, text books are predominantly written in English. One participant suggested implementing a translator for the entire Comp101 Moodle to translate a word or whole sentence immediately when the mouse moves over it. Although, there is an Arabic version of the Comp101 Moodle and Google translator was implemented in the course, the responses imply that these features have not fully met the students’ requirements regards the course language. It may be concluded that a full Arabic version in terms of the icons, course instructions and the general information could overcome this problem. Alongside this, English classes should be offered in order to underpin the students’ English skills since the course should be taught in English (The Ministry of Higher Education, 2008).

6.5.1.5 Comp101 Moodle Layout

- *What is your opinion of the layout of the Comp101 Moodle in terms of*
 - Interface*
 - Colour*

-The format

-Use of white space

The responses in terms of this issue were quite similar, all the participants confirmed that the system interface is simple, that colour is well-used, and that the font type size is readable. Furthermore, they were extremely satisfied with the feature of changing the course themes according to the student preferences. One participant said “I think all available themes are beautiful, I really don’t know which theme I will set”. Another participant said “changing the course theme gives the students freedom of choice, I like this feature!” These responses confirmed that the formative evaluation made in the design stage regarding the course interface and colour was affected positively in the summative evaluation.

6.5.1.6 Goals and Objectives

- *What do you think about the course objectives?*

Regarding this question, the majority of the participants stated that the objectives are clear and understandable. They also confirmed that the objectives are suitable to the students’ levels. Moreover, they added that the objectives are important to students as they illustrate the usefulness of the course and the lessons. On the other hand, two students found the objectives unbeneficial. One participant said “I do not know why we should know the objective of the course. What is the benefit of knowing the objectives? I never have read the course objective in all my years in school... I think that’s a teacher issue”.

6.5.1.7 Course Content

- *What is your opinion of the course content?*

Regarding this question, most responses indicated that the content of the lesson was suitable for the students’ levels, and they confirmed that the amount of

information provided in the lesson was adequate. One participant said “the length of the lesson motivates me to complete the lesson in one sitting I do not like lessons with too much information, that makes me bored”. These responses are compatible with the principal of creating the learning object (the lesson) and the recommendation of Hamel and Ryan-Jones (2002) to keep the learning object small. One participant suggested informing the student the expected time needed to complete each lesson to help students to manage their time. Another student observed that the content cannot be printed out and she suggested adding a print feature to the course contents. More suggestions made by the participants were to provide a private space used as a portfolio for each student to store their coursework and notes.

6.5.1.8 Instructional Strategies and Opportunities for Practice and Transfer

- *How do you find using:*
 - *Online discussions*
 - *Glossary*
 - *Virtual classes*
 - *Games and activities*

The opinions of the participants regarding this question were diverse. Some of them reported that it is interesting to express their ideas and share their experience through the discussion board. One respondent replied that it is a suitable tool for shy students and it encourages them to communicate with the other students. Another respondent said “from my point of view, the discussion board is a useful tool to plant the information in the student minds through discussing the lesson with their class mates. Also all discussion is saved automatically - it’s brilliant”. However, another participant said “I do not like using either forums or blogs. I prefer more fun tools such as games, like the crossword game, I wish all the lessons activities were games!”. Another participant agreed with this point of view and added that the discussion board requires time and

effort from the student to keep up-dated with the last postings. One participant stated that using the blog to reflect upon the lesson is an amazing idea to give indirect feedback to the teacher that is so hard in the case of paper-based courses.

Concerning the use of the glossary, most participants responded by confirming that it is a helpful tool to understand the computer terms and overall, the lessons. The majority of participants expressed the same opinion regarding the use of the video virtual class for revision purposes by confirming that the recording feature allows the students to watch the revision class many times and helps the students who could not attend the revision class by downloading and watching it . Three participants were completely satisfied with the learning tools and they confirmed that the diversity of the learning tools boosts the learning process and respects individual differences.

- *Students understand their own responsibilities in the Comp101 Moodle. Do you agree/disagree? Why?*

Most participants agreed that the students responsibilities are identified .One participant said “I like the idea of listing the students tasks at the end of the lesson”. Another participant confirmed that the Comp101 Moodle is organized in a format to help students identify their responsibilities.

6.5.2 DATA ANALYSIS OF TEACHER FOCUS GROUP INTERVIEW

The teacher’s focus group interview was conducted online via Skype as all the teachers are located in different geographical areas. Six female teachers participated, all of them teach the paper-based Comp101 course. Their teaching experience between is 2 -9 years (see Table 5.1).

Teacher #	Age	Teaching experience (years)
1	34	5

2	40	9
3	27	1
4	29	3
5	39	7
6	27	2

Table 6.1: Teachers' background

The session lasted around an hour. The questions cover nine issues in relation to the criteria of the quality of the online course and the project identification. The following are the participants' responses to these questions:

6.5.2.1 Identify the Problem:

- *What do you think about the online course? How far does it benefit the teacher?*
- *What do you think about the teacher's role in the online course?*

The responses revealed that the online course is a creative way of delivering the information to the students. It motivates the students to contribute to and be involved in the learning process especially the shy ones. One participant said "When using the online course, the learning process moves from teacher-centred to student-centred". However, some participants point out that the online course needs a lot of supervision and control, and they confirmed that it can only be used as an assistive tool not as an alternative to traditional methods of teaching. It can, however, be integrated into blending learning. One participant with nine years of teaching experience reported that online courses are inappropriate for practical courses such as medicine and engineering. In such courses, the student needs to study in real situations; it is also not applicable for teaching all ages, i.e. it is not a suitable method for teaching children. Another participant agreed with this opinion and added that online courses do not provide a physical interactive environment between the teacher and students. Regarding the

teacher's role in the online course, the responses were divided into two opinions. Some participants argued that the teachers role is supervisory, where the student is responsible for understanding the information, so there is no more spoon feeding the students, they also confirmed that it solves the problem of insufficient numbers of teachers. However, other participants believed that teachers cannot use their experience to its greatest advantage through an online course. Moreover, they asserted that the role of the teacher not only teaching, it is also offering a good role model for students, an element that cannot be transferred through the online course.

6.5.2.2 Providing General Information through the Comp101 Moodle:

- *What do think about the information provided in the Comp101 Moodle regarding*
 - The course (description, objectives...etc)*
 - Technical support*
 - Using the system*

The majority of participants stated that the information was adequate and put the student into the course context. In addition, they felt that the announcements throughout the Comp101 Moodle help students to keep updated with the latest information relative to the lessons and coursework. A participant with seven years experience stated: "teachers will no longer worry about how to reach the students and the students will not need to ask their class mates about the latest information". One respondent was fairly satisfied with the technical support information and she suggested providing help desk numbers, available 24/7, to offer an immediate service to the students and teachers.

6.5.2.3 Navigation through the Comp101 Moodle and Accessibility to the Course Material:

- *How do you access the course materials?*
- *The function of the icons in the system is clear? Do you agree/disagree? Why?*

Most participants found that access to the course materials was easy and direct. In addition, they confirmed that the materials can be accessed from different locations on the Comp101 Moodle which offers great flexibility in terms of navigation throughout the online course. Furthermore, the majority of respondents agreed that the icons are clear and attractive, and they felt that students would be able to recognize their functions easily.

6.5.2.4 The Organization of the Comp101 Moodle

- *How far does the material organization in the course aid learning?*

All responses revealed that the materials are well-organized on the Comp101 Moodle and they are sorted in a significant format. They also pointed out that the organization of the material helps the students become more organized. Moreover, they asserted that the material organization supports the learning process as it arranges the student thoughts, which has a positive effect on the student's learning outcomes.

6.5.2.5 The Language of the Comp101 Moodle

- *What do you think about the level of the language used in the Comp101 Moodle?*
- *What do you think about the instructions provided throughout the course?*
- *The tone of the writing is supportive and encouraging. Do you agree/disagree? Why?*

The responses toward this issue were similar, all felt that the level of the language was suitable for the students, noting that the language was simple, with

no complicated words. In addition, they noted there were some spelling mistakes that needed to be corrected. Concerning the language of instructions, they confirmed that they were clear and exhaustive. One participant said “to some extent, the instructions, provided with a task, cover all of the task requirements”. Furthermore, some participants agreed that the tone of the language was supportive and motivating. However, some were fairly dissatisfied with the language tone, and they suggested using a more serious tone and strict rules to imply the importance of the course.

6.5.2.6 Comp101 Moodle Layout

- *How far does the layout facilitate learning?*
- *What do you think of the Comp101 Moodle layout and interface?*

The responses differed according to the opinion of the respondents. Some mentioned that the simple layout allowed for positive learning and vice versa, as others found the layout to have no influence on the learning process. Regarding Comp101 Moodle’s layout, most respondents stated that it was simple and unsophisticated to some extent, and they confirmed that the interface was attractive and appropriate to the students’ levels. Moreover, they mentioned that an effective colour contrast was used, and that the font type and size were readable.

6.5.2.7 Goals and Objectives

- *What do you think about the course objectives?*
- *What is your opinion of the action verbs used in the goals and objectives?*

Most of the participants were satisfied with the course objectives and they found them suitable for the course contents. One participant said “the objectives of Comp101 are the same whether the course is paper-based or online. From my

point of view, I found the objectives appropriate to the course and student level”. Regarding the action verbs used in the objectives, some participants with many years of experience revealed that the action verbs were used effectively and were suitable to the objectives. Other participants with fewer years of experience stated that they were not qualified enough to judge the objectives. One respondent with two year experience said “I am not in place to answer this question. I think that question should be directed to the educational supervisors”

6.5.2.8 Course Content

- *How do you find the course content in terms of:*
 - Being appropriate to student characteristics*
 - Being relative to the course objectives*
 - Being accurate*

Regarding this issue, the responses were homogeneous. In terms of the appropriateness of the content, participants felt that the contents of the course were suitable for the students’ level and the course objectives; and they confirmed that the contents of the lesson were accurate and compatible with the national curriculum. Moreover, they asserted that the content was directly related to the course. One of the participants revealed that the online course allows the students to have a saved copy of the course contents without needing to buy a book. Another participant said “I like the idea of the contents being available to all students... no more photocopying”.

6.5.2.9 Instructional or Learning Strategies and Opportunities for Practice and Transfer

- *How far do the instructional strategies enable students to learn effectively?*
- *If we compare the online Comp101 course to the paper-based Comp101 paper course, is the online course better? Why?*

The responses concerning this issue were diverse, according to the participants' perspective. One stated that the instructional strategies were quite weak, as there is no physical contact between students and teachers. She stated: "in my opinion, classroom discussion among students is more effective than online discussion". Another participant replied that online discussion promotes the communication and writing skills of the students but kills the manual work. A further participant believed that the instructional strategies were only suitable for the theoretical parts of the course but the practical parts should to be taught in the computer lab. Two participants stated that the instructional strategies are good but could be better if the lesson was set at a particular time and all student participation and interactivity happened during this time under the supervision of the teacher. However, some mentioned that the instructional strategies offer flexibility to learn and perform the course tasks. Moreover, they added such strategies remove individual differences and help students to overcome any social shame. Furthermore, these strategies reduce the teachers' efforts and save their time. In addition, student absence does not really affect the learning process and the learning outcomes. One participant said "An absent student does not need to catch up what she has missed, all the materials can be found on the course space". Another participant said "I cannot believe that I will not have to explain the lesson many times, as usual". Some suggestions were made by the participants. One respondent suggested applying the current version of the online course and integrating it into classroom activities in order to gain the mutual benefit of both. Another suggested using the virtual classes not only for revision purposes but also for the lessons to make a balance between the distant nature of the course and the tangible interactivity of the students and teacher. Two participants suggested setting certain times for each lesson, similar to the normal class time, and encouraging students to perform all the lesson tasks and activities in this time in order to control the students' time and ensure interactivity among the students and teacher. From all these responses, it may be concluded

that integrating the online course into the classroom or virtual classroom could increase the effectiveness of the learning process.

CHAPTER 7: FINDINGS, CONCLUSIONS & RECOMMENDATIONS

7.1 INTRODUCTION:

This chapter outlines the findings of the project and makes some conclusions. In addition, a brief summary of the project is presented. Finally, recommendations for the Comp101 Moodle are highlighted along with recommendations for further work in this area.

7.2 FINDINGS OF THE STUDY:

Based on the data analysis in the previous chapter, this section addresses the key results and provides considerable interpretation of the results. The data was collected from two focus group interviews with both students and teachers. The questions focused on Comp101 Moodle usability and effectiveness. In terms of the system's usability, the data indicates that navigation throughout the Comp101 Moodle is direct and flexible and the materials can be accessed easily. Moreover, it implies that the materials are well-organized in a meaningful order. In addition, the data revealed that the layout of the Comp101 Moodle is simple, the colours are used effectively and the text is readable. Regarding the effectiveness of the Comp101 Moodle, the data indicates that the system provides adequate information in terms of the course description and goals. It also provides sufficient instructions for the use of the system. However, the technical support requires some extra consideration. The data implies that the technical support information is poor and does not meet the users' needs. In terms of the language of the Comp101 Moodle, the data implies that some students who have low English skills may have some difficulties with the language. On the other hand, teachers and students who have a good English background found the language to be clear and understandable. Moreover, they found it suitable for the students' levels. According to the evaluation data, the course contents are appropriate to the students' levels and they are presented in an effective format, supported by

multimedia. However, the contents need to be supported by the print feature in order to be able to print out any information. Regarding the instructional strategies used in the Comp101 Moodle, the data indicate that the instructional strategy respects the students' individual differences and learning styles. The diversity of the learning tools (discussion board, blog, virtual classes, the glossary and games and activities) help the students learn effectively according to their learning styles. However, the data implies that the Comp101 Moodle can be assistive tool but not an alternative to the classroom. It is suggested that teachers integrate the Comp101 Moodle into the classroom or virtual classroom which might increase the effectiveness of the learning process. All in all, the data indicates that the teachers are fearful of using new methods of teaching and they still prefer traditional methods.

7.3 SUMMARY OF THE STUDY

Nowadays technology makes education easier for teachers as well as students' and it has become accessible to millions of people across the world. Many virtual learning environments have been developed to deliver educational materials over the Internet (Totkov, 2003). Since the United Kingdom is considered one of the pioneer countries to master VLEs in academia (Thorsteinsson et al., 2006), this project investigated the use of VLEs, particularly Moodle, in the UK. The experience of the United Kingdom is adopted in Saudi Arabia as VLEs are considered a new trend in Saudi institutions (Al Ajlan et al, 2007). This adaptation is being made with regards to Saudi educational requirements. The use of VLEs in Saudi Arabia is explored via a course entitled Comp101, developed using Moodle, in order to make use of VLEs in Saudi Arabia. The paper-based Comp101 course is taught by the researcher. In this project Comp101 is developed as an online course with careful consideration of Saudi educational needs. The instruction of Comp101 is designed based on Al-Moshakeh's instructional design model, which is appropriate for Arab educational requirements (Al-Moshakeh, 989). In the

development stage, two types of evaluation were completed, formative evaluation was completed during development of the Comp101 Moodle and summative evaluation was completed after the Comp101 Moodle was completely developed. The summative evaluation was completed by the two focus groups interview with teachers and students. The criterion of the evaluation was based on Wright's criteria for the quality of the online course (2003). As a result of this evaluation, it has been noted that the Comp101 Moodle might be a usable tool to deliver the Comp101 lessons online, and the leaning strategies used in the Comp101 Moodle provide a wide range of learning tools, which could help the students to learn effectively according to their own learning styles. However, the Comp101 Moodle needs to be integrated into the classroom or virtual classroom to boost the learning process and increase the effectiveness of system.

7.4 RECOMMENDATIONS FOR FURTHER WORK:

It is strongly recommended that this project is adopted and tested in its real environment: Tabuk's health colleges. Such adoption is necessary to evaluate the students' learning outcomes and the success of the educational plan over the full academic year. Some features should be implemented in the current version of the Comp101 Moodle in order to confirm the study's findings. A full Arabic version should be developed to overcome the English difficulties of the students'. In addition, English lessons should be conducted to increase the English skills of the students since the curriculum must be taught in English (The Ministry of Higher Education, 2008). Also a 24/7 help desk service needs to be available to provide technical support for the students and teachers. Moreover, frequently asked questions (FAQ) should be implemented to help students overcome their difficulties in relation to the system. Furthermore, it would be useful to implement a print feature throughout the Comp101 Moodle to allow students to print the course materials. Further study need to focus on developing the assessments of the Comp101 Moodle since the current project focused only on the lesson

devolvement. Other further studies need to investigate integrating such systems into the classroom and virtual class in order to evaluate the learning effectiveness and the students' learning outcomes thought such integration. In addition, conducting workshops for the teachers to demonstrate the advantages and features of VLEs could increase the interest in the use of such technology in Saudi institutions.

REFERENCES

Ajlan , A. & Zedan, H, (2007), the Web Services Selection of Virtual Learning Environment Services, *the IADIS International Conference WWW/Internet*, IADIS Press, 50-54.

Al-Abudlkirum, M. (2006)*Estimated study to the e-learning experience at Albyan's girls school in Jeddah, Saudi Arabia*, Unpublished MA Dissertation , King Saud University [Arabic]

Al-Asmari, A. (2005) The use of the Internet among EFL Teachers at the Colleges of Technology in Saudi Arabia. Phd Thesis. The Ohio State University. [Internet] Available from http://www.ohiolink.edu/etd/sendpdf.cgi/AlAsmari%20Ali%20M.pdf?acc_num=osu1119089945 [Accessed 19 July 2009]

Al-Harhi, A. S., (2005), Distance Higher Education Experiences of Arab Gulf Students in the United States: A cultural perspective [Internet], The International Review of Research in Open and Distance Learning, 6(3), Available from: <http://www.irrodl.org/index.php/irrodl/article/viewArticle/263/406> [Accessed August 4th 2009]

Almosa, A. & Almubark A. (2005), *E-learning: fundamentals and applications*. (Second Edition). Datanet LTD [Arabic]

Al-Moshaikeh, S. , The use of the technique in the design of education systems, 13, (1989), Journal of the faculty of education Ain Shams University, pp.215-255 (Arabic)

Althobaiti, A. (2008) Obstacles that face educational supervisors and prevent them from documenting their work in Taif City, Saudi Arabia. Unpublished MSc Dissertation University of Glamorgan

Althqafi, I. (2007) Saudi Arabia: Microsoft will provide training program for 8000 Saudi men next year [Internet] *The Middle East Newspaper*, Available from: <http://www.aawsat.com/details.asp?section=6&article=407334&issueno=10312> [Accessed September 19th 2009] [Arabic]

Anderson, L W, & Krathwohl D R (2001). *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. New York: Longman

Anderson, P. (2007) What is Web 2.0? Ideas, technologies and implications for Education [Internet] Available from: <http://www.scribd.com/doc/300024/What-is-web-20-Ideas-technologies-and-implications-Paul-Anderson> [Accessed August 30th 2009]

Barajas, M. (2003). *Virtual Learning Environments in Higher Education: A European View*. Edicions Universitat Barcelona.

Bloom B. S. (1956). *Taxonomy of Educational Objectives, Handbook I: The Cognitive Domain*. New York: David McKay Co Inc.

Boud, D. (1995), *Enhancing Learning Through Self-Assessment*, (First Edition) Routledge.

Britain, S. & Libe O (2001) Report on a framework for pedagogical evaluation of virtual learning environment Educational, JISC.

Brickell, G. (1993), Navigation and learning style, *Journal of Educational Technology*, 9(2), 103-114.

Brooks, C., Kettel, L., Hansen, C. & Greer, J. (2005). *Building a Learning Object Content Management System*. In G. Richards (Ed.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2005*. 2836-2843.

Brown, T. & Jenkins, M. (2003), *VLE Surveys: A longitudinal perspective between March 2001 and March 2003 for Higher Education in the United Kingdom*. [Internet] A UCISA funded survey. Available from: http://www.ucisa.ac.uk/groups/tlig/vle/index_html [Accessed 25 July 2009]

Burgess, H., & Taylor, I. (2004). *Effective learning and teaching in social policy and social work*. Routledge

Burton, J. K. & Merrill, P. F. (1977) *Needs Assessment: Goals, Needs and Priorities*. *Instructional design: principles and applications*. Educational technology publications, USA. P 21

Cha, H.J., Kim, Y.S., Park, S.H., Yoon, T.B., Jung, Y.M and Lee, J. (2006), *Learning Styles Diagnosis Based on User Interface Behaviours for the Customization of Learning Interfaces in an Intelligent Tutoring System*, *Intelligent Tutoring Systems*, 4053, 513-524

Chan K. & Ridgway, J. (2006) *Students' Perception Of Using Blogs As A Tool For Reflection And Communication* [Internet]Proceedings Of Alt-C , Edinburgh. Available From:Www.Dur.Ac.Uk/Resources/Smart.Centre/Publications/Alt-Cedinburghchan.Doc [Accessed August 23rd 2009]

Collins, A. Seely Brown, J. and Holum, A. (1991) *Cognitive Apprenticeship: Making Thinking Visible*[Internet]. 21st Century Learning Initiative. Available from: http://www.21learn.org/arch/articles/brown_seely.html[Accessed September 11th 2009]

courseLab.com. (2007-2009). Free e-learning authoring tool [Internet] Available from :<http://www.courselab.com> [Accessed August 31st 2009]

Cunliffe,D & Elliott,G (2003) *Multimedia Computing*, Learning Matters, Crucial, Exeter. Druin.

Dale, E. (1969). *Audiovisual Methods in Teaching* (Third Edition .). NY: Dryden Press.

Dale, P., Holland, M., & Matthews, M. (2006). *Subject librarians: engaging with the learning and teaching environment*. Ashgate Publishing, Ltd.

Dawson ,S,(2006), Online forum discussion interactions as an indicator of student community, *Australasian Journal of Educational Technology*, 22(4), 495-510.

Denscombe, M. (2003). *The Good Research Guide - For Small-Scale Social Research Projects*. Maidenhead. Philadelphia, Open University Press

Dick, W.; Carey, L., & Carey, J. O. (2005). *The Systematic Design of Instruction*. Boston: Allyn & Bacon.

Dick, W. (1977) *Formative evaluation, Instructional design: principles and applications* .Educational technology publications, USA .p 311.

Dokeos.com . (2009) E-learning better than classroom education [Internet]
Available from www.dokeos.com [Accessed August 29th 2009]

Dougiamas, M. & Taylor, P.C. (2000) *Improving the effectiveness of tools for Internet-based education*, Teaching and Learning Forum 2000, Curtin University of Technology

Downes S. (2009) Posts referring to articles by Clayton R. Wright [Internet]
Available from:
<http://www.downes.ca/cgi-bin/page.cgi?author=Clayton%20R.%20Wright>
[Accessed September 20th 2009]

Duffy, M. T., & Kirkley, R. J. (2004). *Learner-centered theory and practice in distance education: cases from higher education*. Lawrence Erlbaum Associates.

D2L. Desire to Learn (1999-2009) [Internet] Available from:
<http://www.desire2learn.com/> [Accessed July 18th 2009]

eCommerce Journal(2008) Saudi Arabia market welcomes Amazon [Internet]
Available from:
http://www.ecommercejournal.com/news/saudi_arabia_market_welcomes_amazon?drgn=1[Accessed August 23rd 2001]

efrontlearning.net . (2009) A refreshing elearning experience! [Internet] Available from: www.efrontlearning.net [Accessed August 28th 2009]

Elleithy, K., Sobh, T., Mahmood, A., Iskander, M., & Karim, M. (2006). *Advances in Computer, Information, and Systems Sciences, and Engineering: Proceedings of IETA 2005, TeNe 2005 and EIAE 2005*. Springer.

Evans,C(2008), The effectiveness of m-learning in the form of podcast revision lectures in higher education, *Computers & Education*,50(2),491-498.

ewisoft.com(2009) Create a hyperlink to a page outside your website. [Internet]
Availble from:
http://www.ewisoft.com/a/help/index.htm#page=Create_a_hyperlink_to_a_page_outside_your_website.htm [Accessed September 15th 2009]

Flashcardexchange.com. (2009) Leitner Cardfile System [Internet] Available from : <http://www.flashcardexchange.com/docs/leitner> [Accessed September 3rd 2009]

Fichter, D. (2005) The Many Forms of E-Collaboration: Blogs, Wikis, Portals, Groupware, Discussion Boards, and Instant Messaging [Internet] Available from: <http://pm440.pbworks.com/f/many+forms+of+e-collaboration+blogs+wikis+portals.pdf> [Accessed September 9th 2009]

Franklin, T. & Harmelen, M. V. (2007) Web 2.0 for Content for Learning and Teaching in Higher Education [Internet] Available from: <http://staff.blog.ui.ac.id/harrybs/files/2008/10/web-2-for-content-for-learning-and-teaching-in-higher-education.pdf> [Accessed August 30th 2009]

Gagne, M. R. (1977) *Analysis of objectives .Instructional design: principles and applications*. Educational technology publications, USA. p115

Ghaoui, C. (2003). *Usability evaluation of online learning programs*. Idea Group Inc (IGI).

Harman, K. & Koohang. A, (2005), Discussion Board: A Learning Object, *Interdisciplinary Journal of Knowledge and Learning Objects*[Internet], , Available from; http://dmc.utep.edu/blackboard/uttc/11/media/db-learning_object.pdf [Accessed August 21th 2009]

Hamel, C.H. & Ryan-Jones, D. (2002), Designing Instruction with Learning Objects, *International Journal of Educational Technology* ,3(1).

Hannafin, M.J. & Peck, K.L. (1988). *The design, development and evaluation of instructional software*,McMillan Publishing Company

Harris,M,(1997), , Self Assessment of Language Learning in formal settings. *ELT Journal*. ,51(1), 12 – 20.

Hartley, P., Woods, A. & Pill, M. (2005). *Enhancing teaching in higher education: new approaches for improving student learning*. Routledge.

Hill,J.M.D ; Ray, C. K. & Blair, .J.R.(2003), Puzzles and games: addressing different learning styles in teaching operating systems concepts, *ACM SIGCSE Bulletin* ,35(1),182-186.

Holt, G. , Boyd, S. , Dickinson, B. ,Loose, J. & O'Donnell, S. , (1999),*Education in England, Wales and Northern Ireland: A Guide to the system*. The National Foundation for Educational Research, Berkshire.

Hot Potatoes™ (2009) Hot Potatoes Home Page [Internet] Available from: <http://hotpot.uvic.ca/> [Accessed September 9th 2009]

Howze.Y.S,(2000), Using Focus Groups as an Applied Research Tool , [Internet]Howe's Now, Available from: <http://www.tsbvi.edu/cosbnews/Apr2000/focus.htm> [Accessed September 23rd 2009]

Ilias.de (2009) ILIAS Learning Management [Internet] Available from: www.ilias.de [Accessed August 29th 2009]

it's learning. (2009) [Internet] Available from: <http://www.itslearning.co.uk/> [Accessed July18th 2009]

JISC. (2009A).About us [Internet] Available from: <http://www.jisc.ac.uk/aboutus.aspx> [Accessed July 11th 2009]

JISC(2009 B) Title: Enhancing Learning through Online Assessment [Internet]. Available from: <http://www.jisc.ac.uk/media/documents/programmes/elearningpedagogy/oxfordv2.pdf>[Accessed 28 July 2009]

Johnson, C. G.& Fuller, U. (2007) *Is Bloom's taxonomy appropriate for computer science?*, Proceedings of the Sixth Baltic Sea Conference on Computing Education Research, volume 2007-006 of Uppsala University Department of Information Technology Technical Reports,. Uppsala University, 120-123

Jonassen, H. D. (2004). *Association for Educational Communications and Technology. Handbook of research on educational communications and technology. Second edition.* Lawrence Erlbaum Associates

Jonassen, H ; Hannum , W. H. & Tessmer, M. Task (1999) *Analysis Methods for Instructional Design.* Lawrence Erlbaum Associates Mahwah ,NJ

Kafai, B. Y., S & oval, A. W., Enyedy, N., Nixon, S. A., and Herrera, F. (2004). *Embracing diversity in the learning sciences : proceedings of ICLS 2004*, University of California Los Angeles, Santa Monica, CA. Routledge.

Kazienko, P. & Pilarczyk, M. (2006) *Hyperlink assessment based on web usage mining*, Proceedings of the seventeenth conference on Hypertext and hypermedia, Odense. Denmark, 85-88.

Kemp, J. E. (1977). *Instructional design : a plan for unit and course development* (second edition). Belmont, Calif: Fearon-Pitman Publishers.

Kim ,K and Bonk C. J, (2006), A survey substantiates some ideas about online learning and refutes others, *The Future of Online Teaching and Learning in Higher Education*, 29(4).

King Abdulaziz University. Deanship of Distance learning DDL 2009 [Internet] Available from: http://emes.kau.edu.sa/ddlcourses/EMES_FINAL/main_h.html [Accessed July 23rd 2009]

Laurillard, D. (2002). *Rethinking university teaching: a conversational framework for the effective use of learning technologies*. Second edition. Routledge

Liegle.J.O and Janicki .T.N, (2006), The effect of learning styles on the navigation needs of Web-based learners, *Computers in Human Behavior*,22(5),885-898.

Luppigini, R. (2007). *Online learning communities*. IAP.

Lynch, J., & Horton, S. (2009) *Web Style Guide: Basic Design Principles for Creating* (Third Edition) Yale University Press

Ma, Z. (2005). *Web-based intelligent e-learning systems: technologies and applications*. Information Science Pub.

Mackenzie, D. (2003) *Assessment for E-Learning: What are the Features of an Ideal E-Assessment System?* CAA Conference Proceedings 2003. 185-194

Massey,M,(2003), Building on our teaching expertise : Cultivating new skills [Internet] ,JISC, Available from : http://www.jisc.ac.uk/publications/documents/pub_inform3.aspx .Accessed August 21th 2009]

Mayer, R.E,(2003), The promise of multimedia learning: using the same instructional design methods across different media, *Learning and Instruction*,13(2),125-139.

McNeil, S. (2008) What is Instructional Design? [Internet] Available from: <http://www.coe.uh.edu/courses/cuin6373/whatisid.html>[Accessed July 20th 2009]

Mishra, S. (2006). *Cases on global e-learning practices: successes and pitfalls*. Idea Group Inc (IGI).

Moodle.org. (2009) [Internet] Available from: www.moodle.org [Accessed July 19th 2009]

Morgan.D.L,(1997), *Focus Group as Qualitative Research*, (Second Edition), SAGE publication Inc. London , United kingdom

MSU(Michigan State University Board of Trustees) .Type of assessments (2006) [Internet] Available from : http://vudat.msu.edu/assess_types/ [Accessed September 5th 2009]

Nagel, D. (2008) School Safety Index- Self Assessment Tool Goes Online.[Internet] Available from : www.thejournal.com/articles/22878 [Accessed September 18th 2009]

NeLC (2009) The National Centre for e-Learning [Internet] Available from: <http://www.elc.edu.sa/portal/> [Accessed July 10th 2009] [Arabic]

Nelson,R and Cheney,P.H (1987), Training end users: an exploratory study, *Society for Information Management and The Management Information Systems Research Center* ,11(4), 547 - 559 .

Neto, M. M. F., & Brasileiro, V. F. (2006). *Advances in computer-supported learning*. Idea Group Inc (IGI).

NIST (2005) Machine Translation Evaluation Official Results [Internet] Available from: http://www.itl.nist.gov/iad/mig//tests/mt/2005/doc/mt05eval_official_results_release_20050801_v3.html [Accessed September 11th 2009]

Northumbria University. (2008) Introduction to VLEs [Internet] Available from http://www.jiscinfonet.ac.uk/InfoKits/effective-use-of-VLEs/intro-to-VLEs/index_html [Accessed August 24th 2009]

Och. F, (2009) Statistical machine translation live [Internet] Available from <http://googleresearch.blogspot.com/2006/04/statistical-machine-translation-live.html> [Accessed September 10th 2009]

Ogunniyi M. B(2004). *Educational measurement and evaluation*. Hong Kong: Longman Group

Orange, G., & Hobbs, J. D. (2000). *International perspectives on tele-education and virtual learning environments*. Ashgate

O'Reilly , T. (2005) What Is Web 2.0:Design Patterns and Business Models for the Next Generation of Software [Internet] Available from:
<http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html>.
[Accessed September 1st 2009]

Popat, K, MacLean, H, Heppell, S. (2007). Virtually There : Learning Platforms - YHGfL/Cleveratom

Prensky,M,(2003) ,Digital game-based learning, *ACM*, 1(1),21-21.

Q. D'Souza, RSS Ideas for Educators, (2006). [Internet]Under Creative commons licence, Available from:
<http://www.teachinghacks.com/wpcontent/uploads/2006/01/RSS%20Ideas%20for%20Educators111.pdf>. [Accessed September 23rd 2009]

Rehak.D.R and Mason,R,(2003), *Keeping the learning in learning objects, Reusing Online Resources: A Sustainable Approach to E-learning*, Routledge ,P20-34.

Remenyi, D. (2007). International Conference on e-Learning. *Proceedings of the 2nd International Conference on e-Learning*. Academic Conferences Limited

Right Reason Technologies. (2009) CyberExtension:Virtual Managed Learning Environment [Internet] Available from:
http://rightreasontech.com/Managed_Learning_Environment/CyberExtension.php
[Accessed July 18th 2009]

Rhodes, P. ; Kraemer, E. & Reed, B. (2006)*Importance of interactive questioning techniques in the comprehension of algorithm animations*. Proceedings of the 2006 ACM symposium on Software visualization . Brighton, United Kingdom, 183-184.

Rogers, P., & Howard, C. (2009). *Encyclopedia of Distance Learning*. 2nd edition. Idea Group Inc (IGI).

Rossett, A and Sheldon, K,(2001),). *Beyond the Podium: Delivering Training and Performance to a Digital World*, San Francisco: Jossey-Bass/Pfeiffer.

Saudi Arabia Cultural Mission.(2006) Educational system in Saudi Arabia [Internet] Available from: www.sacm.org [Accessed July 12th 2009]

SCORM.com. (2009) SCORM Explained. Available from
<http://www.scorm.com/scorm-explained/> [Accessed August 23rd 2001]

Secker, J. (2004). *Electronic Resources in the Virtual Learning Environment: A Practical Guide for Librarians*. Chandos.

Sederberg ,L. ; Burns, G. ; Duzer, J. V. & Norton, J. (2004) Designing and Evaluating Online Instruction:Tigers Project 2003 Summary [Internet] Available from <http://www.csuchico.edu/~lseder/eoi/> [Accessed September 20th 2009]

Shaikh .A.D, Chaparro.B.S & Fox ,D,(2009), The Personality of Terms and Concepts Used in Online Material[Internet],11(1)Available from:
<http://www.surl.org/usabilitynews/111/personality.asp> [Accessed August 21th 2009]

Sharma, P. (2008) Core Characteristics of Web 2.0 Services [Internet] Available from: <http://www.techpluto.com/web-20-services/> [Accessed September 2nd 2009]

Sherman,S,(2003). Transforming the landscape: Promoting innovation and inclusion through technology[Internet]. Developing spatial skillsTeaching with new interactive online materials. Available from :
http://www.jisc.ac.uk/publications/documents/pub_inform3.aspx [Accessed August 21th 2009]

Sims, R. (2001) *From art to alchemy: Achieving success with online learning*[Internet], *IT Forum*, 55. Available from:
<http://it.coe.uga.edu/itforum/paper55/paper55.htm> [Accessed September 11th 2009]

Swinburne (2008) Postgraduate Programs [Internet] Available from:
<http://courses.swinburne.edu.au/courses/coursematrixinternationalpost.aspx> [Accessed August 24th 2009]

SQU E Learning (2009) [Internet] Available from <https://moodle.squ.edu.om/> [Accessed August 14^h 2009]

Stanley, I, (2007), Creating a student-generated glossary in Moodle: How is it done and how effective is it?, *The JALT CALL Journal*,31(2),131-131.

Taylor-Powell, E. & Renner, M. (2003) Analyzing Qualitative Data [Internet], the learning store. Available from<http://learningstore.uwex.edu/pdf/G3658-12.pdf> [Accessed September 21st 2009]

The European Education Directory (2005), United Kingdom [Internet] Available from: <http://www.euroeducation.net/prof/ukco.htm> [Accessed July 11th 2001]

The ministry of higher education. (1996-2008) [Internet] Available from: <http://www.mohe.gov.sa/Arabic/Pages/default.aspx> [Accessed July 10th 2009][Arabic]

Thorsteinsson, G. & Denton, H.G (2006), *Ideation in a Virtual Learning Environment: a pilot project from Iceland in innovation education*. Proceedings of the Design and Technology Association International Research Conference, Telford.

Thorsteinsson, G., (2004), *Innovative design and technology education in a virtual learning environment*[Internet], Proceedings of D&T Association Conference, DATA, Available from: <https://dspace.lboro.ac.uk/dspace-jspui/bitstream/2134/2887/1/dot23.pdf> [Accessed August 15th 2009]

Totkov, G., (2003), *Virtual Learning Environments: Towards New Generation* , Proceedings of International Conference on Computer Systems and Technologies - CompSysTech . 12-1.

Tripp, S. D. & Bichelmeyer, B.(1990),Rapid Prototyping: An Alternative Instructional Design Strategy.Educational Technology, *Research and Development*, 38 (1), 31-44.

Vaughn,S , Schumm.J.S, Sinagub.J.M,(1996) , *Focus Group Interviews in Education and Psychology*, SAGE Publications, Inc London ,United kingdom.

White, C. (1999). *It's not just another new thing: Technology as Transformative Innovation for Social Studies* ,Teacher Education.

WebTrain. (2009) [Internet] Available from: www.webtrain.com [Accessed July 19th 2001]

Weiss, J., Nolan, J., & Hunsinger, J. (2006). *The international handbook of virtual learning environments*. Springer

Weller, M. (2007). *Virtual Learning Environments: Using, Choosing and Developing Your VLE*. Routledge.

Wilson, P. J. (2005). *Human resource development: learning & training for individuals & organizations*. (Second Edition). Kogan Page Publishers.

WiZiQ.com . .(2009) WiZiQ enables teachers and learners to collaborate through virtual classes ,online tests ,educational content and contact network [Internet] Available from <http://www.wiziq.com/>[Accessed August 27th 2009]

Wright, C. R. (2003). Criteria for Evaluating the Quality of Online Courses.
[Internet] Available from
<http://elearning.typepad.com/thelearnedman/ID/evaluatingcourses.pdf> [Accessed
September 16th 2009]

Wright, P. ; Mosser-Wooley, D. & Wooley, B. (1997) Techniques & Tools for
Using Color In Computer Interface Design [Internet] Available from:
<http://www.acm.org/crossroads/xrds3-3/color.html> [Accessed September 5th
2009]

LIST OF APPENDICES

APPENDIX 1	PROJECT LOGBOOK	114
APPENDIX 2	DETAILED PROJECT TIME PLAN	121
APPENDIX 3	E-LEARNING SYSTEM OF SAUDI SCHOOLS K12	123
APPENDIX 4	SAUDI MOODLE	126
APPENDIX 5	PROJECT'S STORYBOARD	128
APPENDIX 6	THE HOME PAGE'S INTERFACE	132
APPENDIX 7	PROJECT'S STRUCTURE AND FLOW CHARTS	136
APPENDIX 8	INSTALLATION OF WAMP SERVER	140
APPENDIX 9	INSTALLATION OF MOODLE	144
APPENDIX 10	QUESTIONS OF THE EVALUATION	147
APPENDIX 11	COMP101 MOODLE'S SCREEN SHOTS	152

APPENDIX 1

Project Logbook

MEETING #1

WED 1/7/2009

10.00 A.M.-10.45
A.M.

LOCATION: STUBBS'S OFFICE

REVIEW THE PREVIOUS PERIOD'S WORK

DISCUSSION	None
MATTER ARISING:	None

DISCUSS PROJECT ISSUES

DISCUSSION	Discussion of project plan and milestones
Decide the title of project will be "Opportunities and Challenges using VLEs. A Case Study, Universities in Saudi Arabia"	
Discuss project scope which is that the focus will only be on Moodle. My supervisor advised me to contact Mrs. Helen Bhanaut to talk about Moodle and to help install it. Also, my supervisor gave me the contact information for Mrs. Fatma Meawad, who has much experience with Moodle.	
Present an Arabic book about Electronic Learning as a reference.	
Ask my supervisor to write a letter to Saudi universities to help me at the evaluation stage of the project and to share with me their experiences with VLEs.	
CONCLUSIONS	Start work on the literature review.
Set the next meeting for 16 July 2009 at 10 a.m.	

MEETING #2

TUE 14/7/2009

12.00 A.M. - 12.30
A.M.

LOCATION: STUBBS'S
OFFICE

REVIEW THE PREVIOUS PERIOD'S WORK

DISCUSSION	Literature Review
MATTER ARISING: None	

DISCUSS PROJECT ISSUES

DISCUSSION	Organize the project chapters (Table of Contents)
Discuss VLE functionality, My supervisor recommended that I present the VLE section first in the literature review chapter, followed by other sections such as the British and Saudi education system sections.	
Discuss design techniques, which will be considered at the design stage such as a story board for the system interfaces and E-R for the database of the system. Also my supervisor recommended that I evaluate the system interfaces with a sample of users to decide which one is more suitable for users in terms of colour, font, layouts.	
Present course material of Comp101 Module. My supervisor recommended that I choose one unit to develop the e-course as development of the whole course would require a team of people.	
CONCLUSIONS	I agreed to finish the literature review by the end of July, to enable me to start work on the design stage by the first of August.
Set the next meeting for 12 August 2009 at 11 a.m.	

MEETING #3

TUE 14/8/2009

13.00 A.M. - 14.00
A.M.

LOCATION: STUBBS'S
OFFICE

REVIEW THE PREVIOUS PERIOD'S WORK

DISCUSSION	The literature review feedback and project design issues
-------------------	--

MATTER ARISING: None

DISCUSS PROJECT ISSUES

DISCUSSION	
-------------------	--

I received the feedback on the literature review. There are some changes I have been asked to make regarding the English, providing references in some places and supporting my research with examples.

I presented the Comp101 Moodle to my supervisor. It is run on a local server. I presented the home page and course page; and Lesson One which has been created using Courselab software. In addition, I showed her the features of Comp101 including Google translator, the course outline tap display, the Comp101 forum, the RSS feed, the wiziq virtual class and the Twitter post plug, along with some quizzes set after Lesson One. Also, I logged in as a student to show her the student features such as the student menu and profile, and I showed her how the student can customize her/his own space by changing the theme .

My supervisor recommended me to add some features to the lesson such as some instructions about how to use the lesson and asked me to evaluate the lesson and the whole website with the students to make sure that the information is delivered correctly. She also asked me to mention about my teaching experience of the paper-based Comp101 course and how I found the online Comp101 course useful as a teacher and for the students.

I asked my supervisor to extend the project submission because I have had an appendectomy and I have been granted 35 days sick leave. My supervisor agreed to give me an extension making the new submission date the 26 of October 2009.

CONCLUSIONS	
--------------------	--

I agreed to finish the design chapter in a week, and to start work on the development chapter. I will also start collecting user comments about the current version of the Comp101 Moodle in order to produce the final version of the site.

The next meeting will be set between 25th and 27th of August.

MEETING #4

WED 26/8/2009

13.00 A.M. - 14.00
A.M.

LOCATION: STUBBS'S
OFFICE

REVIEW THE PREVIOUS PERIOD'S WORK

DISCUSSION	Project design and development issues
MATTER ARISING:	None

DISCUSS PROJECT ISSUES

DISCUSSION	
I received the feedback on the project design. There are some changes I have been asked to make regarding the instructional design of Comp101	
I discussed the development stage of the Comp101 Moodle with my supervisor.	
I also discussed the evaluation stage of the Comp101 Moodle with my supervisor. She recommended me to complete an in-depth research to understand the evaluation techniques appropriate for the project.	
CONCLUSIONS	I agreed to finish the development chapter in a week, and to start work on the evaluation chapter
As I will be away to conduct the evaluation on the target population, there will be no future meetings but I will contact my supervisor via email.	

[Email #1](#)

WED 2/9/2009

REVIEW THE PREVIOUS PERIOD'S WORK

DISCUSSION	Project development and evaluation issues
MATTER ARISING:	None

DISCUSS PROJECT ISSUES

DISCUSSION	
I received the feedback of project developments. Some thoughts need to be justified and supported by proper references such as using Courselab software and selecting WAMP Server.	
CONCLUSIONS	My supervisor suggested that before I write anything I must imagine her sitting on my shoulder and asking me why?

[Email #2](#)

TUE 15/9/2009

REVIEW THE PREVIOUS PERIOD'S WORK

DISCUSSION	Project evaluation issues
MATTER ARISING: None	

DISCUSS PROJECT ISSUES

DISCUSSION	I sent the evaluation chapter to my supervisor in order to get feedback about the proposed evaluation techniques before I conducted the evaluation on the participants.
I received the feedback on the evaluation techniques. In general few thoughts need to be considered. My supervisor gave me a url which could be beneficial for the project evaluation.	
I informed my supervisor that I have reached the word limit, she replied that I should not worry about the word limit and that it is more important that I meet all the project requirements	
CONCLUSIONS	I will start to fix the required changes in the evaluation techniques. After that I will conduct the evaluation.

APPENDIX 2

Project Time Plan

ID	Task Name	Duration	Start	Finish	Predecessor	July	August	September	October
1	Analysis	14 days	Thu 02/07/09	Tue 21/07/09		TFSS	TFSS	TFSS	TFSS
2	System Analysis	7 days	Thu 02/07/09	Fri 10/07/09					
3	Data collection	7 days	Thu 02/07/09	Fri 10/07/09					
4	Literature Review	14 days	Thu 02/07/09	Tue 21/07/09					
5	British Educational System Analysis	7 days	Thu 02/07/09	Fri 10/07/09					
6	Saudi Educational System Analysis	7 days	Thu 02/07/09	Fri 10/07/09					
7	Virtual Learning Environments VLEs	7 days	Mon 13/07/09	Tue 21/07/09					
8	Black Board	7 days	Mon 13/07/09	Tue 21/07/09					
9	Moodle	7 days	Mon 13/07/09	Tue 21/07/09					
10	Design	14 days	Sat 01/08/09	Wed 19/08/09					
11	Diagrams (DFD, ER ect) screen layouts	7 days	Sat 01/08/09	Mon 10/08/09					
12	Course Materials	7 days	Tue 11/08/09	Wed 19/08/09					
13	System Deployment	14 days	Tue 11/08/09	Fri 28/08/09					
14	Train users	7 days	Fri 28/08/09	Mon 07/09/09					
15	System Evaluation	14 days	Tue 09/09/09	Fri 25/09/09					
16	Evaluation Analysis	4 days	Sat 26/09/09	Wed 30/09/09					
17	Conclusion & Recommendation	12 days	Tue 15/09/09	Tue 29/09/09					
18	Submission	0 days?	Thu 01/10/09	Thu 01/10/09					01/10

Project: Project1

Date: Thu 01/10/09

Task Split

Progress Milestone

Summary

External Tasks

External Milestone

Deadline

Project Summary

Page 1

APPENDIX 3

E-Learning System Of Saudi Schools K12

شبكة التعليم الإلكتروني
للمدارس السعودية

الدعم الفني


24/7

تقويم

1430 رجب

سبت أحد اثنين ثلاثاء اربعاء خميس جمعة

3 2 1 10 9 8 7 6 5 4 17 16 15 14 13 12 11 24 23 22 21 20 19 18 29 28 27 26 25

انشاء مدرسة جديدة

فئات المقررات الدراسية

3

متنوع
المنافذ الدراسية
المرحلة الثانوية
مقررات ادارية
ENGLISH
تدريسي

الذهب

بحث مقررات دراسية

الدخول

اسم المستخدم mem82m
كلمة المرور

الدخول

انشاء اشتراك جديد
هل فقدت كلمة المرور؟

الصفحة الرئيسية
(آخر 5 دقائق)
لا يوجد

شبكة التعليم الإلكتروني
للمدارس السعودية

تم دخولك بصفحة Mashael Maashi (خروج)

الصفحة الرئيسية

مخطط أسبوعي

19 ربيع الأول - 25 ربيع الأول

مبنى مركزي، بني

26 ربيع الأول - 02 ربيع الآخر

03 ربيع الآخر - 09 ربيع الآخر

10 ربيع الآخر - 16 ربيع الآخر

إدارة مركز بني

درجات
نصف شخصية

شبكة التعليم الإلكتروني

للمدارس السعودية



Saudi K12.net



انتقل إلى...

البحث في المكتبات

الصفحة الرئيسية • الفصول الافتراضية • المنتديات • منتدى مركزي يعيد

سمح هذا المنتدى للجميع اختيار إما الاشتراك أم لا
كل شخص يمكنه الاختيار ليصبح مشتركاً
تشارك في هذا المنتدى

سليم

أضف موضوعاً جديداً للفتن

بناس	بناء البناس بواسطة	الردود	آخر مشاركة
535348	 Admin User	0	Admin User سبت، 15 ربيع الآخر 1430 : 07:31 م
sdfsdf	 Admin User	0	Admin User سبت، 15 ربيع الآخر 1430 : 07:30 م
=====	 Admin User	0	Admin User سبت، 15 ربيع الآخر 1430 : 07:27 م

تم دخولك بصفة (مخرج)

Mashael Maashi

الفصول الافتراضية

APPENDIX 4

Saudi Moodle



Saudi Moodle
 سعودي مودل

أنت الآن تستخدم خاصية دخول جديد (دخول)

التاريخ

رجب 1430

3	2	1				
10	9	8	7	6	5	4
17	16	15	14	13	12	11
24	23	22	21	20	19	18
	29	28	27	26	25	

قوائم المقررات الدراسية

Demo Courses
 اللغة العربية
 مقر تعليم افراد اللغة العربية
 ICDL
 اللغة العربية
 IT
 windows Xp
 word
 Excel
 Access
 power point
 internet
 دورة تدريبية للمدرسين

أهلاً بكم في
 برنامج التعليم الإلكتروني
 لمؤسسة الاسلوب الذكي

 نرحبكم بقرائكم في استشارات
 elearning@smartway-me.com
 تم انشاء هذا الموقع لتتقدم خدمات
 متجانية للجميع الذين يستخدمون



Saudi Moodle
 سعودي مودل

سعودي مودل > صناعة القائد > موارد > مفاهيم ومبادئ


الانتقال إلى ...

صناعة القائد

من : ما تعريف القيادة ؟
 في لسان العرب (القود) يغض الشوق ، يقال : يفرق الدابة من أمانتها ويسوقها من خلفها .
 وفي هذا المعنى التقوي إشرارة بسيطة مفادها: إن مكان القائد في المنظمة وكذلك هي يكون مثلاً لجماعته على الغير ، ويرشداً لهم إلى مايقبله صلاحهم .
 فالقيادة ليست منصباً يتمتع به القائد ، وإنما بعبارات القاء فيه بل هي صفة وقيمة .

القيادة : هي عملية تحريك الناس نحو الهدف

فهي مكونة من ثلاث عناصر :



Saudi Moodle
 سعودي مودل

سعودي مودل > تقييم > رجب 1430

أنت الآن تستخدم خاصية دخول جديد (دخول)

معالجة شهرية مفصل:

Course
 Global

1430 رجب

1430 رجب
 1430 رجب

يوم السبت	يوم الأحد	يوم الاثنين	يوم الثلاثاء	يوم الأربعاء	يوم الخميس	يوم الجمعة
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17

معالجة شهرية

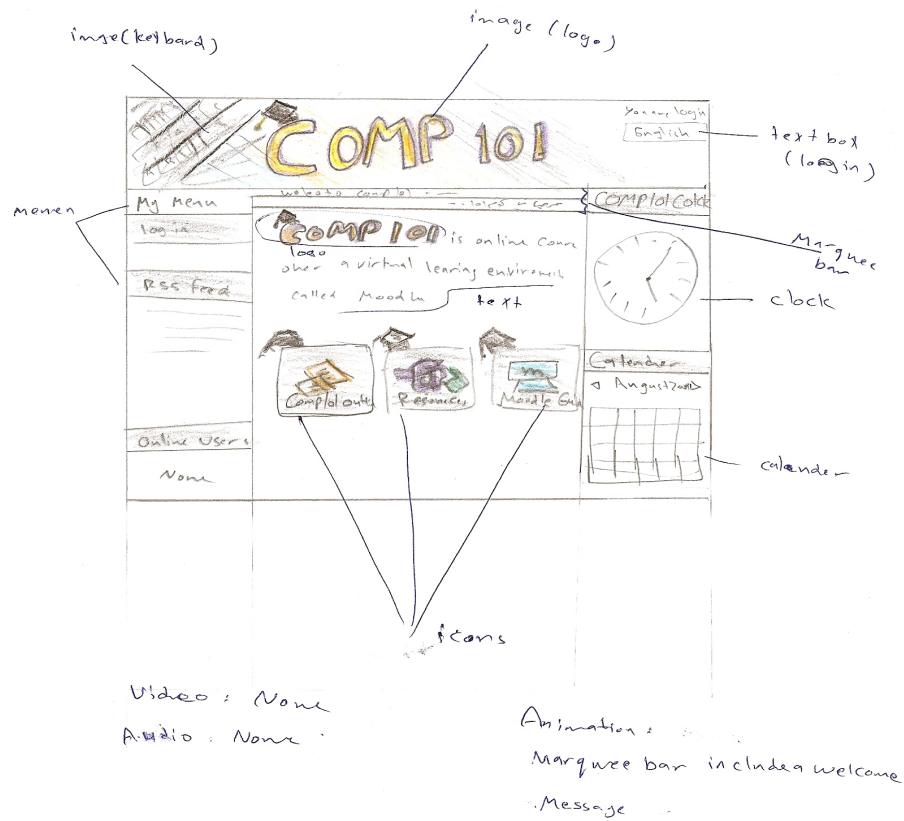
1430 رجب

5	4	3	2	1		
12	11	10	9	8	7	6
19	18	17	16	15	14	13
26	25	24	23	22	21	20
	30	29	28	27		

APPENDIX 5

Project's Storyboard

Comp101 Home page



Complol Course page

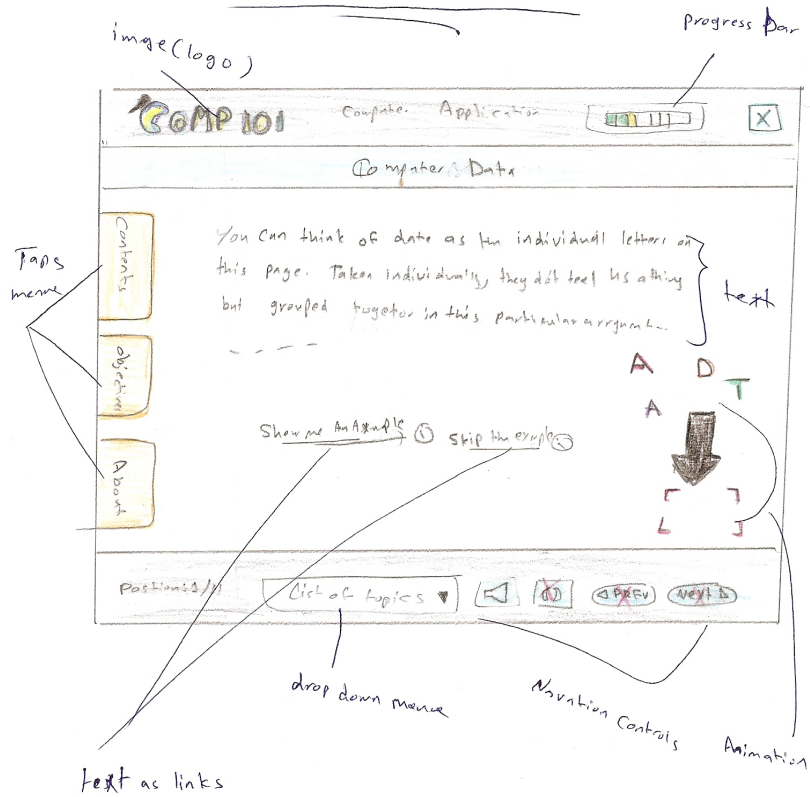


Video: None

Animation: None

Audio: None

Lesson 1 : Computer Concept



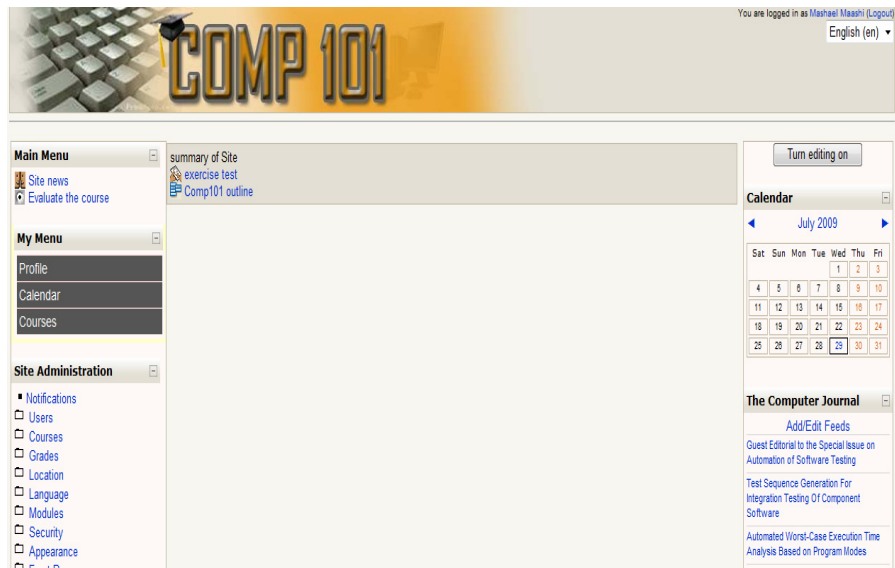
Video : None
Audio : None

Animation : Yes
The letters are moving
to show a word 'DATA'

APPENDIX 6

Home page Interface

The Home page Interface #1



You are logged in as [Mashaal Maashi](#) (Logout)

English (en) ▼

Main Menu

- [Site news](#)
- [Evaluate the course](#)

My Menu

- [Profile](#)
- [Calendar](#)
- [Courses](#)

Site Administration

- [Notifications](#)
- [Users](#)
- [Courses](#)
- [Grades](#)
- [Location](#)
- [Language](#)
- [Modules](#)
- [Security](#)
- [Appearance](#)

summary of Site

- [exercise test](#)
- [Comp101 outline](#)

Turn editing on

Calendar

July 2009

Sat	Sun	Mon	Tue	Wed	Thu	Fri
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

The Computer Journal

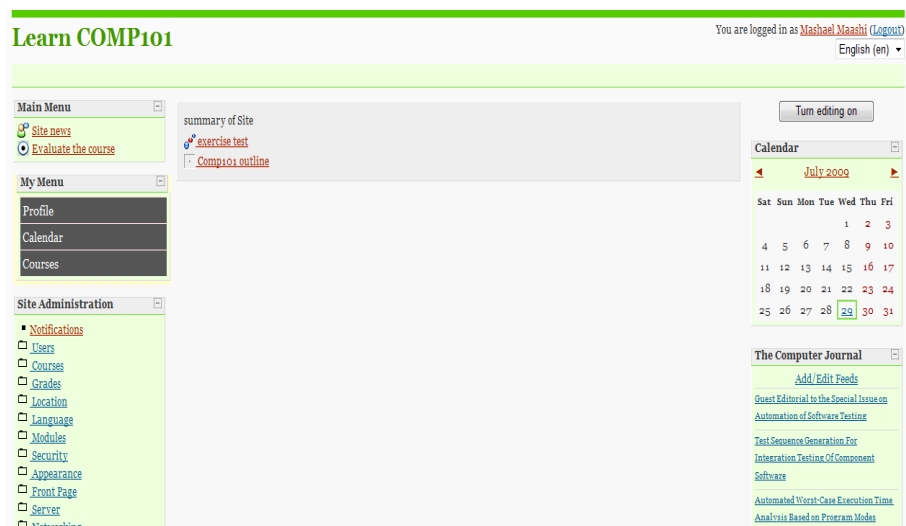
[Add/Edit Feeds](#)

[Guest Editorial to the Special Issue on Automation of Software Testing](#)

[Test Sequence Generation For Integration Testing Of Component Software](#)

[Automated Worst-Case Execution Time Analysis Based on Program Modes](#)

The Home page Interface #2



Learn COMP101

You are logged in as [Mashaal Maashi](#) (Logout)

English (en) ▼

Main Menu

- [Site news](#)
- [Evaluate the course](#)

My Menu

- [Profile](#)
- [Calendar](#)
- [Courses](#)

Site Administration

- [Notifications](#)
- [Users](#)
- [Courses](#)
- [Grades](#)
- [Location](#)
- [Language](#)
- [Modules](#)
- [Security](#)
- [Appearance](#)
- [Front Page](#)
- [Server](#)
- [Notifications](#)

summary of Site

- [exercise test](#)
- [Comp101 outline](#)

Turn editing on

Calendar

July 2009

Sat	Sun	Mon	Tue	Wed	Thu	Fri
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

The Computer Journal

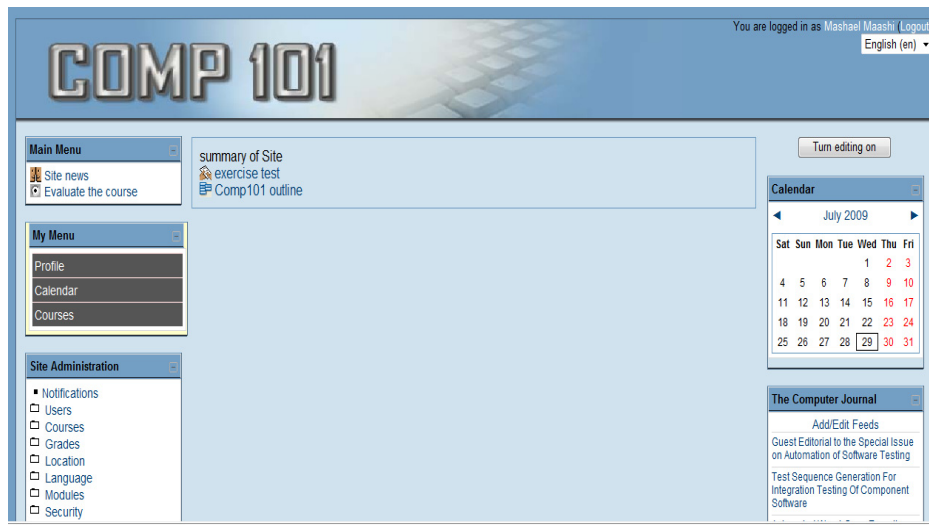
[Add/Edit Feeds](#)

[Guest Editorial to the Special Issue on Automation of Software Testing](#)

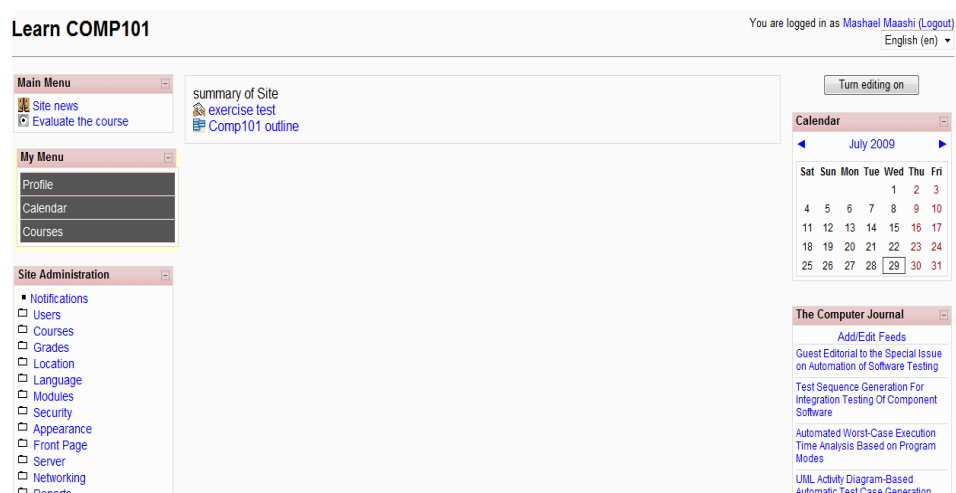
[Test Sequence Generation For Integration Testing Of Component Software](#)

[Automated Worst-Case Execution Time Analysis Based on Program Modes](#)

The Home page Interface #3



The Home page Interface #4



The Home page Interface (The Final version)


You are not logged in. ([Login](#))
English (en) ▾

My Menu ▾
[Login](#)

The Computer Journal ▾
[Guest Editorial to the Special Issue on Automation of Software Testing](#)
[Test Sequence Generation For Integration Testing Of Component Software](#)
[Automated Worst-Case Execution Time Analysis Based on Program Modes](#)
[UML Activity Diagram-Based Automatic Test Case Generation For Java Programs](#)
[Using Coupling-Based Weights for the Class Integration and Test Order Problem](#)

Online Users ▾

(last 5 minutes)

None

Welcome to COMP101 Moodle.. A new user should contact with the instructor to enroll to this module

جديد الرجاء التواصل مع الممرضة للتسجيل في هذه المادة

COMP 101 is a online course over a virtual learning environment called **MOODLE** .

If you a new user please contact the [module's instructor](#) to login . Otherwise, you can [login](#) as guest with a limited access to [the course](#).





COMP101 Clock ▾


Calendar ▾

◀ August 2009 ▶

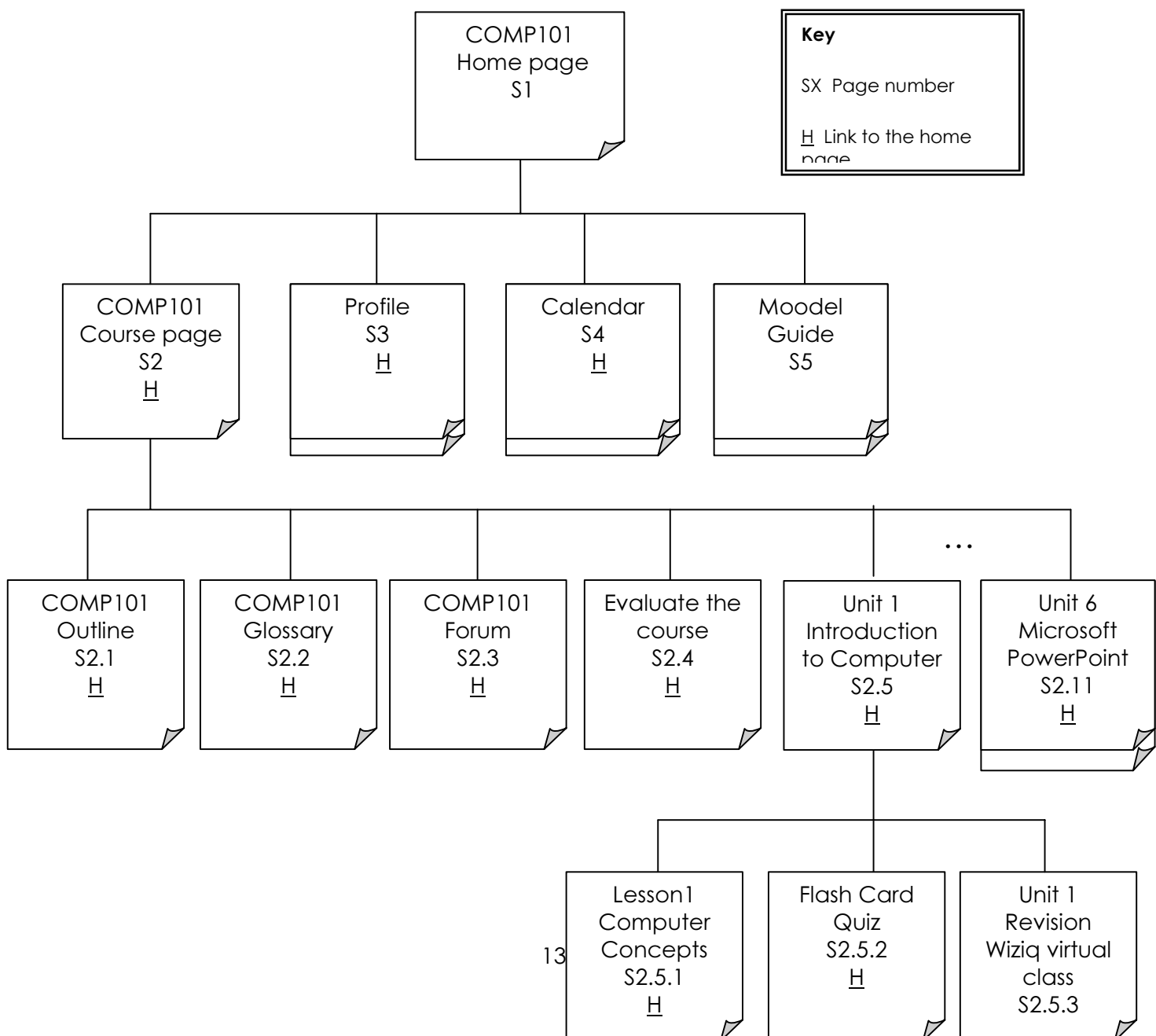
Sat	Sun	Mon	Tue	Wed	Thu	Fri
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Internet | Protected Mode: Off
100% ▾

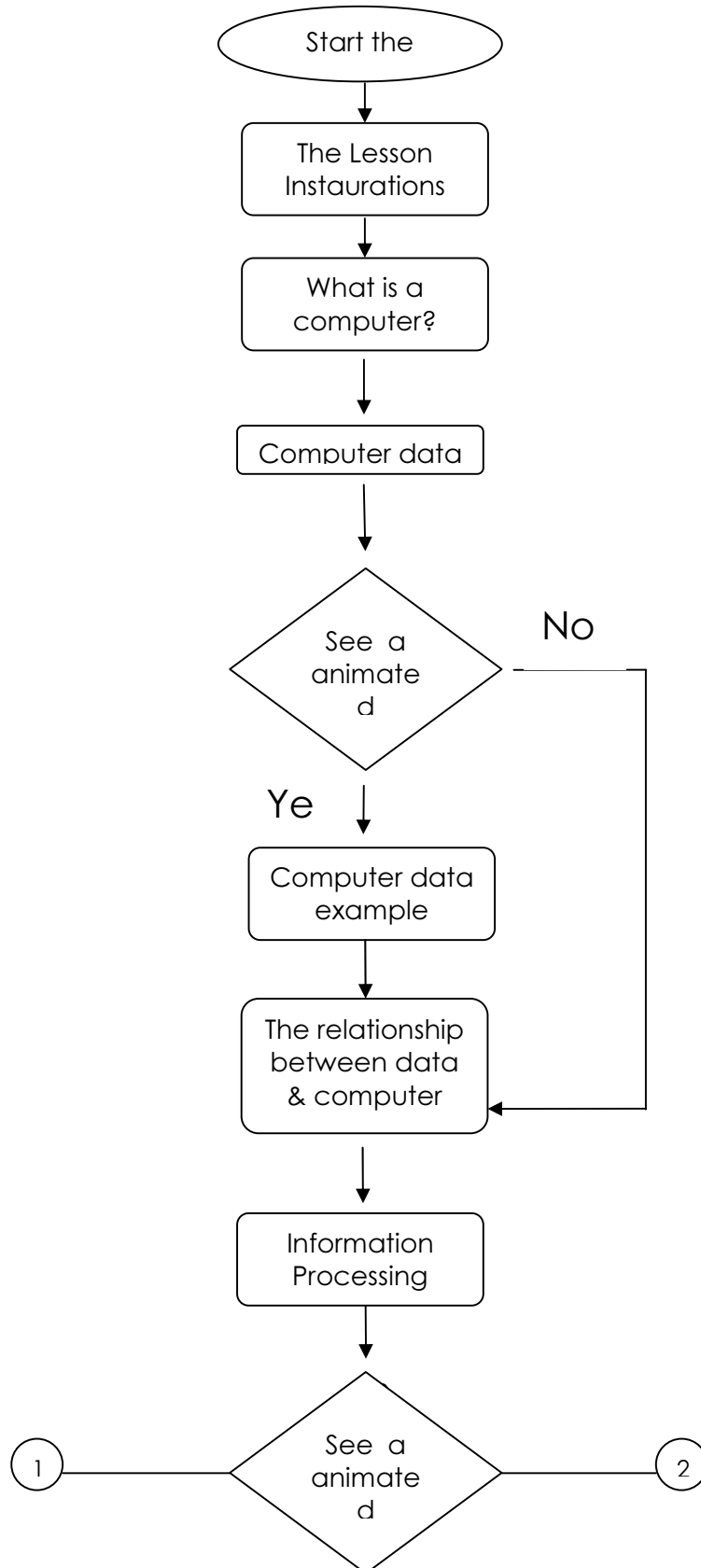
APPENDIX 7

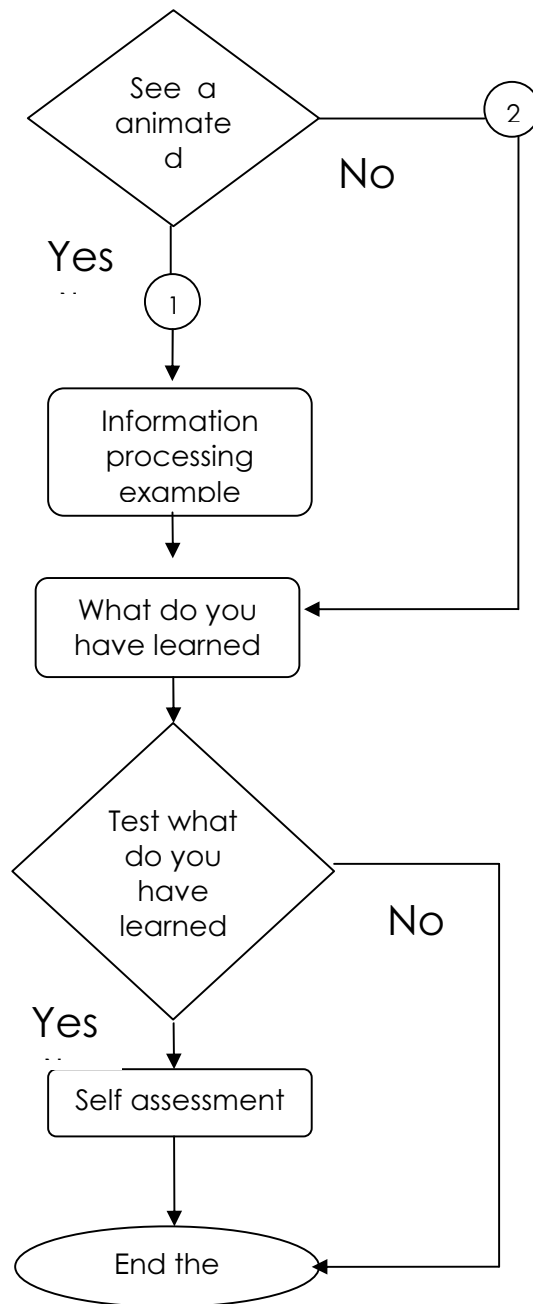
Project's Structure & Follow charts

COMP101 Moodle's structure chart



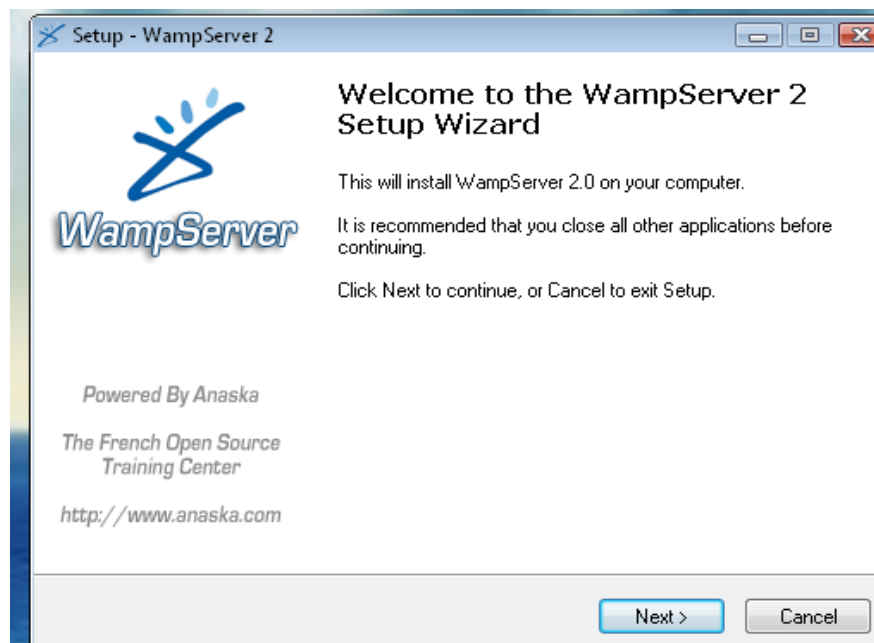
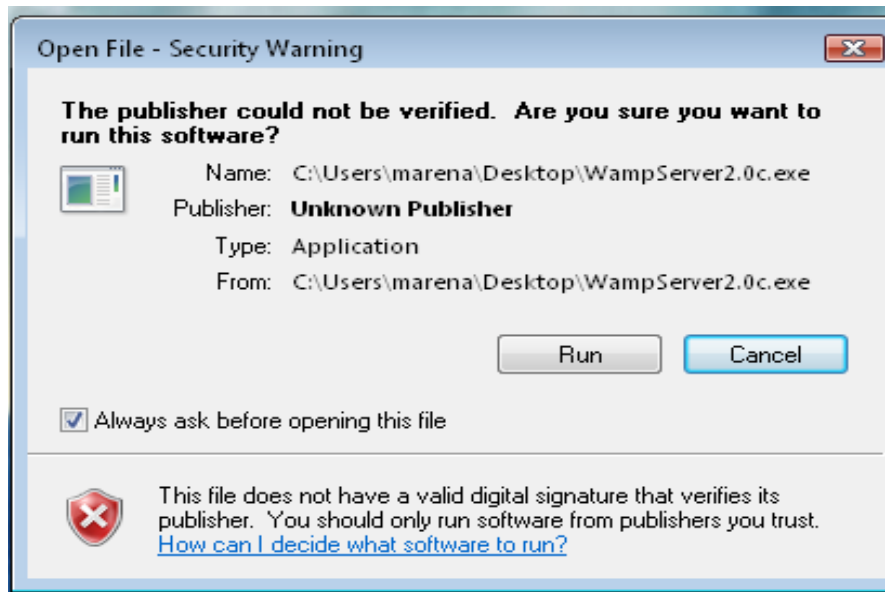
Lesson one's flow chart

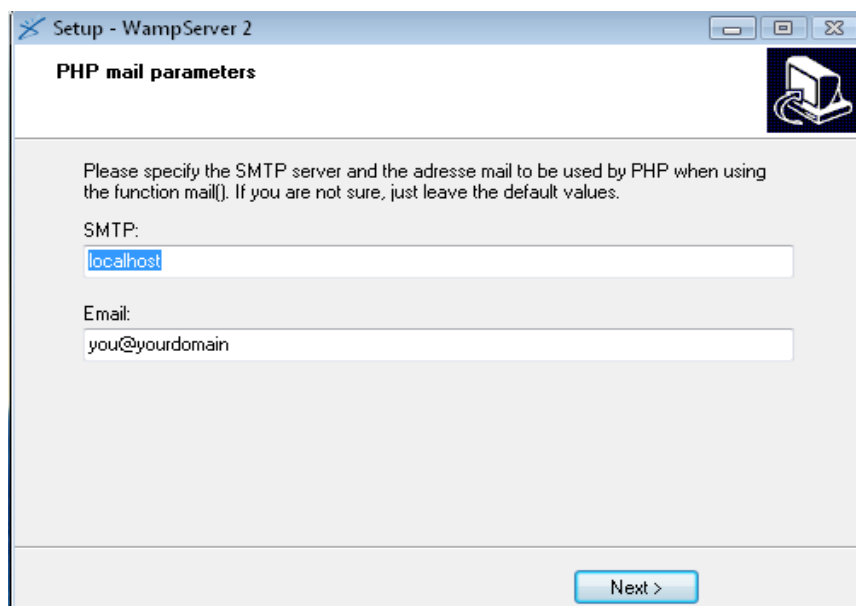
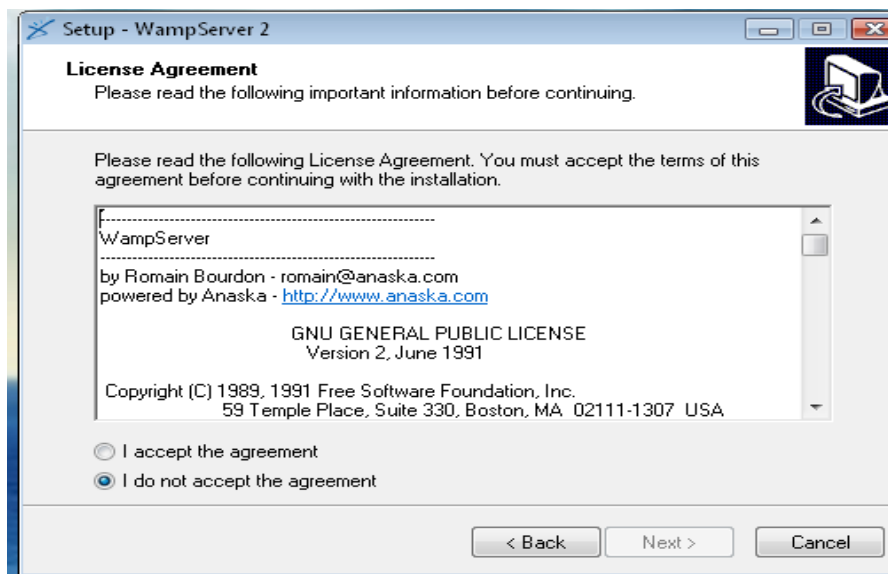




APPENDIX 8

Installation of WAMPServer



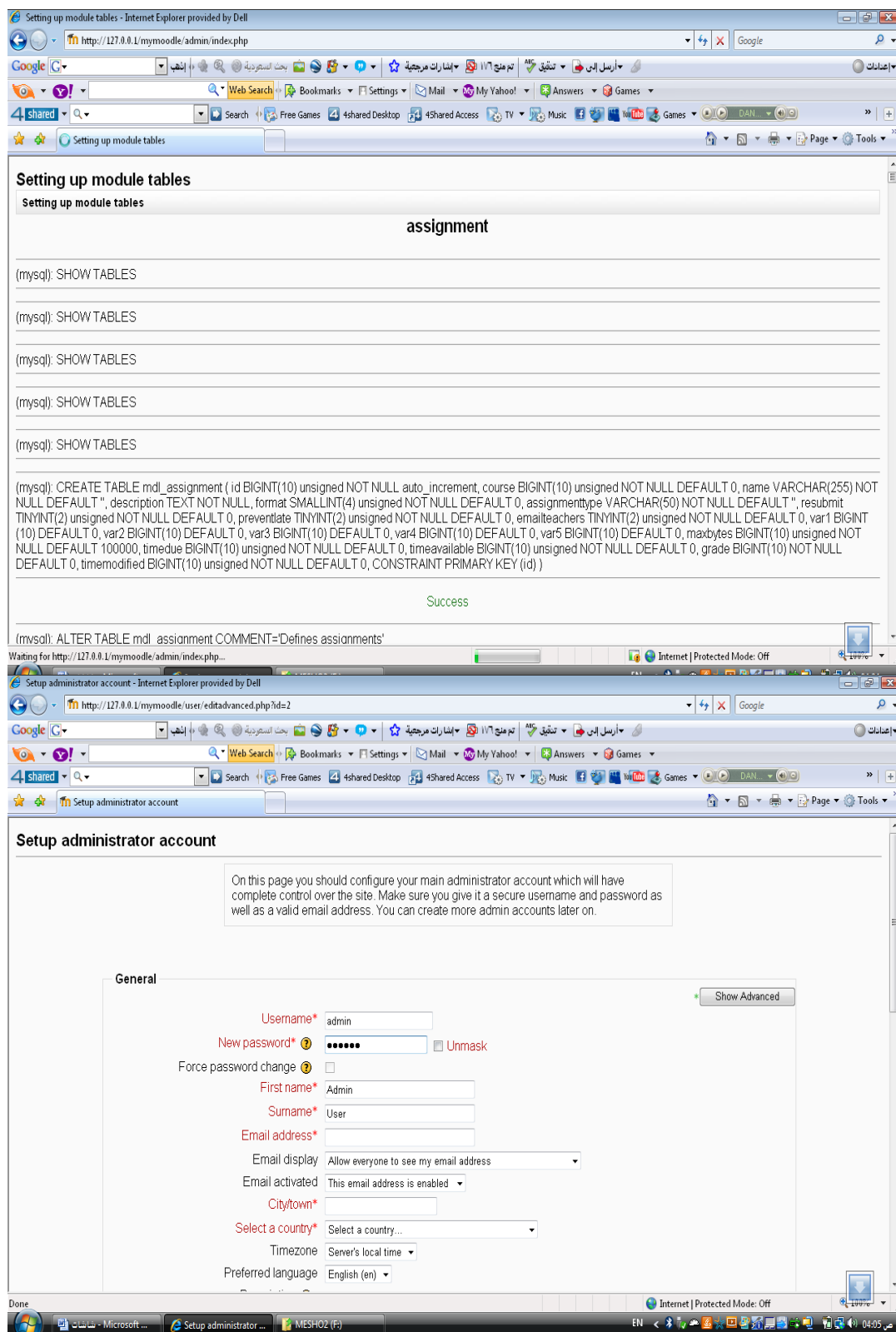




APPENDIX 9

Installation of Moodle





APPENDIX 10

Questions of the Evaluation

Focus Group Interview Questions for Students

General Information:

- What do you think about the information provided in the Comp101 Moodle in regards to:
 - the course (description, objectives...etc)
 - technical support
 - using the system

Accessibility:

- How do you access the course materials?
- The function of the icon in the system is clear? Do you agree/disagree Why?

Organization

- What do you think about the material organization in the course, in terms of:
 - Units
 - Lessons
 - Activities

Language:

- What do you think about the level of the language used in the Comp101 Moodle?
- What do you think about the instructions provided throughout the course?

Layout:

- What is your opinion of the layout of the Comp101 Moodle in terms of
 - Interface

- Colour
- The format
- Use of white space

Goals and Objectives:

- What do you think about the course objectives?

Course Content:

- What is your opinion of the course content?

Instructional or Learning Strategies and Opportunities for Practice and Transfer:

- How do you find using:
 - Online discussions
 - Glossary
 - Virtual classes
 - Games and activities
- Students understand their own responsibilities in the Comp101 Moodle.
Do you agree/disagree? Why?

Interview Questions for Teachers

Identifying the problem:

- What do you think about the online course? How far does it benefit the teacher?
- What do you think about the teacher's role in the online course ?

General Information:

- What do think about the information provided in the Comp101 Moodle regarding
 - The course (description, objectives...etc)
 - Technical support
 - Using the system

Accessibility:

- How do you access the course materials?
- The function of the icons in the system is clear? Do you agree/disagree? Why?

Organization:

- How far does the material organization in the course aid learning?

Language:

- What do you think about the level of the language used in the Comp101 Moodle?
- What do you think about the instructions provided throughout the course?
- The tone of the writing is supportive and encouraging. Do you agree/disagree? Why?

Layout:

- How far does the layout facilitate learning?
- What do you think of the Comp101 Moodle layout and interface?

Goals and Objectives:

- What do you think about the course objectives?
- What is your opinion of the action verbs used in the goals and objectives?

Course Content:

- How do you find the course content in terms of:
 - Being appropriate to student characteristics
 - Being relative to the course objectives
 - Being accurate

Instructional or Learning Strategies and Opportunities for Practice and Transfer:

- How far do the instructional strategies enable students to learn effectively?
- If we compare the online Comp101 course to the paper-based Comp101 paper course, is the online course better? Why?

APPENDIX 11

Comp101 Moodle's Screen Shots

Learn COMP101

You are logged in as [Mashael Maashi](#) (Logout)

English (en)

COMP 101

Welcome to COMP101 Moodle.. A new user should

مرحباً بك في مودل كورس 101 .. إذا كنت مستخدم جديد الرجاء التواصل

COMP 101 is an online course over a virtual learning environment called **MOODLE**.

If you are a new user please contact the [module's instructor](#) to login. Otherwise, you can [login](#) as a guest with a limited access to [The course](#).

My Menu

- Profile
- Calendar
- Courses

Site Administration

- Notifications
- Users
- Courses
- Grades
- Location
- Language
- Modules
- Security
- Appearance
- Front Page
- Server
- Networking
- Reports
- Miscellaneous

COMP101 Clock

Turn editing on

Calendar

October 2009

Sat	Sun	Mon	Tue	Wed	Thu	Fri
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Comp101 Outline

Resources

Moodle Guide

Course: Computer Applications

You are logged in as [Mashael Maashi](#) (Logout)

COMP101 Home COMP 101 Course

Switch role to... Turn editing on

My Menu

- Home
- * Show all *
- Unit 1: Introduction to...
- Unit 2: Computer Hardware
- Unit 3: Computer Software
- Unit 4: Microsoft Word
- Unit 5: Microsoft Excel
- Unit 6: Microsoft PowerPoint
- Gradebook
- Profile
- Calendar
- Courses

Search Forums

Online Users

(last 5 minutes)

[Mashael Maashi](#)

Topic outline

Learning Outcomes:

By the end of the course, you will be able to:

- Possess a complete knowledge of the fundamentals of computers concepts and components.
- Prepare a word document using the **MS-WORD**: formatting, organizing the document in different sections, inserting embedded or linked objects like pictures... ect.
- Use Excel Spreadsheet to solve general problems of daily practice of health field like Biostatistician analyzing of experimental data using the mathematical, financial, statistical functions, validation controls for data and charts.
- Create a good computer presentation using **MS-POWERPOINT**

Main Resources:

- [Exploring Microsoft 2003](#), Volume 1,2/E Robert T. Grauer, Maryann Barber, ISBN:0-13-221070-3, Publisher: Prentice Hall, Copyright:2007, Published:01/12/2006
- [Practical Computing](#), Lynn Hogan, ISBN:0-13-144133-7, Publisher: Prentice Hall, Copyright:2005

Latest News

[Add a new topic...](#)

3 Aug, 23:29
Mashael Maashi
Unit1: Lesson 1: Computer Concepts [more...](#)

3 Aug, 23:28
Mashael Maashi
Unit1: Lesson 2: Computer Hardware & Software [more...](#)

3 Aug, 23:22
Mashael Maashi
Virtual class - Revision: Unit one [more...](#)

[Older topics...](#)

Upcoming Events

Translator Google

Google

Internet | Protected Mode: Off 100%



COMP 101 Course: Lesson 1: Computer concepts



[COMP101 Home](#) > [COMP 101 Course](#) > [Resources](#) > Lesson 1: Computer concepts

Lesson 1: Computer concepts



Unit one

Lesson 1 : Computer Concepts

Click the button to start the lesson

