

**E Learning: A Development of Exercise Module
for Primary School in Malaysia**

by

Mohd Khairulhelmi Bin Maid

Dissertation submitted in partial fulfillment of
the requirements for the
BACHELOR OF TECHNOLOGY (Hons)
(INFORMATION AND COMMUNICATION TECHNOLOGY)

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CERTIFICATION OF APPROVAL

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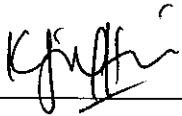
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UNIVERSITI TEKNOLOGI PETRONAS
TRONOH, PERAK
November 2006

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.



MOHD KHAIRULHELMI BIN MAID

ABSTARCT

This project focuses on the development of exercise module in an e-learning system purposely for education. This system enables teachers to prepare exercises by just posting the questions in the system and the questions will be stored in database. As a student they can do the exercise anytime and anywhere once they had log into the system. Traditional system lack of interactivity, burden the teachers and difficult to monitor student performance because it is just paper and book oriented. By implementing online exercise, student will be able to do exercise and interact with system which promises interesting learning process because student can immediately do the exercise once the questions have been uploaded and the result of the student's performance also can be retrieve immediately. It also able to create flexible schedule for teachers because teaching technique become easier. In terms of reducing time and cost this system is very suitable because teachers just need to type the question into the system without need to print the question and make a copy regarding amount of student. Teacher also can monitor student performances easily by view graph that have been generated by the system. Just login to this system and user can enjoy the benefits and advantages because of effectiveness and efficiency learning process. The SDLC method is used in order to design this system and to ensure the system is interactive, simple, user friendly and consistent.

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CHAPTER 1

INTRODUCTION

1.1 E Learning

In this project it is focusing on the development of exercise module in an e-learning system purposely for education. This exercise module is one of the components in e-learning system. This system enables teachers to prepare exercises by just posting the questions in the system and the questions will be stored in database. As a student they can do the exercise anytime and anywhere once they had log into the system.

E learning has been growing and be accepted as a platform to deliver education. Therefore, the Malaysian's Ministry of Education strongly believes that e-learning is the way of the future and hence is completely committed to it.

E-learning is fast gaining the acceptance as a tool for training in corporate and academic environment. The system allows a learner to access the online materials at his/her own pace, anywhere and at any time. E-learning eliminates the barriers of time, distance and socio economic status. With multimedia content, the learning process can be stimulating and engaging. With a connection to the Internet, the learner is ready to attend the virtual classroom.

E-learning, web-based training, computer-based training (CBT), or e-training have similar objectives. These systems use the computer to deliver learning materials to a wide range of learners. Various support tools and multimedia features have been introduced by different system to enhance the learning process. E-learning is easier to implement than one might have imagined and it costs much less than traditional classroom training, yet it offers unprecedented control to measure success.

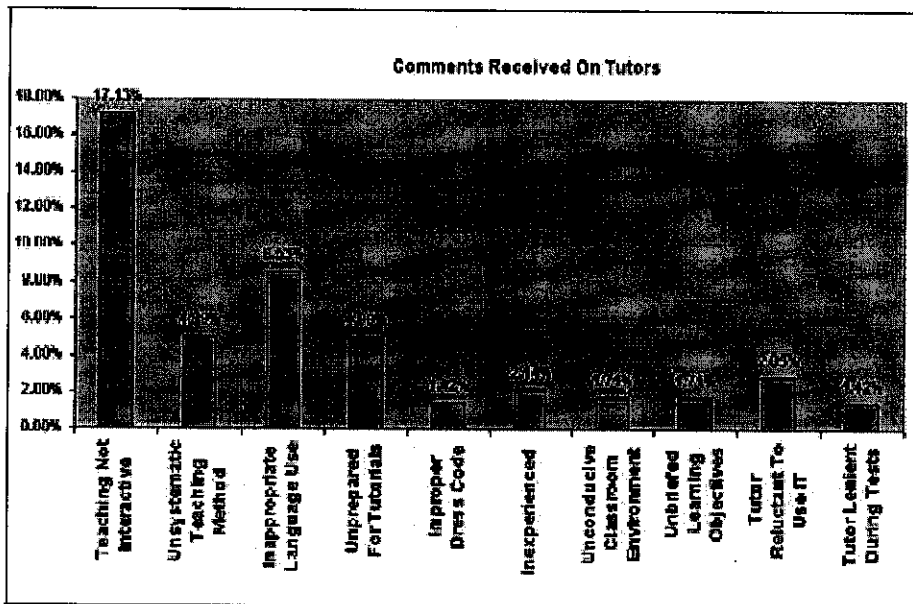
1.2 Background of Study

Education is the instruction or teaching that one receives or gains. Apart from that, education is the activities through which knowledge is imparted, usually at school, college or university. Educators are discovering that computers and multi-based educational tools are facilitating learning and enhancing social iteration. Therefore, education must also use technology

because to improve the process of educational for higher level. Today one of the technologies used to improve process of education is E learning.

Currently in many secondary school in Malaysia, the teaching method in every subjects are using reference book as a medium to deliver the knowledge. In addition the entire subject contains many chapters and syllabus. With 30 to 40 students in one classroom, E learning is helpful to enhance the education system itself.

Open University Malaysia (OUM) has made an analysis regarding the weaknesses of education technique in Malaysia. This analysis was conducted by the lead tutors and academicians in few of states such as Kedah, Kelantan and Terengganu. From the analysis, we can see the main problem is the lack of interactivity in education. It is important to ensure all the knowledge can be reached by student. So that it can be concluded that interactivity need to be emphasize in education system and E learning is an answer.



Graph shows the percentage of tutors/teachers who received the corresponding comments.

[1]

1.3 Problem Statements and Identifications

1.3.1 Current system is not effective

“Pendidikan Bestari Utusan” [2] is one example how education can be delivered to user through the internet. This portal will be a platform where information about education can be shared, stored, accessed and managed. One of the features provided in this portal is “question bank” [24] whereby user can have an opportunity to view example of exam question. In this portal user only can view the question. So either they copy the question or print it then only after that they can solve it. This portal same as other exercise books which provide question paper whereby user still use conventional method such as pen and pencil to solve the question. In another word this portal is lack of interactivity and not user friendly enough because not helpful.

1.3.2 Current system is burden to teachers.

Traditionally a teacher will mark and grade students exercises. Student should wait several days to get feedbacks from his/her exercises. As everyone know, teacher task is not just to prepare exercise to increase understanding and student performance regarding the subject but they have a lot of thing to do such as teaching, organize event for school, attend meeting, go outstation for training and etc. The entire thing make teacher as a busy person and as a human being, there is a tendency to make mistake. Teacher may do mistake while marking student’s exercise for example accidentally marked right for wrong answer or marked wrong for right answer because want to get student result faster but they not have enough time. Because of that, without of their control they will accidentally made mistake and at the end the true performance or understanding of student is failed to get.

1.3.3 Current system is difficult to monitor students’ performances.

In traditional system, students’ performances will be recorded on a piece of paper. Someone has to update, and monitor all students’ performances manually. It is time consuming. Let imagine, when there are around 30 to 40 students in one class and one teacher need to monitor them. Normally teacher needs to teach not only for one class but two or three classes. With hundred and above number of student, it is hard for one teacher to monitor performance for all of them.

1.4 Significant of Project

1.4.1 To attract teacher and student with interactive learning

It is important to ensure learning process is interesting in order to attract student attention. One thing to ensure learning process is interesting is to provide interactive learning module. Online exercise is the best alternative to replace currently student exercise. They can do the exercise anywhere, anytime once they login to the system. This is very flexible. With online exercise, students need to interact with system in order to do the exercise. For example student need do exercise by clicking the space provided and will get the result immediately once they enter the button 'submit'. Furthermore, exercise in module system is different with exercise on paper or book because most of exercise in book or paper is static. In exercise in module system, it require student to do something such as click buttons, press some icons and etc. At the end it will help student to understand better with subject compare to traditional one.

1.4.2 To reduce burden among teachers and motivates students.

Reusability of questions, teachers can prepare a set of questions in a short time period since the set of question can be generated from a question bank. In other thing, teacher also can limit their tasks in doing unimportant things such as make many set of question to give to student. What they can do is just upload the question to system and everyone can do it through online. Beside to prepare adequate exercise to student, teacher will have much time to prepare themselves to teach their student. They can spend more time with student in order to help them to understand the subject. With that it is no pressure to teacher in delivering knowledge to their student and of course this thing is very good.

1.4.3 To ease monitoring student's performance.

Result or mark will be getting immediately once they submit the exercise. It will happen once students press submit button in the exercise module's page. A part from that, the system promises auto generated graph for each and every exercises done by students. It is very easy to monitor student performance because teacher can view student performance just by looking the graph. Teacher can easily compare student result from one exercise to another exercise just looking at the generated graph.

1.5 Objectives of the Project

There are two objectives of the project

1. To provide an online exercise module that can be incorporated into any e-learning package.
2. To develop an effective and user friendly online exercise module.

1.6 Scope of Study

This online exercise module is built suitably for all primary school students from standard one until standard six. It will benefit to student who will take Ujian Penilaian Sekolah Rendah (UPSR) as a preparation to seat the examination. The subject is mathematic and all the exercise question is in English with standardize of UPSR syllabus. The type of question is Objective Question or in another word Multiple Choice Question (MCQ).

1.6.1 Hardware and software Requirement

The tools that will be needed to develop this system are divided to two sections which are hardware and software.

Hardware specification:

- Pentium 4 processor
- Minimum 3GB hard disk space
- Keyboard

Software specification:

- Windows XP Professional Edition Operating System
- PHP scripting
- EasyPHP

CHAPTER 2

LITERATURE REVIEW

2.1 What is e-learning?

E-Learning is the future learning methodology for mass education. It promises education and training at convenient times and places at minimal cost to the user and provider. Opinions about e-learning vary. To some, e-learning is only about making learning materials such as handouts or presentation slides available on the Web.

Others see e-learning as online learning with media-rich content, animation, high-quality graphics, audio and video streaming, and synchronous interaction with instructors. One of the successful examples of e-learning implementation is Cisco (www.cisco.com). According to Tom Kelly, Vice President for the Internet Learning Solution at Cisco Systems, “more than 90% of the training for its more than 10,000-strong sales force is online” [3]. Cisco has defined e-learning as online delivery of information, communication, education, and training. It is not just e-training but an overarching umbrella that encompasses education, information, communication, training, knowledge management, and performance management.

The e-learning solution is a Web-enabled system that makes information and knowledge accessible to those who need it, when they need it, and at any location. The Cisco definition suggests the elements involved in e-learning are good content, a learner management system (LMS), and a content management system (CMS). The system must be reliable and secure and guarantee the accessibility and integrity of the content.

2.2 Why are many learning institutions switching to e-learning?

2.2.1 E Learning is interactive.

Simply put, e-learning delivers more valuable teaching and learning experiences for a lesser cost. It is flexible, fast and convenient. It saves time, money and resources and most importantly, it produces measurable, tangible results” [4]. E-learning can include text, graphics, audio, video, animation, virtual environment and other multimedia aspects. This kind of thing will make the E learning become interactive and very suitable to be used in education industry. It can be a very rich learning experience that can even outshine the level of understanding a person might get from a classroom.

2.2.1 E-learning has support tools

There are a few tools that support e-learning. Here are the most common forms of e learning:

2.2.1.1 Online support

Online support is a kind of e-learning that functions in a similar way to knowledge databases. Online support comes in a form of forums, chat rooms, online bulletin board, e-mail or live instant messaging support. Being slightly more interactive like knowledge databases, online support offers the opportunity for more specific questions and answers, as well as more immediate answer.

2.2.1.2 Asynchronous Learning or Self Study

This is the most widespread e-learning style today. It involves self-paced learning, either CD ROM based, network-based, Intranet-based or Internet-based. It may include access to instructors through online bulletin boards, online discussion groups and e-mail. It may also be totally self-contained with links to reference materials in place of a live instructor.

2.2.1.3 Synchronous Learning or Instructor Led

Synchronous learning is done in real-time with live instructor facilitating the learning process. Every student logs in at a set time and can communicate directly with the instructor and with each other. A student can raise his or her cyber hand and even view the cyber whiteboard. It usually lasts for a set amount of time, from a single session to several weeks, months or even years. This type of learning typically takes place via the Internet, audio or video conferencing, Internet telephony or even two-way live broadcasts to students in a classroom.

2.3 Characteristics of e-learning

The figure below shows the characteristics of e-learning in a simplified form.

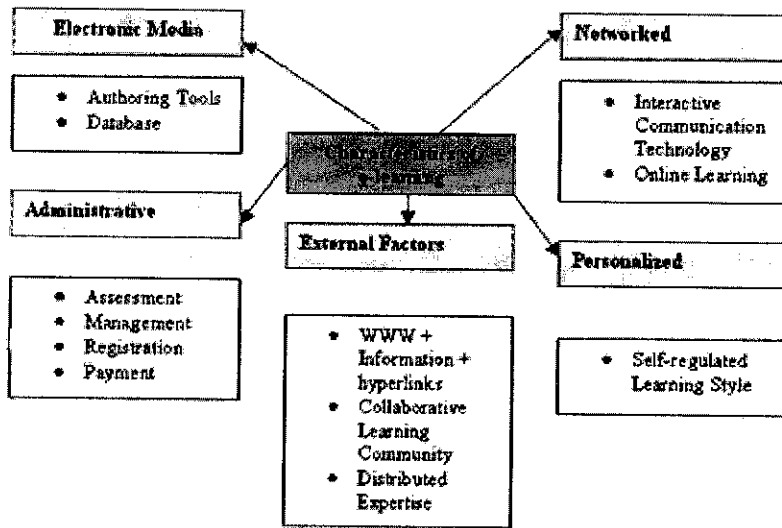


Figure 2.0: Characteristics of e-learning [5].

In e-learning system it has five common characteristics which are electronic media, administrative, networked, personalized and external factors.

- **Electronic Media**

Electronic media such as authoring tools, database is needed to implement this system. For example database is used to store all data or information and authoring tool such as computer is needed in order to ensure user can interact with the system.

- **Administrative**

E-Learning system provides the features of administrative work such as assessment, management, registration and payment. Organizations such as university or school which implement this application have opportunity to manage its organization work efficiency because it is systematically computerized.

- Networked

All the devices such as computers, database and others in the e-learning system are connected to each other. It provides an interactive communication because each of the devices is connected directly. Features such as online learning can be implemented through this system.

- Personalized

E Learning system provides self regulated learning style. In this application, each user has it own account and also provided with username and password to login to the system. For example each user can enrol subjects but he or she can do it within their account only.

- External factors

E learning system is connected to internet which is providing a huge of information from all around the world.

2.4 Benefits of e-learning

E-learning has explicit benefits over traditional classroom learning. This is indicated by the demand for multimedia based e-learning content as well as the growth of educational software. Here are the benefits of e-learning:

2.4.1 Self paced

Being available over the Internet 24 C 7, learning can be undertaken at any time of the day and in any place. Therefore, it can fit with busy lifestyles. Information and knowledge can be accessed as per the learner's need.

2.4.2 Potential Cost Saving

“Individuals and companies can gain significant cost savings up to 60% of traditional classroom training” [6]. The table below shows comparative cost analysis between classroom deployment and e-learning deployment.

Classroom Deployment	e-learning Deployment
Facility Costs	Facility Costs
<ul style="list-style-type: none"> · Room rental or overhead allocation · Refreshments · Training materials/Teaching aids 	<ul style="list-style-type: none"> · Web-enabled Learning Management System (LMS) cost · Course development cost · Management Information System(MIS) Support · Hosting (if any)
Instructor Costs	Instructor Costs
<ul style="list-style-type: none"> · Instructor salary and benefits · Instructor fee (if contracted) · Travel and meal 	<ul style="list-style-type: none"> · Nil
Learner Cost	Learner Cost
<ul style="list-style-type: none"> · Travel and living · Learning materials (books) 	<ul style="list-style-type: none"> · Personal Computer

Figure 2.1: Characteristics of e-learning [7].

2.4.3 Easy Update and Maintenance

E-learning modules are frequently updated to keep the content up-to-date. Additional materials can be uploaded to the server by the administrator. Inadequate information could also be removed.

2.4.4 Increased Retention

“E-learning can increase retention and stronger grasp of a subject matter. The combination of many elements like video, audio, quizzes, interaction, and animation reinforce the message to be delivered accordingly. Learner can also revisit or replay the sections of learning that might not have been clear in the first round. Hence, e-learning is can provide a higher retention level as opposed to conventional classroom-based teaching” [8].

2.4.5 Measurable

E-learning is measurable due to the central tracking and monitoring of learning activities. The activities of a registered learner can be tracked and monitor and various reports can be generated. Thus, learning can be evaluated and the learner can improve his/her learning with immediate feedback from the system.

2.4.6 Flexibility

One of the greatest advantages of e-learning is accessibility. Anyone can access the system anywhere and at anytime. This gives wide flexibility for the learner.

2.5 E Learning acceptance by users

Recent market surveys predicted a very positive outlook for the e-learning market with an annual growth rate of 50% up to the year 2004. The revenue generated by e-learning is expected to double every year in the United States, reaching an amount of US\$11.4 billion in 2003. "90% of the survey participants rated a six or greater indicating a positive interest in future e-learning" [9].

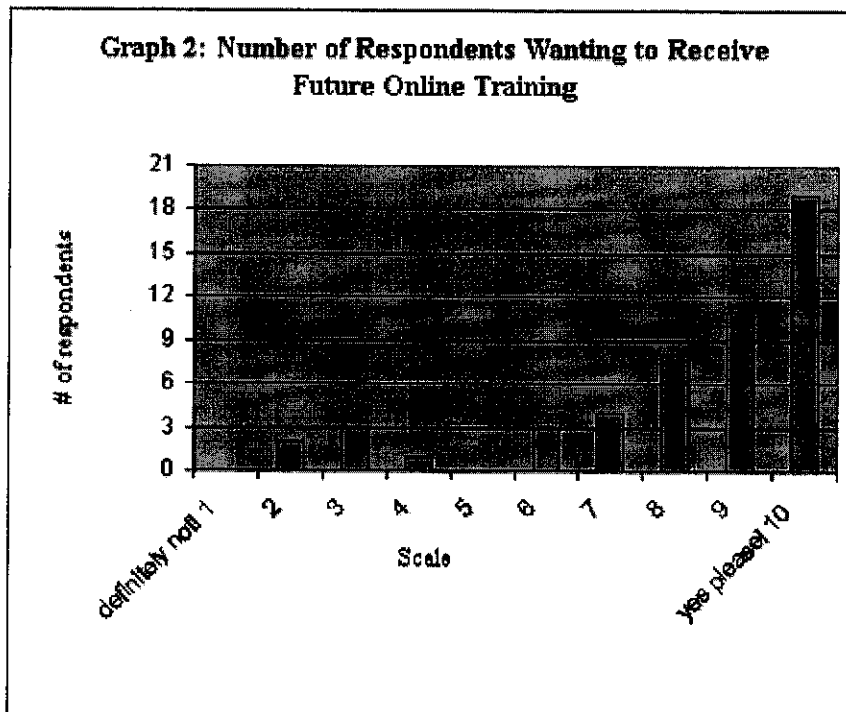


Figure 2.2: User interest in E learning [9].

2.5.1 E-learning Initiatives in Malaysia

Malaysia's vision of achieving full developed nation status by 2020 and of becoming a competitive player in the global economy has made information and communication technologies (ICT) an imperative in transitioning the country from a production to knowledge based economy (K-economy). However, the Government of Malaysia (Government) recognizes this transition would require a population that is IT literate and a workforce that is highly educated, creative, and skilled in applying information, knowledge, and existing technology to create new economic opportunities and industries of the future.

2.5.1.1 Internet subscriber in Malaysia

Population (million)	21.7	22.2	22.7	23.3	23.7
Growth (%)		2.3	2.2	2.6	1.7
Subscribers (million)	0.205	0.405	0.668	1.659	2.372
Growth (%)		97.5	64.9	148.3	43.0

*Dial-up users, as of September 2001.

Source: Malaysian Communications and Multimedia Commission.

Figure 2.3: Statistics on Internet subscribers [10].

The number of Internet subscribers in Malaysia has increased more than 10 times to 2.372 million in September 2001 from only 0.205 million in 1997, as shown in figure 2.3. The figures show one Internet subscriber per 10 people. This is a general indication that Internet usage is a way of life.

The government is in the process of implementing the Malaysian Smart School concept in the Malaysian schools. Malaysian Smart School is one of the Multimedia Super Corridor (MSC) Flagship Applications. The objectives of the project are to promote the goals of the National Educational Philosophy and to develop a skilled workforce for the Information Age. The pilot project is expected to rollout early 2003 followed by implementation in 9,000 schools by the year 2010.

2.5.1.2 E-learning's History in Malaysia

2.5.1.2.1 – UNITAR

E-learning was introduced by Universiti Tun Abdul Razak (UNITAR) in September 1998. There were only 162 students registered for the two undergraduate degree programmes namely Bachelor of Business Administration (BBA) and Bachelor of Information Technology (BIT).

2.5.1.2.2 - INTAN

The National Institute of Public Administration, (INTAN – Malaysia), has realized the importance of e-learning and has incorporated e-learning initiative in their master plan. INTAN's mission is to accelerate and improve knowledge management and usage in public sector departments and agencies, through its e-learning products and services.

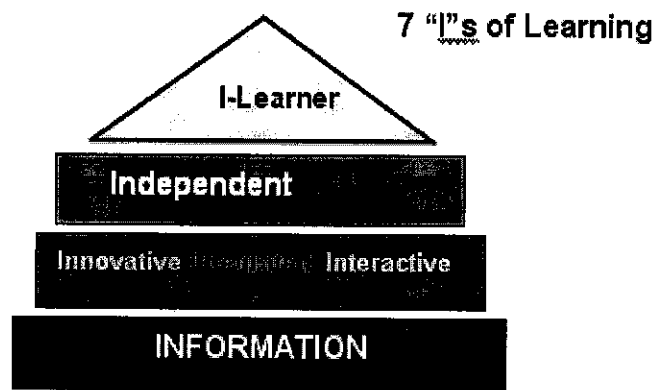


Figure 2.4: Seven "I's of Learning [11].

"INTAN's objective is to highlight initiatives in implementing learning in the digital age for government departments and agencies. They focus on the seven "I's of learning, that is, Information, Innovative, Integrated, Interactive, Independent, In-time and I-Learner". Information will form the base for learning. A suitable e-learning environment will be created that is innovative in its design and integrated with all other relevant back-end systems. The learning environment should also be interactive. The content should be delivered independent of space and time, providing just-in-time learning. Learner will access the system over the Internet. This e-learning environment will elevate the knowledge and skills of the Malaysia students.

2.5.1.2.3 - MMU

Multimedia University (MMU) [12] is one of the pioneers of e-learning in Malaysia. MMU has developed its own e-learning engine called MMLS in 1999. The university has wireless Internet access that allows the students to access the learning materials anywhere in the campus. Even the hostels are equipped with Internet access points. Subsequently, students get easy access to online lecture notes at anytime at their own convenience. MMU, jointly with Ministry of Education, has also developed content for schools and has conducted tests with twenty schools in Kuala Selangor and Seremban.

2.5.2 E-learning Initiatives in Asia

2.5.2.1 E Learning in Thailand

In Thailand, Sukhothai Thammathirat Open University has initiated plans to provide some of its courses over the web. The Asian Institute of Technology is offering courses using video streaming technology and also supports web-based courseware development using Web Course Toolbox (WebCT) [13] Another project called SchoolNet, was initiated in 1995 to connect about 1,500 schools online [14] As of today, there are about 4550 school connected over this network.

2.5.2.2 E Learning in China

In China, the Shanghai TV University is offering four courses over the web, including the teaching of English [15]. Tsinghua University is in its early stages to provide resources over the web to its students [16] .For the time being, its library provides online resources and catalog for the students.

2.5.2.3 E Learning in Hong Kong

Hong Kong has many virtual universities, where many of them are supported by face-to-face lectures. The Open University is currently preparing to offer more than 100 of its courses over the Internet using the WebCT delivery system [17].

2.5.2.4 E Learning in Japan

In Japan, the emphasis has been in the use of satellite-based learning system. Many universities, including NTT, the largest telecommunication provider, have extensive satellite-based learning system. NTT has also developed a web-based e-learning tutorial environment for its employees called the CALAT system. Recently Japan has initiated the Asian E-learning Network (AEN) that will promote e-learning activities in Asia and to look into standards in e-learning.

2.5.2.5 E Learning in Korea

In Korea, the Ministry of Education has set up a comprehensive six-year (1997-2002) plan for the establishment and use of ICT in education. Under this plan, all schools will be linked to the Internet. Today, more than 50% of the higher education institutions offer courses over the Internet, CD-ROM, TV and video-conferencing. It is believed that Korea will be one of the leaders in e-learning in Asia.

2.5.2.6 E Learning in Singapore

Singapore Virtual Polytechnic, together with SingTel, plan to start a service to deliver courses to the home using the Singapore ONE [18] high capacity broadband network. This system can deliver multimedia content at 5.5Mbps over the telephone lines [19] it is an online e-learning portal that offers accredited and non-accredited technical and business courses. There is also an interactive learning forum where students can share their experiences.

2.6 What is online quiz?

2.6.1 Online

Online is an available for immediate use [20] or a direct communication between a user and a computer which allows a request to be processed and the results displayed immediately on the terminal screen [21]. A part from that online is turned on and connected to the network [22].

2.6.2 Quiz

A quiz is a form of game or puzzle in which the players (as individuals or in teams), attempt to answer questions correctly [23]. In an education, quiz usually a form of student assessment, but often has fewer questions of lesser difficulty and requires less time for completion than a test [23].

Online quiz can be described as an assessment to student through network providing by teacher. Teacher just need to upload quiz question and after that student immediately can do it and submit it via network.

2.7 Technologies

2.7.1 Open Source

Open Source has been chosen as a platform to develop the system like e-learning because of the idea of open source is appeared after looking to the pressure that faced by consumer of the licensed software product or by certain owner. Meanwhile, certain party also has to face this pressure by spending many expenses only to check the software in order to make sure it is in good condition. Other than that they also have to pay for developing software expense in case, if the latest version has circulated. Therefore, the selection using the open source technology can reduce the cost.

Other benefits using the open source technology is to produce the flexible product that can be removed, arranged and managed by the consumer or management. In addition, the openly sharing idea of information can be created the application software and suitable system that easy to afford, cheap or free of charge and definitely match with the demand of the customer nowadays. Some of the Open Sources software tools that support to the three of software (Apache, PHP, and MySql) are PHP Software, PhpMyadmin and WinMySqlAdmin.

2.7.2 Easy PHP

EasyPHP is a complete software package allowing using all the power and the flexibility that offers the dynamic language PHP and the effecient use of databases under Windows [24]. Package includes an Apache server, a MySQL database, a fully PHP execution, as well as easy development tools for our web site or our applications.

2.7.3 HTTP

The HTTP (Hypertext Transfer Protocol) is the set of rules for transferring files (text, graphic, sound, video, and other multimedia files) on the World Wide Web. As soon as web users open their Web Browser, the user is indirectly making use of HTTP. HTTP is an application protocol that runs on the top of the TCI/IP suite of protocols.

HTTP concepts include the idea that files can contain references to other files whose selection will elicit additional transfer request. Any web server machine contains, in addition the web page files it can serve, a HTTP daemon, a program that was designed to wait for HTTP request. The web browser is a HTTP client, sending request to server machines. When the browser users enter file requests to server by typing URL (Uniform Resource Locater) or

clicking on a hypertext link, the browser builds a HTTP request and sends it to the Internet Protocol address (IP address) indicated by the URL. The HTTP daemon in the destination server receives the request and sends back the requested file or files associated with the request [25].

2.7.4 Server

In general, a server was mentioned as a node or software program that provides services to clients. It is a computer or devices on a network that manage network resources. For example: a file server is a computer and storage device dedicated to store files. Any user on the network can store files on the server. In other example, a print server is a computer that manages ones or more printers and a network server is a computer that manages network traffic.

Servers are often dedicated, meaning that they perform no other, tasks besides their server tasks [26]. However, on multiprocessing operating systems, a single computer can execute several programs at once. The server in this case should refer to the program that is managing resources rather than the entire computer.

2.7.5 PHP

PHP originally stood for “Personal Home Page” as it was created in 1994 by *Rasmus Lerdofr* to track the visitors to his online resume [27]. As its capabilities grew and its usefulness is, it came to mean “PHP Hypertext Processor”. It is originally conceived as a set of macros to help coders maintain personal homepages, and its name grew from its purposes. Since then, PHP’s capabilities have been extended, taking it beyond a set of utilities to full-featured programming language, capable of managing huge database driven online environments. PHP is one of the approaches to develop a dynamic web-based information system. It is widely used by general-purpose scripting language that is especially suited for web development and can be embedded into HTML. It offers a simple way of generating dynamic web pages.

PHP is one of the recursive kind favoured by free software projects. It is a server-side language, which means that the code we write in PHP resides on a host computer that serves Web pages requesting visitors. PHP is from the server side scripting that can be used to process universal work that cannot be processed by client-side scripting such as sending the data to the database, enchanting the data from the database and accepting the cookies,

inventing dynamic website and so on. It is a server side scripting language usually written in an HTML context.

The basic concept of the PHP program is same with the concept of other programming such as language C, C++, Java, and etc. PHP's support for Apache and MySQL further secured to its popularity. Apache is now the most used web server in the world and PHP provides a comprehensive set of functions for working with it. The combination of Apache, MySQL and PHP is all but unbeatable [28].

2.7.6 MySQL

MySQL is the world's most popular and the best open source database system [29]. When compared to other database systems, MySQL is faster, more reliable, cheaper and simply put. MySQL has been known to handle databases as large as 60,000 tables with more than billion rows. On some operating systems, generally a 4GB otherwise MySQL version 3.23 can work with tables as a million terabytes. MySQL is the database program most commonly used to develop database-driven PHP web sites. MySQL is very fast, reliable and easy to use. It also has a very practical set of features developed. MySQL was originally developed to handle very large databases much faster than existing solutions and has been successfully used in high demanding production environments for several years. The connectivity, speed and security make MySQL highly suited for accessing databases on the Internet.

CHAPTER 3

METHODOLOGY AND PROJECT WORK

3.1 Methodology used

Methodology is a set of methods that used in a certain research project. Therefore, it is a vital thing to have in order to ease the development of this project. There are several steps and actions that considered with regards to come out with good and reliable finding. In methodology, the design of workflow for this project was planned and being arranged in step by step until it gains the finding at the end of this study. The methodologies that are used in developing this exercise module system have six phases of SDLC (system development lifecycle).

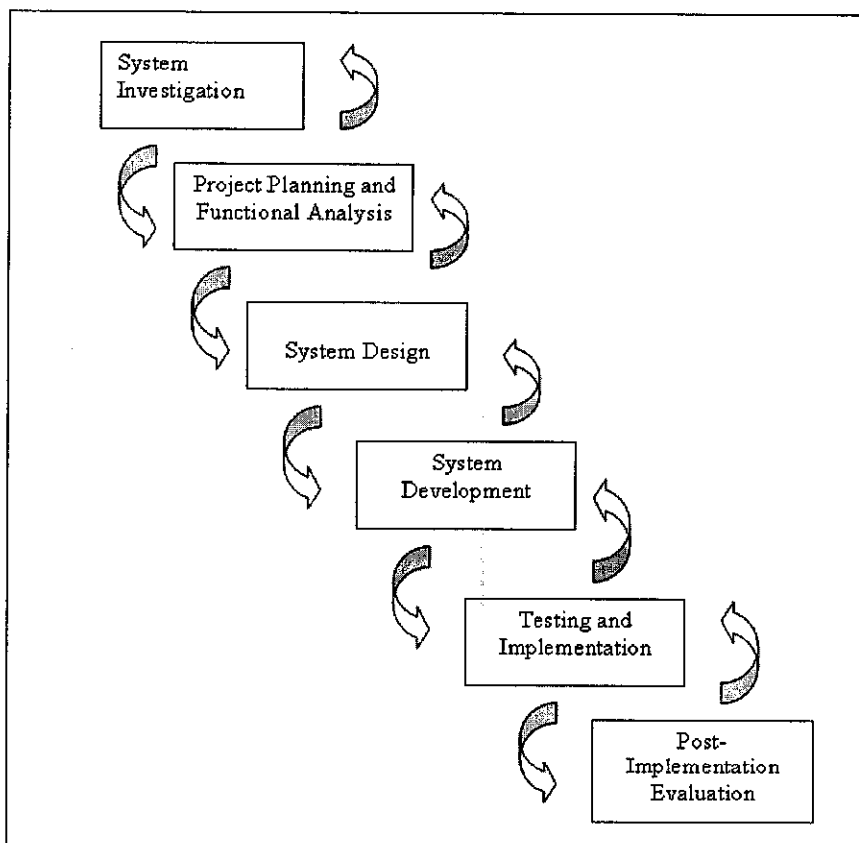


Figure 3.0: System Development Life Cycle (SDLC) Methodology

3.1.1 Phase 1-System Investigation

Gathering information is necessary in order to know exactly the current problem and to solve it. Therefore the survey has been made in order to get feedback from people how they think about the current teaching technique. To get feedback from people, observation and interview have been made and below is the data collection from the survey.

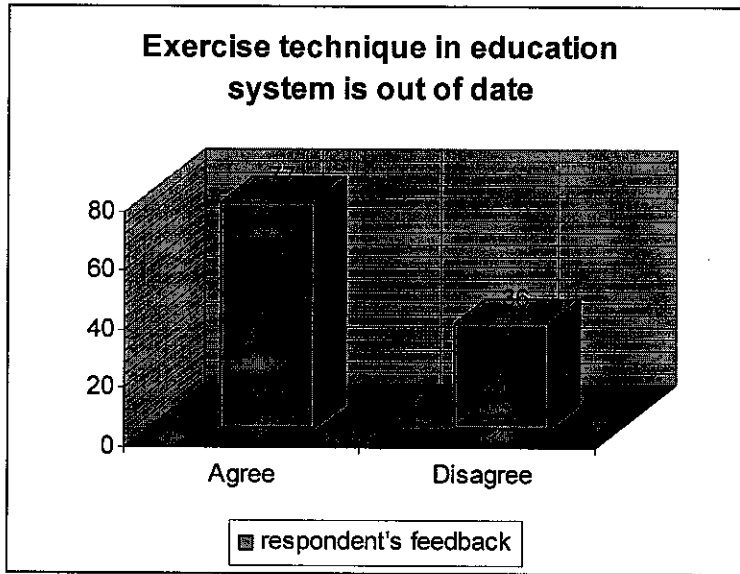


Figure 3.1: Respondent's feedback

From 123 respondents, 77 think that to give student especially primary student exercise through manual system which mean question on paper is out of date. They think the method should be changed in order to increase student interest and to avoid them easily become bored. 36 think the current system is still relevant to be applied and most suitable to primary student.

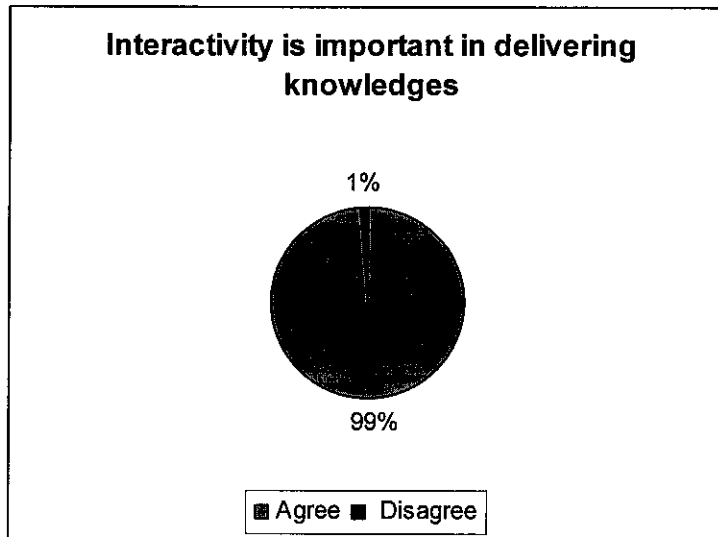


Figure 3.2: Respondent's feedback

From the survey, most of the respondents believe interactive method is very important in deliver knowledge to the student especially primary student. 99% respondent think interactive method will help student to be better understand compare to unpleasant method. 1% thinks the most important is student need to work hard and not to depend to teaching method.

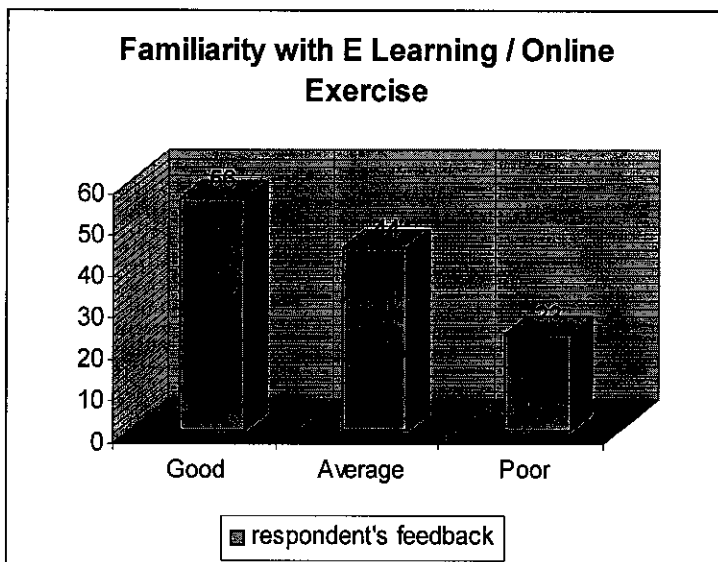


Figure 3.3: Respondent's feedback

From the survey, 56 have heard and know (good) about E Learning system/ online exercise system. 44 have heard but do not know what this all about (average) and 23 never heard (poor) it before.

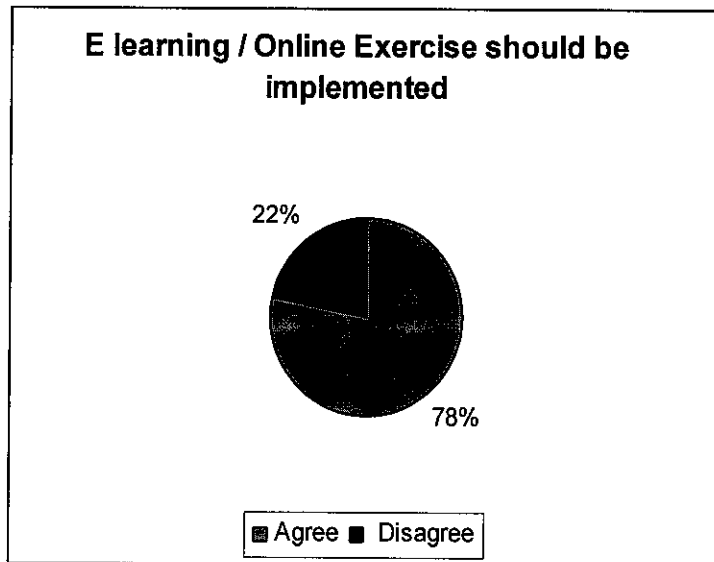


Figure 3.4: Respondent's feedback

Most of the respondents want to hear more about this system and want their children use it at school. 78% respondent thing this is suitable time to implement this kind of system in school and the rest 22% want the current system maintain.

3.1.2 Phase II-Project Planning and Functional Analysis

The planning phase is the fundamental process of understanding why the system should be build and also determining how the project will be build. The plans are about the project resources, activities, schedules and tools are planned. Here, the system requirement also defined. The user's interface includes the design screen design, which will appear to the user and how objects are being laid across the screen, how objects will interact with users and how users can explore the system. Among the contributing factors to good interface are:

- Consistence and organized
- User friendly
- Interactive
- Creative, Stylish
- Good and systematic scripting language

Gantt chart is included at appendices.

3.1.3 Phase III-System Design

The design phase decides on how the system will operate.

3.1.3.1 Use Case

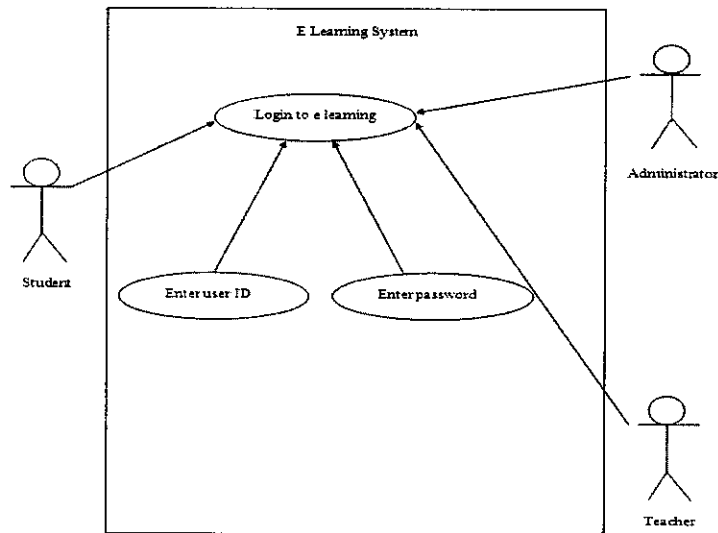


Figure 3.5: Use Case for user

In this E Learning system three actors will be involved which are Student, Teacher and Administrator. Above is a figure to show the use case for login. Student, Teacher and Administrator needs to enter their user ID as well as password to login to the system.

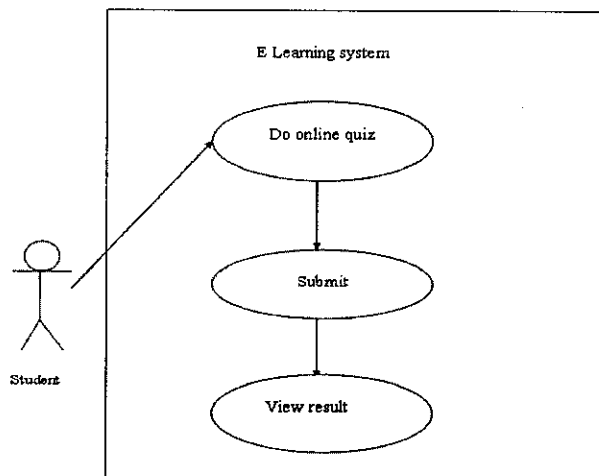


Figure 3.6: Use Case for student

Figure above show one of the users for E Learning system. Student can do online quiz provided in E learning system.

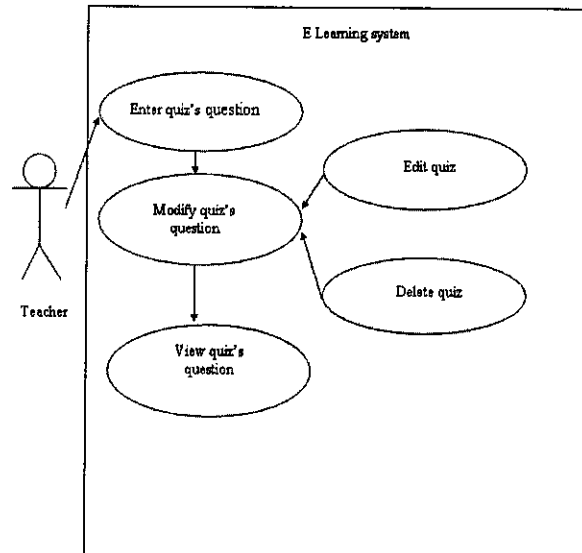


Figure 3.7: Use Case for teacher

Figure above show one of the users for E Learning system. Teacher can upload notes, write announcements as well as prepare the online quizzes. All this things is prepared for student.

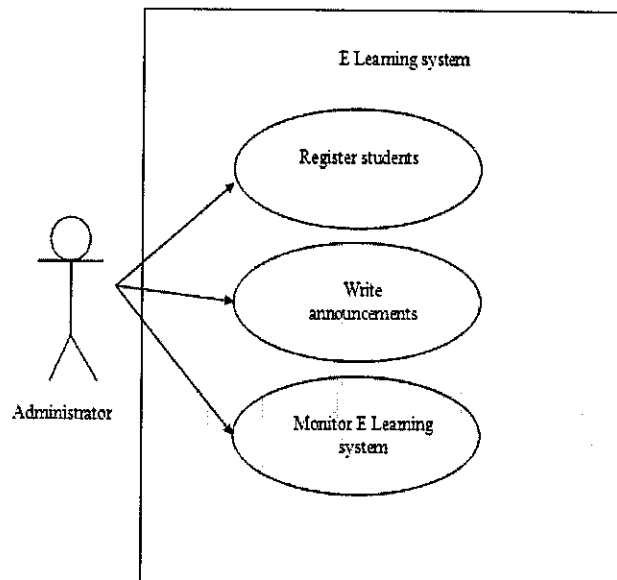


Figure 3.8: Use Case for administrator

Figure above show one of the users for E Learning system. Administrator can register student, write announcements as well as to monitor E Learning.

3.1.4 Phase IV-System Development

The system is developed according to what have plan. The design that has been proposed will be coded by programming the software, using PHP scripting. Database also developed in this stage in order to be used by the system and also interface of this E Learning system is also provided.

At the first level, the structure of the program is laid out. Programming of the system will be planned whereby the flow chart and logic solution will be drawn according to the design phase.

3.1.4.1 Process and System flow

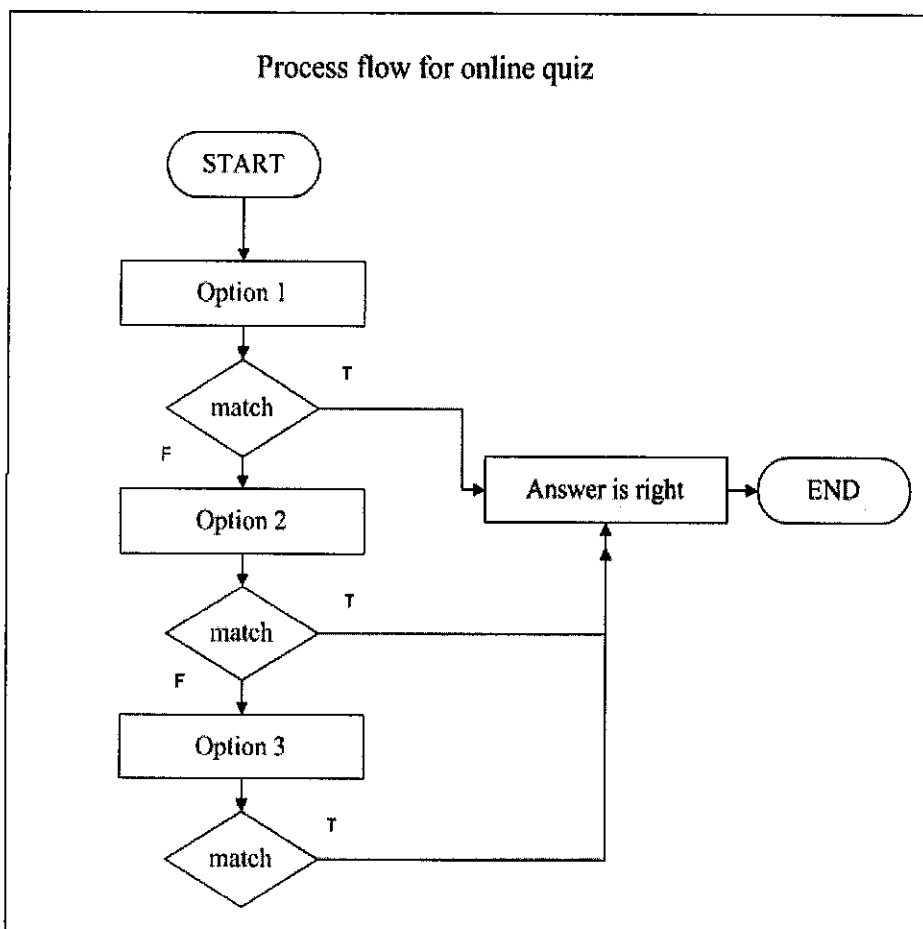


Figure 3.9: Process flow for online quiz in E learning system

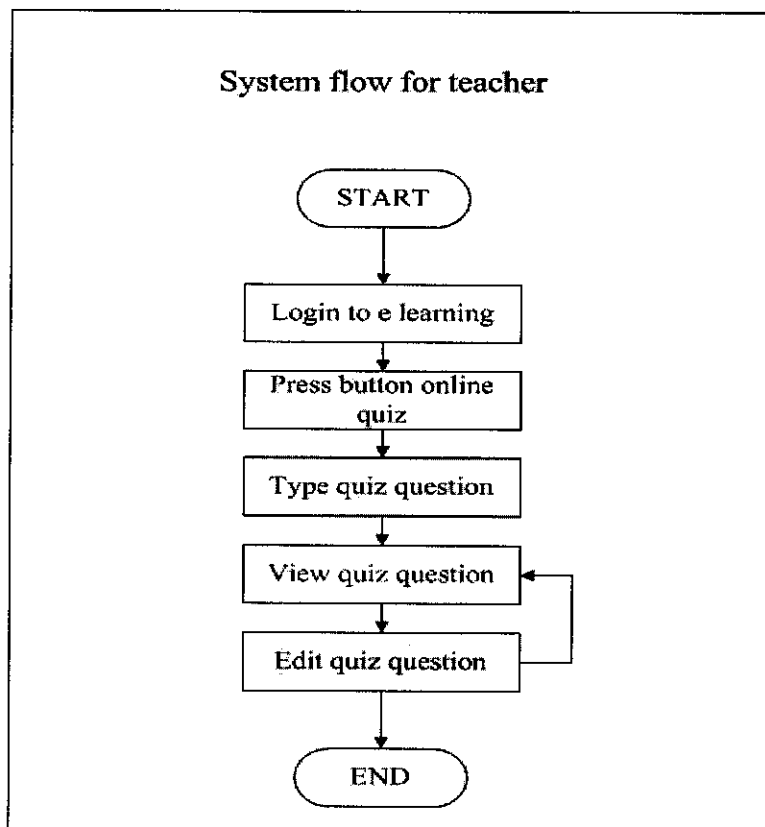


Figure 3.10: System flow for user 1(teacher)

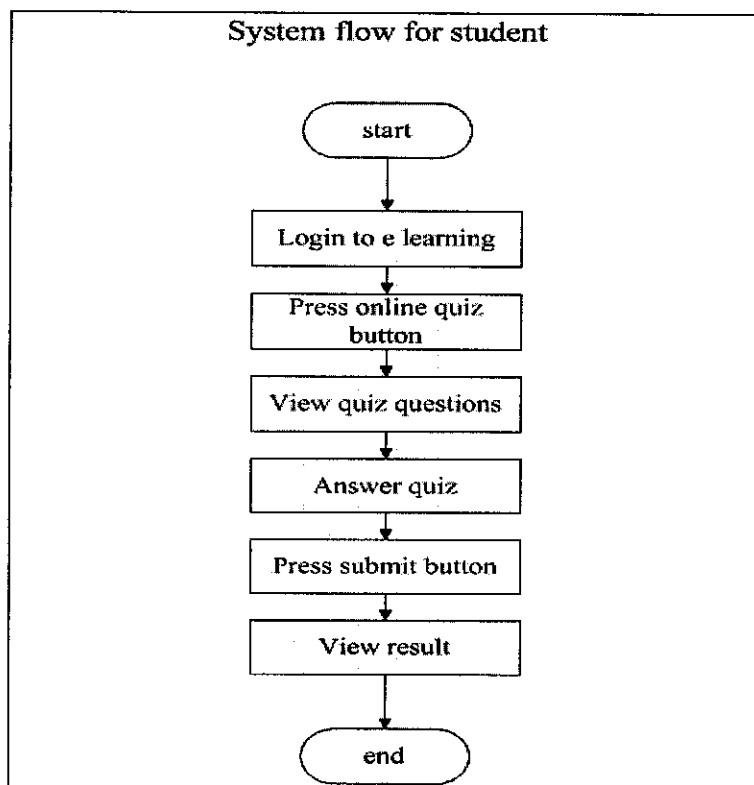


Figure 3.11: System flow for user 2(student)

The next step is doing the coding. At this point the planned program will be coded. Lastly, the coded program will be tested to ensure that it is according to the specification of the system in the first place. This is the most important stage in project since this stage will decide that this E Learning system is successful and fully fulfil the objective of the project.

3.1.5 Phase V-Testing and Implementation

After development of the project completed, the project will be launched using Internet Information Services to show to the public. The project launched and test in Window environment. It is to make sure all web pages are linked and to make sure the product free from any error and satisfied the user. The project also has been tested using Apache in order to detect any error and missing. The connection of database also has been tested in order to make sure to display the result clearly based on the information store in the database.

User testing also has done at this stage. The result will be discussed at chapter 4 which is Result and discussion.

3.1.6 Phase VI-Post-Implementation Evaluation

At this stage the evaluation for this system is doing, the suggested and the idea to improvise are refining. Changes and modification is done within this stage for improvement.

CHAPTER 4

RESULT AND DISCUSSION

4.1 Interface Design

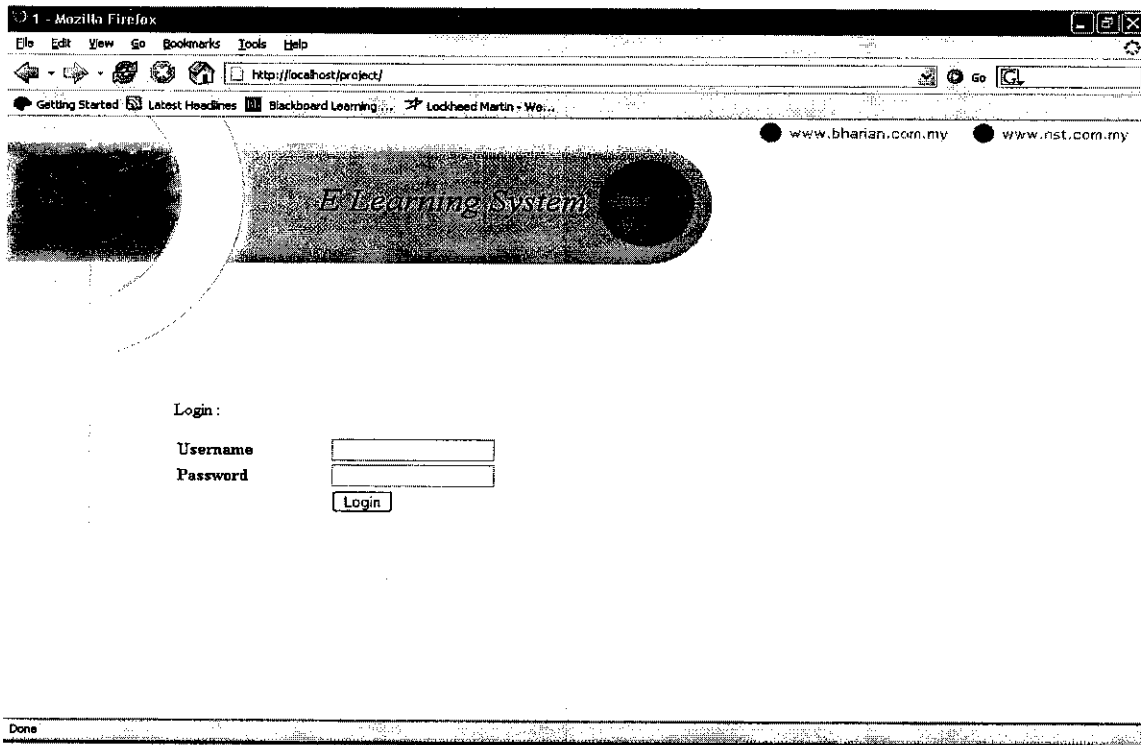


Figure 4.0 Login page to E learning system

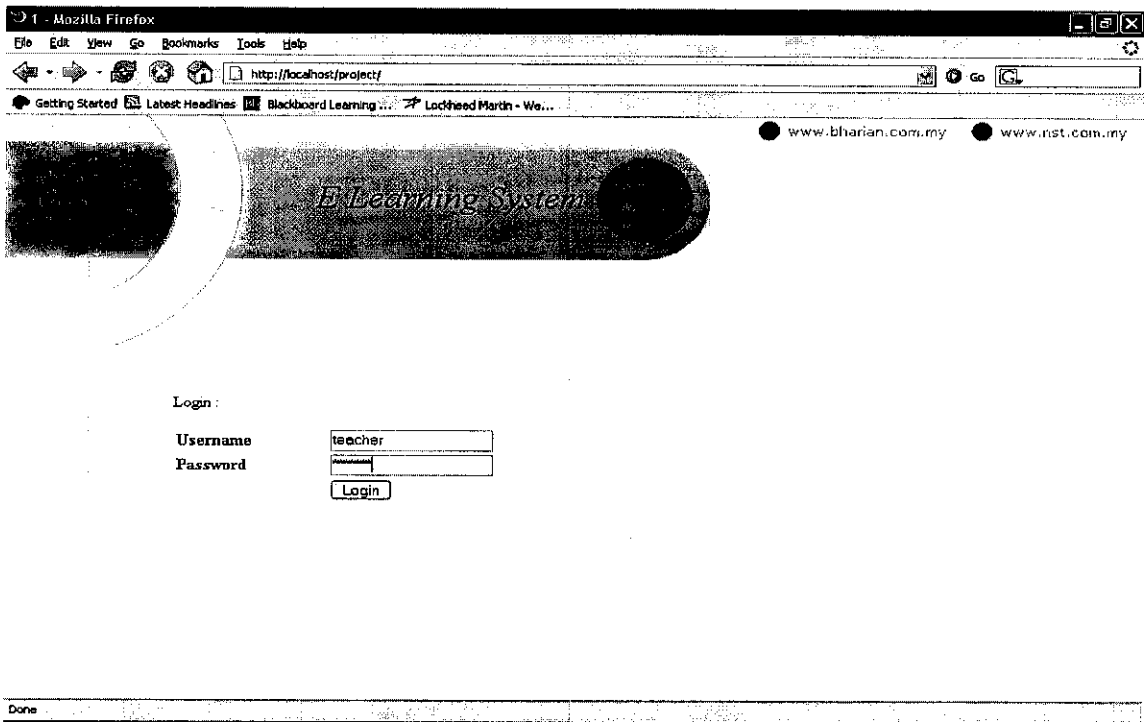


Figure 4.1 Admin login (teacher)

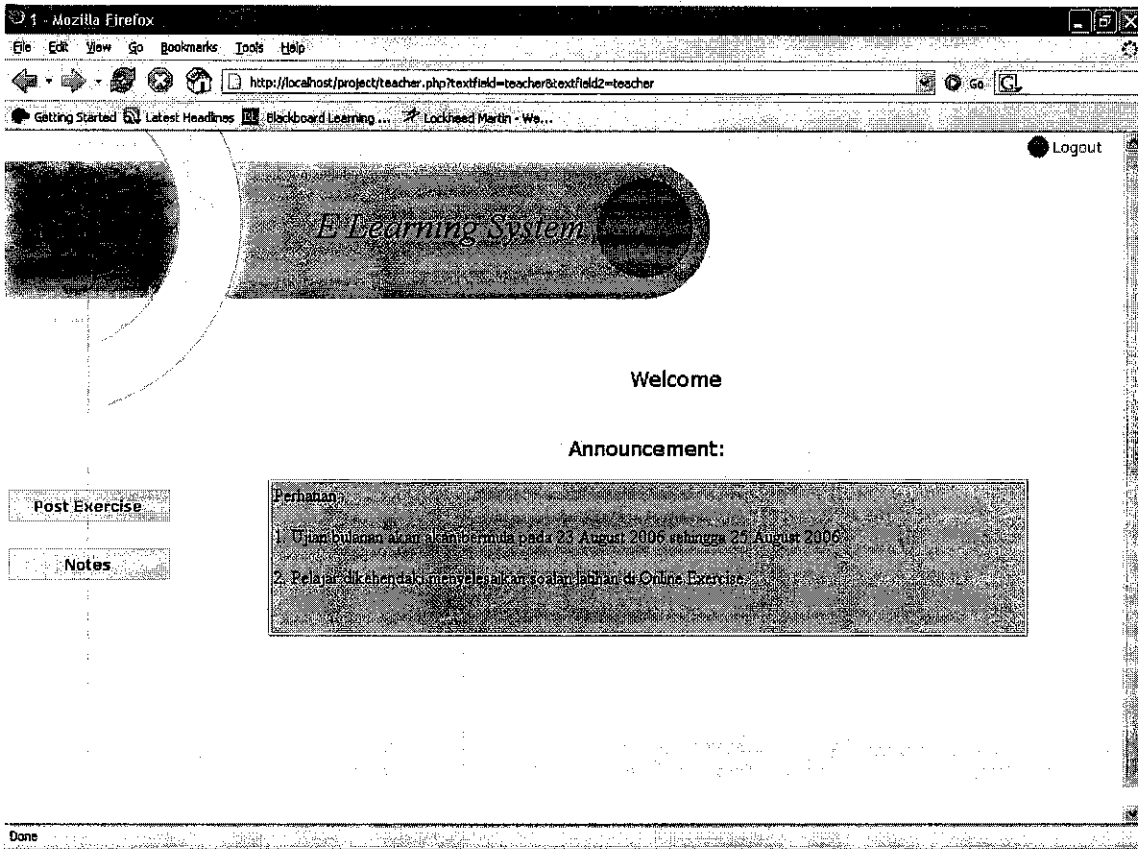


Figure 4.2 Teacher's main page

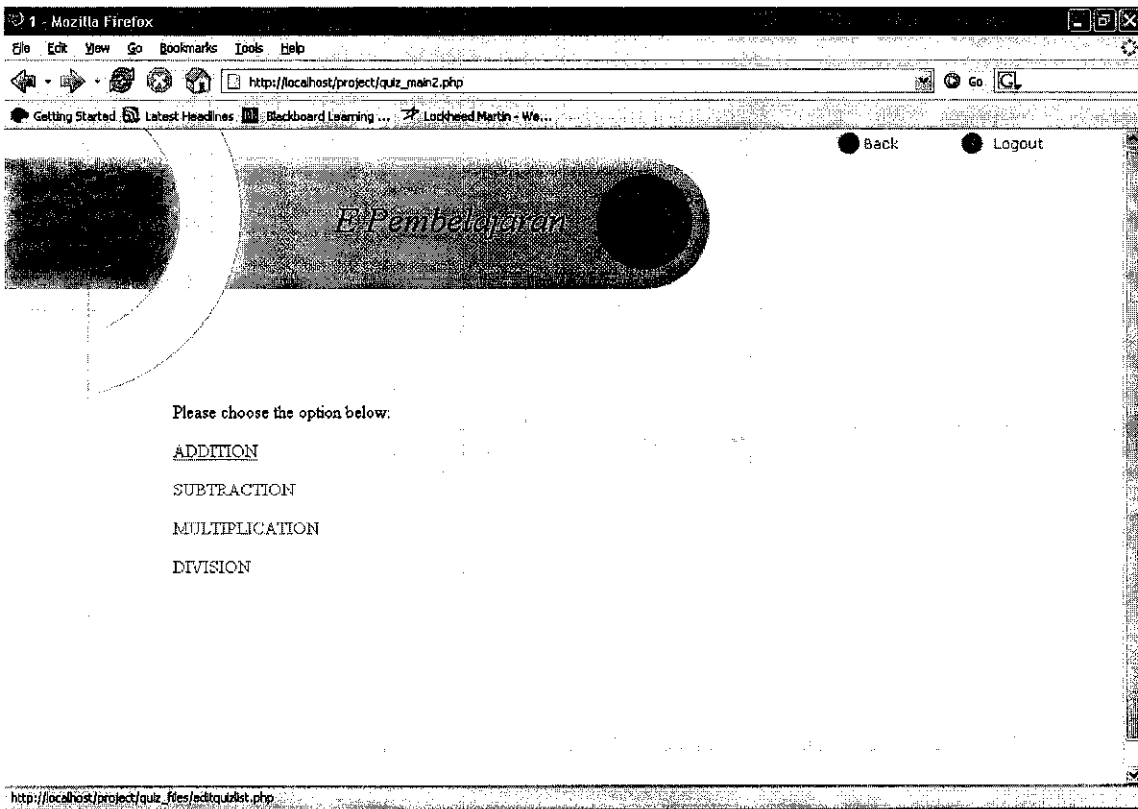
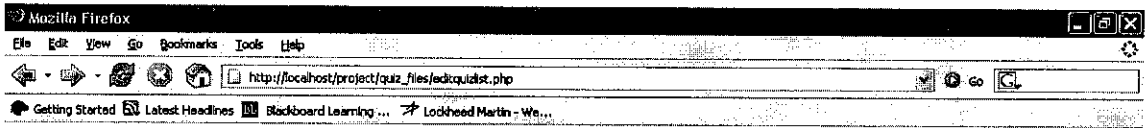


Figure 4.3 Syllabus



Admin area - edit the quiz

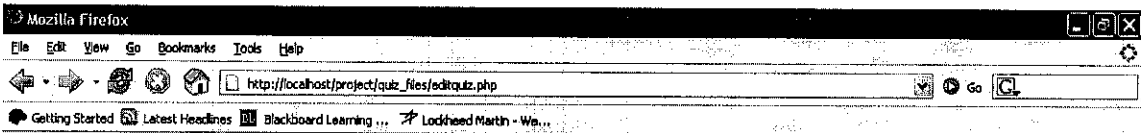
- 1: 16+14 [delete]
- 2: 85+15+23 [delete]
- 3: 12+15+16+3 [delete]
- 4: 12+2+87+13+8 [delete]
- 5: 23+3 [delete]

[Add a new question to the quiz](#)

[Back](#)

Done

Figure 4.4 Teacher can view set of questions



Admin area - edit the quiz

Question:

Option 1:

Option 2:

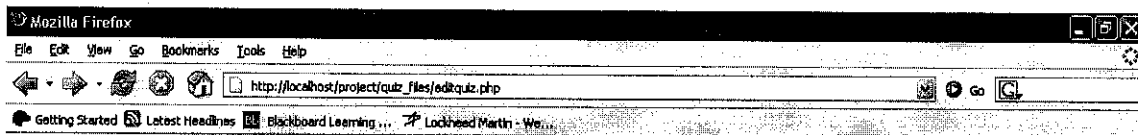
Option 3:

Answer (must be identical to correct option):

[Back to list of quiz questions](#)

Done

Figure 4.5 Teacher can upload question



Admin area - edit the quiz

Question:
Addition of 3 and 2

Option 1:
5

Option 2:
4

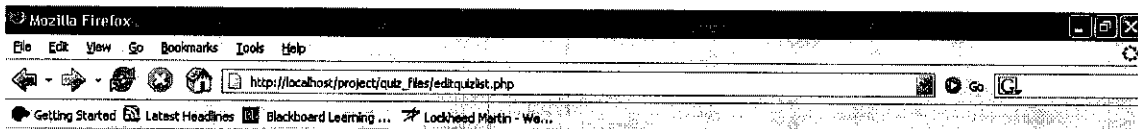
Option 3:
3

Answer (must be identical to correct option):
5

[Back to list of quiz questions](#)

Done

Figure 4.6 Upload question



Admin area - edit the quiz

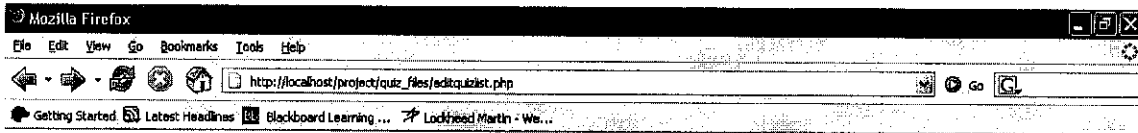
- 1: 16+14 [delete]
- 2: 65+15+23 [delete]
- 3: 12+15+10+3 [delete]
- 4: 12+2+07+13+6 [delete]
- 5: 23 + 3 [delete]
- 6: Addition of 3 and 2 [delete]

[Add a new question to the quiz](#)

[Back](#)

Done

Figure 4.7 View new set of question



Admin area - edit the quiz

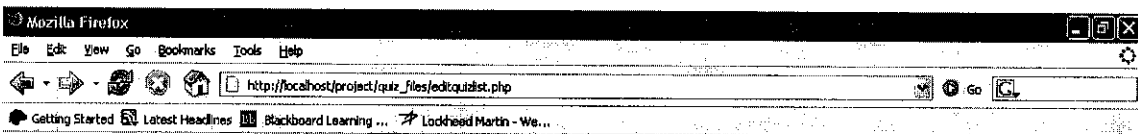
- 1: $16+14$ [delete]
- 2: $85+15+23$ [delete]
- 3: $12+15+16+3$ [delete]
- 4: $12+2+87+13+6$ [delete]
- 5: $23 * 3$ [delete]
- 6: Addition of 3 and 2 [delete]

[Add a new question to the quiz](#)

[Back](#)

http://localhost/project/quiz_files/deletequiz.php?id=34

Figure 4.8 Delete question



Admin area - edit the quiz

- 1: $16+14$ [delete]
- 2: $85+15+23$ [delete]
- 3: $12+15+16+3$ [delete]
- 4: $12+2+87+13+6$ [delete]
- 5: $23 * 3$ [delete]

[Add a new question to the quiz](#)

[Back](#)

Done

Figure 4.9 Question deleted

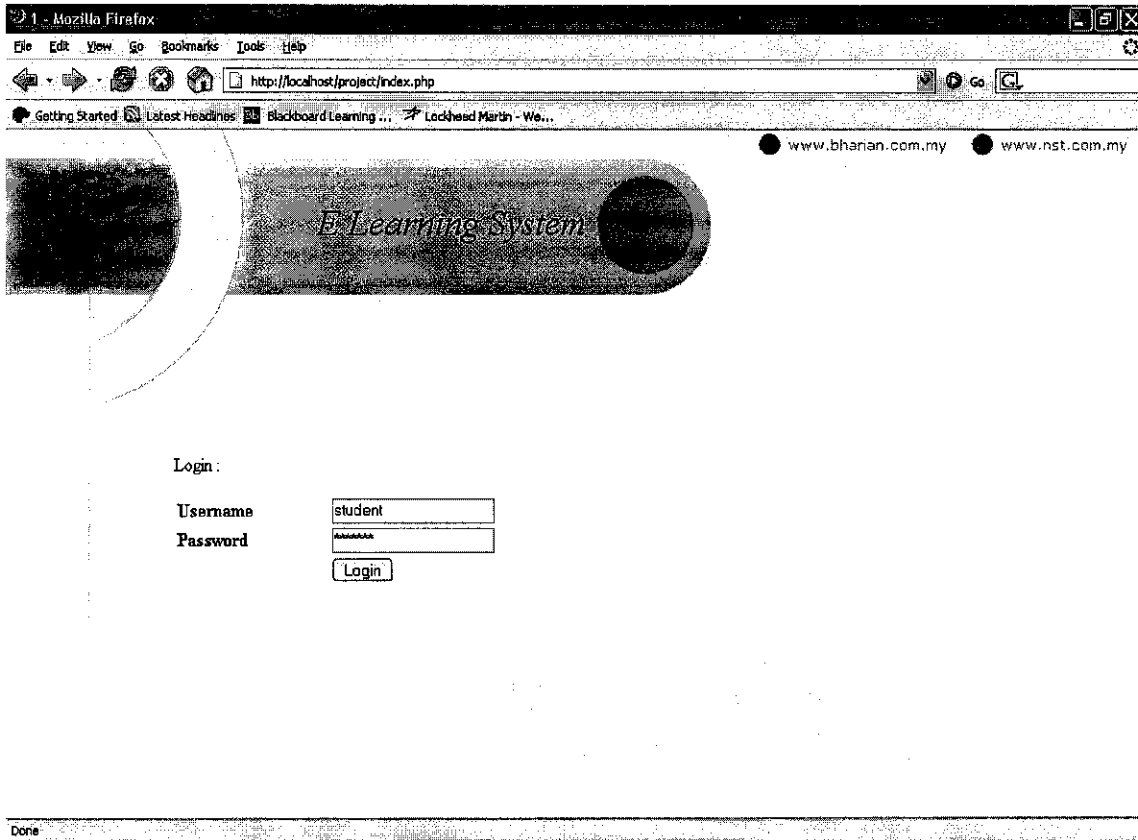


Figure 4.10 Student login

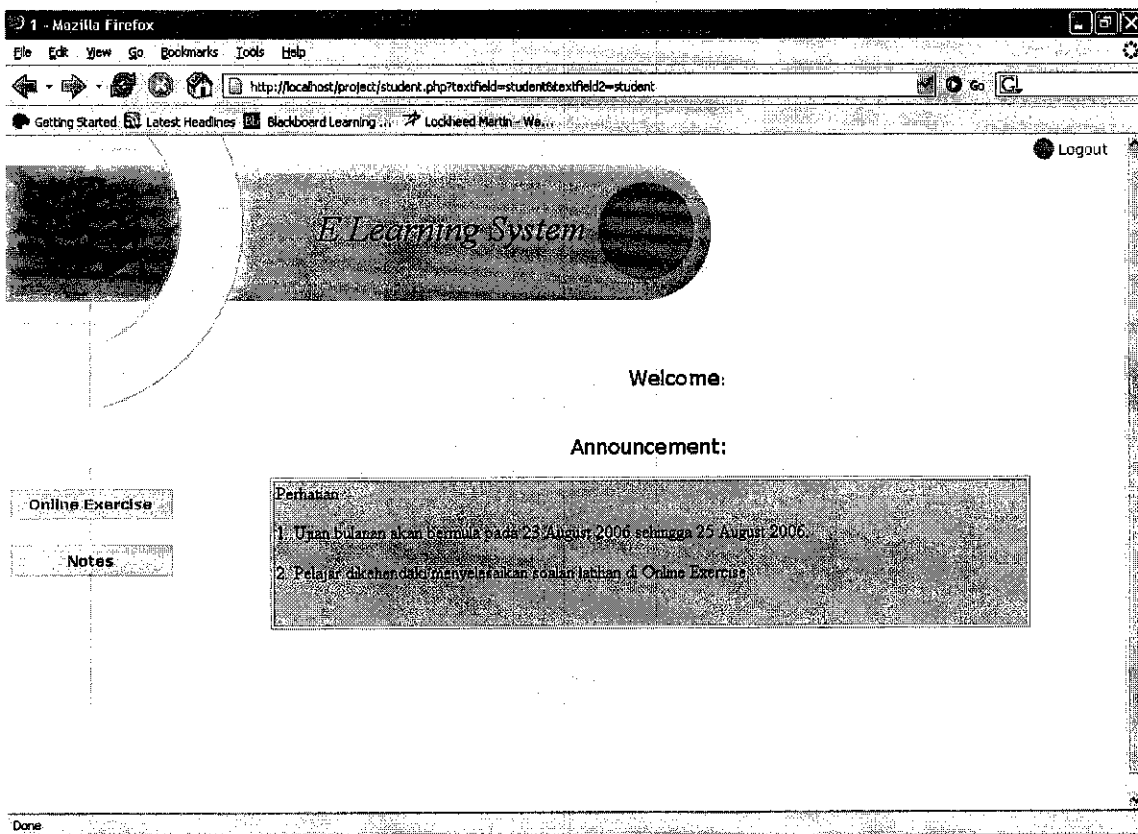


Figure 4.11 Student main pages

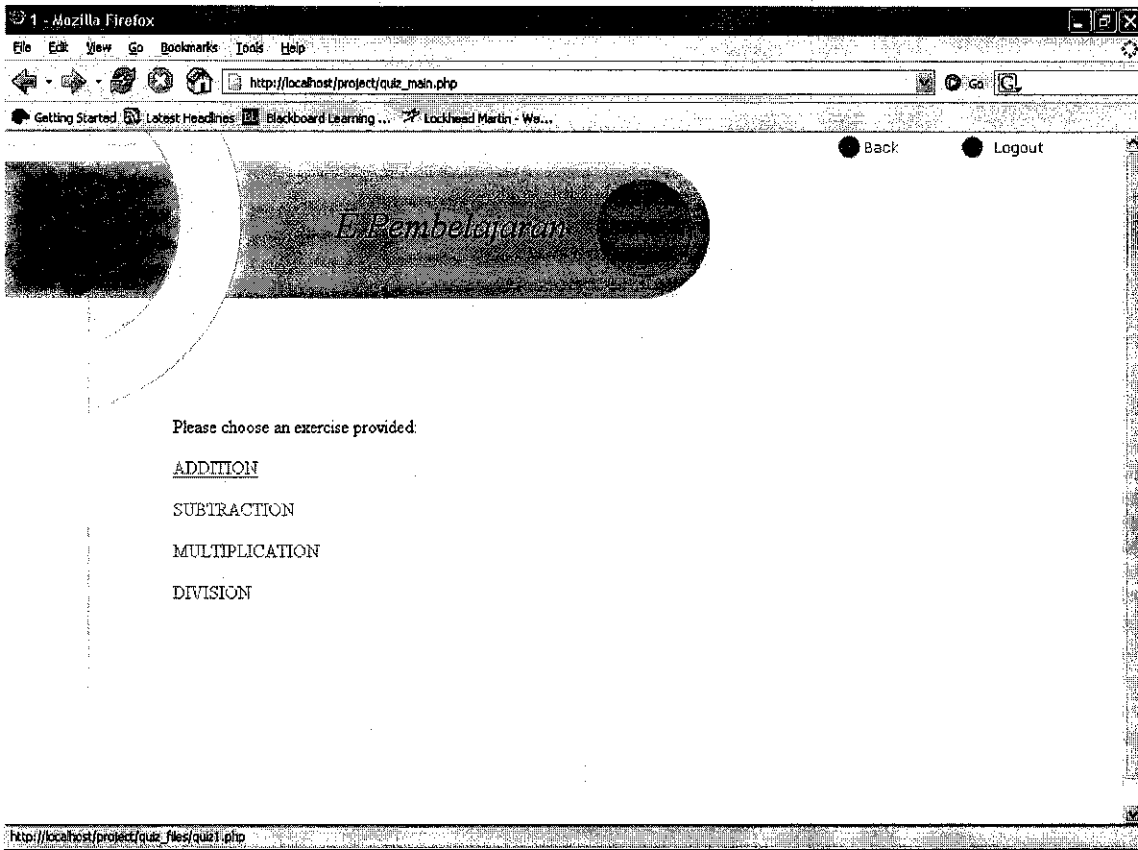


Figure 4.12 Syllabus

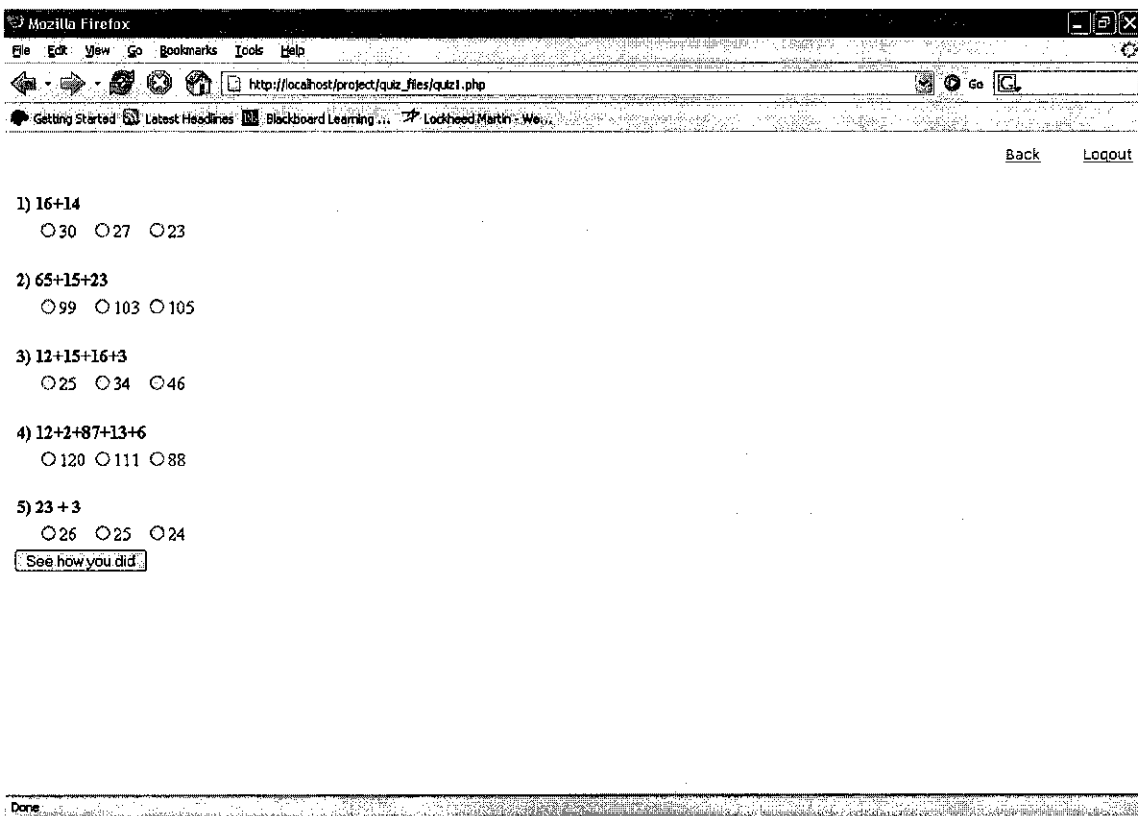


Figure 4.13 Online exercise questions

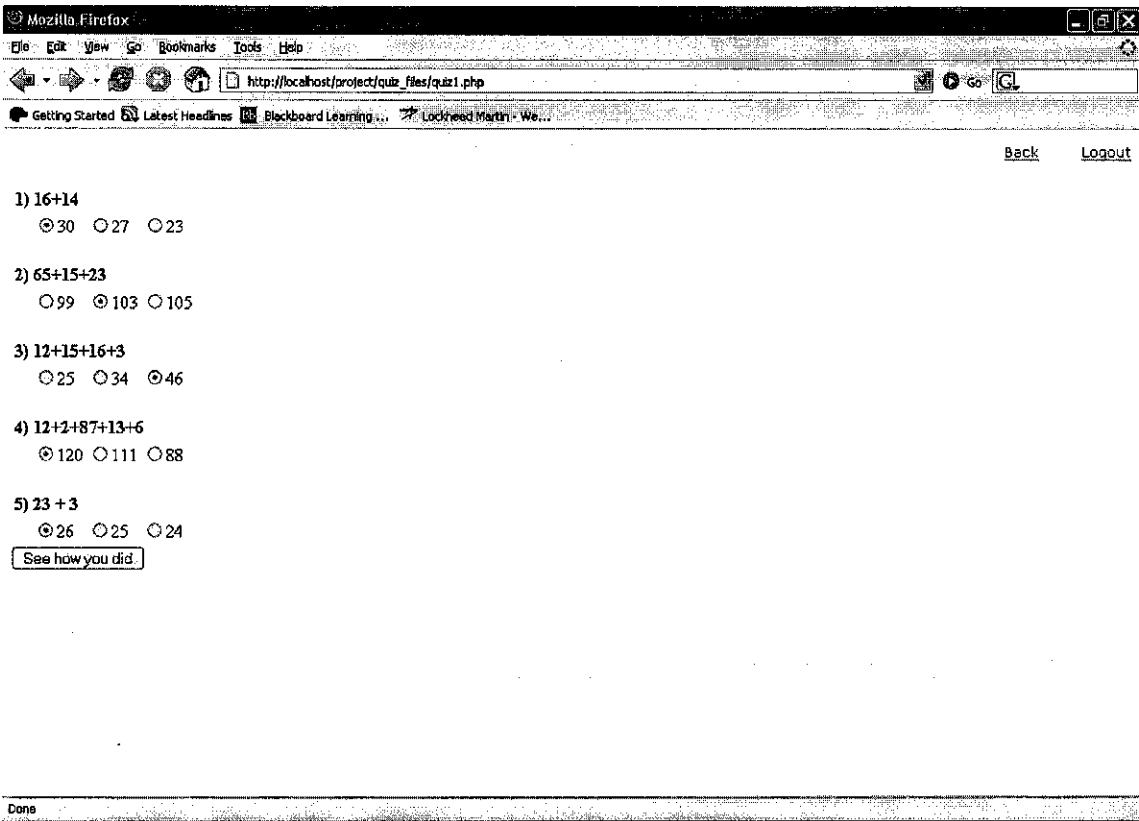


Figure 4.14 Question answered

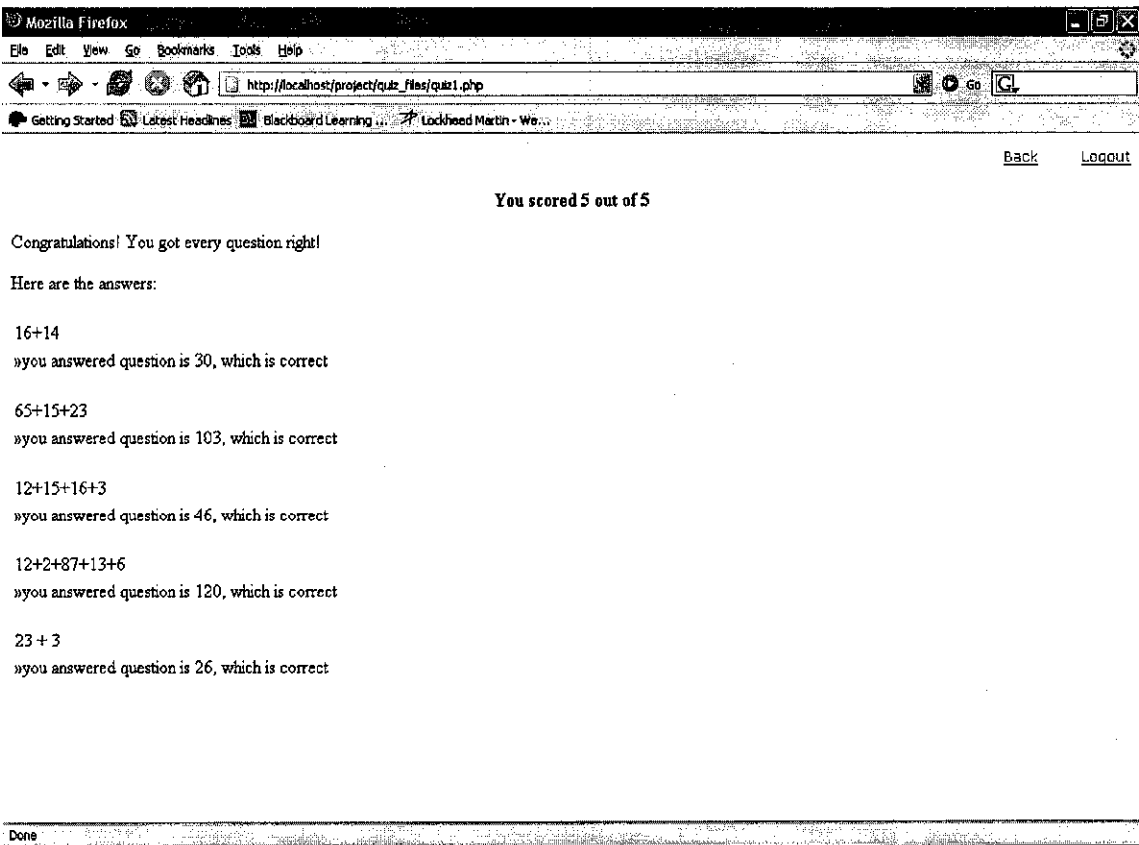


Figure 4.15 Result

4.2 Discussion

This system was tested to determine its strength and weaknesses beside as a base to determine whether this system objective been met or not. The system was tested to target user which are teachers and students. While testing was conducted, the entire target user had been observed in operating the system. The outcome in terms of the challenges faced by the target user had analysed. The successful of the system had been determined based on the interviews and the observation that had been done.

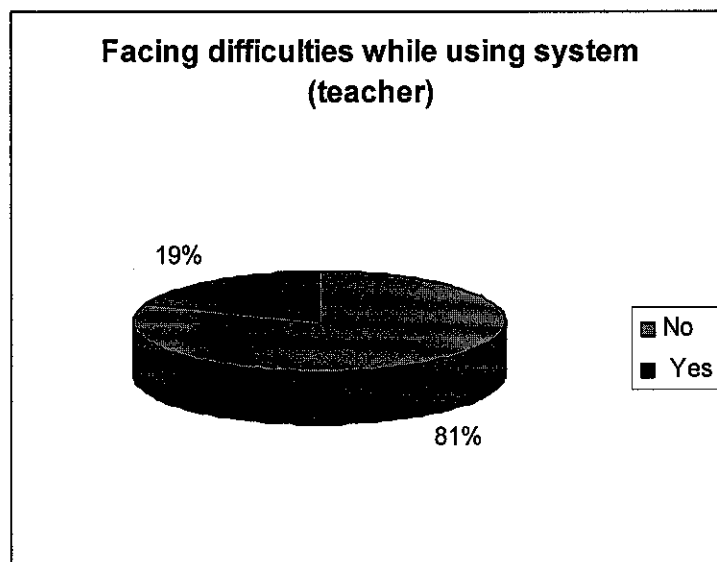


Figure 4.10 Data from observation and Interview

From the test, generally, most of the teachers are able to use the system efficiently. 81% of them managed to deal with the system without any help while the remaining 19% feel that helps is needed in using the system

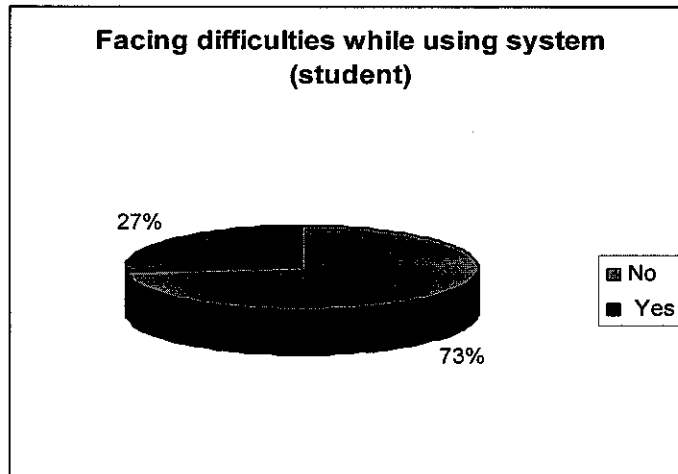


Figure 4.11 Data from observation and Interview

For the students, most of them, which comprise of 73%, are able to use the system without any help and the remaining 27% had a difficulty and need help in using the system.

From the interview after the test, the author had determined that there are 2 factors that lead to the difficulties which are because of the system and the user factors. In terms of the system factors, the lack of user friendliness had lead to the difficulties in dealing with the system. The design of the system had make user confuse from the lack of user friendliness of the instruction, icons and navigation. In terms of the user itself, the unfamiliarity of using computers in daily live had contribute to the difficulty in dealing with the system.

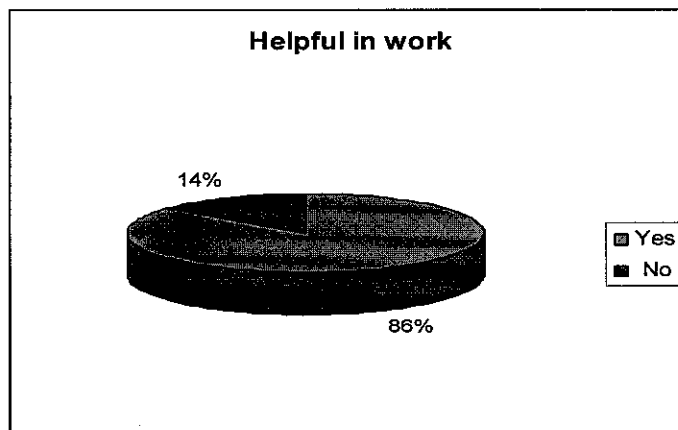


Figure 4.12 Student can see the result

From the interview, author had found out that most of the target user can accept this system where 86% of the teachers admit that the system really help them a lot in their daily task while the remaining 14% thinks that the system does not bring any difference in their lives.

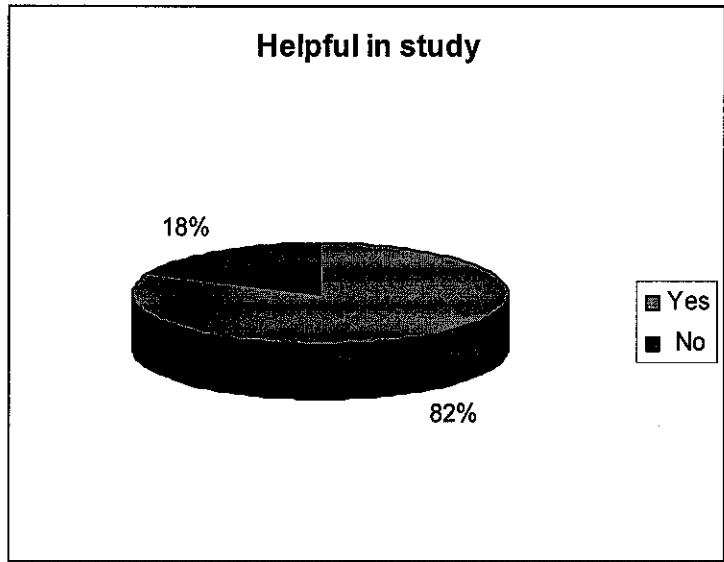


Figure 4.13 Data from observation and Interview

The students had showed positive feedback when 82% of them like this kind of exercises and feel comfortable dealing with it while the other 18% like the manual exercise more.

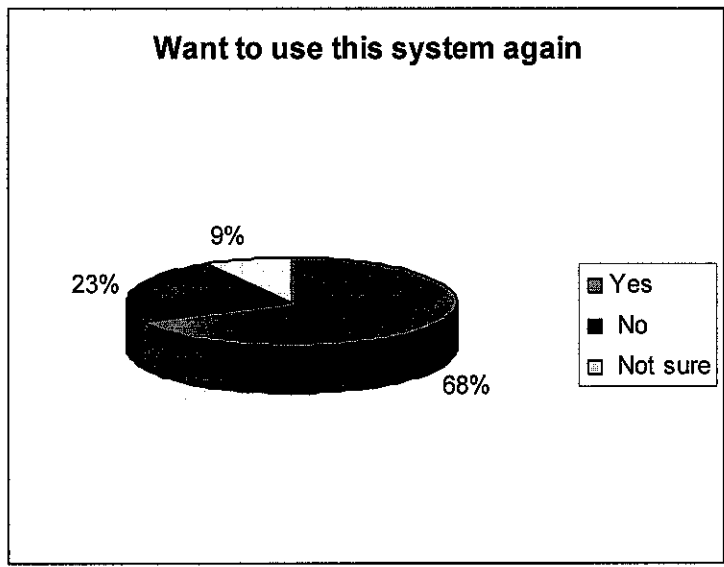


Figure 4.14 Data from observation and Interview

Beside that, most of them are looking forward to use this system. From the interview, 68% of them would like to use the system again while 23% do not and the remaining 9% are not sure. Even though this system brings a lot of benefits to the user, but it could not satisfy their needs

fully. There are still a lot of weaknesses that need to be corrected such as adding more functions or features to increase the efficiency and the usability of the system.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.0 Conclusion

The main purpose of this project is to develop and to design one E learning system by focusing to exercise module. Exercise module here is something like online quiz where teachers can type question to the system and students can answer it immediately once they login to the system. In this project, exercise module is a main feature and as one of the components for E Learning.

The idea to develop this kind of project is come to improve the existing teaching techniques in our education industry. Perhaps with exercise module in e learning system it will be a medium to increase efficiency of teaching techniques in order to create a better educated society in our country. With this invention, our education system will be more effective, easy and beneficial. It is helpful to improve teachers' efficiencies in providing questions as it will reduce the use of traditional blackboards and photocopies. For students it will be provided with more questions that can be accessed anytime.

From data collection in chapter 4, it shown this system can bring benefits to the user generally. It is as an alternative for the teacher to provide online questions for the students. With the birth of this kind of system, teachers could provide a lot of questions to their students without the need to make any copies. By log in the system, the students could attempt the questions provided at any time and this could lead to effective and enjoyable learning experience for the students. The students could be providing with questions that could increase their understanding about certain subjects and eventually being successful in the examinations.

Currently in Malaysia, E learning system is still not be implemented and be used as a method in teaching technique for primary or secondary school. Neither nor primary and secondary school have their own system whereby student and teacher can communicate through online. But in United States, Canada and some other development countries they are implementing E Learning as one of the medium to deliver knowledge in education industry. They believe E learning is an interactive medium and will give a very big impact to the society if it is implemented correctly. So it is good if one day Malaysia also implement this system.

It is important to know; E-Learning is not intended to replace face-to-face classroom training but can be used to enhance traditional training. However, the biggest challenge e-learning services face may be the mindset that says learning is done best in a classroom with the instructor standing in front of the participants. Change management and proactive promotion are critical factors for the success of e-learning initiatives.

5.1 Recommendation

Besides preparing the questions, the system's functionality could be enhanced enabling the students to view the notes and past years examination papers. It is important to avoid any difficulties in attempting to use the system with the lack of its functionality where the students need as much guidance and information as possible to engage with the learning process efficiently and enjoyably.

As conclusion, the project of exercise module in E learning could be beneficial to education industry in our country. Although it is new, research and study by many researchers onward will enhance the development of this kind system.

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APPENDIX



phpMyAdmin

Pangkalan Data:
(pangkalan data) ...

Sila pilih pangkalan data

Selamat Datang ke phpMyAdmin 2.6.1

MySQL 4.1.9-max dilaksana pada localhost sebagai root@localhost



MySQL

Cipta pangkalan data baru

Collation Cipta

- Papar maklumat masalaksana MySQL
- Papar pembolehubah sistem MySQL
- Papar proses
- Character Sets and Collations
- Privilej
- pangkalan data
- Eksport

phpMyAdmin

- Language: Malay (ms-utf8)
- Set Aksara MySQL: UTF-8 Unicode (utf8)
- MySQL connection collation: utf8_general_ci
- Theme / Style: Original
- Dokumentasi phpMyAdmin
- Papar maklumat PHP
- Laman Rasmi phpMyAdmin
- [ChangeLog] [CVS] [Lists]

Fail Konfigurasi anda mengandungi pelengkapan (root tidak berkata laluan) yang bersesuaian dengan privilej akaun MySQL. Pelayan MySQL anda dilaksanakan dengan pelengkapan asas, ianya terdedah kepada pencerobohan, dan anda hendaklah membatalkan lubang keselamatan ini.
[EasyPHP : Ignore this message if you don't modify default configuration: MySQL is accessible only from localhost address]

SAMPLE OF SURVEY'S QUESTION (1)

- 1. Do you have any comment regarding education system in Malaysia?

- 2. What do you think about that?

- 3. What about given exercise by using traditional method such as paper, book?

- 4. It is boring?

- 5. Do you think we need to do something change about that?

- 6. Do you have heard about E Learning?

- 7. Do you have heard about online exercise?

- 8. What do you think about that?

- 9. It is good to be implemented?

- 10. Do you want to use it?

- 11. What do you think if this kind of system be implemented to primary student?

SAMPLE OF SURVEY'S QUESTION (2)

1. What do you think about the system?

2. It is good?

3. Do you comfortable while using it?

4. It is difficult to use?

5. Do you like this system?

6. It is helping you in doing your task/ give benefit to you?

7. Do you want to use this kind of system again?

8. What weaknesses do you thing about this system?

9. Any features do your want to create?

10. Any comment regarding this system?

Detail / Week	1	2	3	4	5	6	7	8	9	10
Information gathering <ul style="list-style-type: none"> • Survey • Report 										
Planning <ul style="list-style-type: none"> • Develop Milestone • Report 										
Design <ul style="list-style-type: none"> • Use Case • Process Flow • Report 										
Development <ul style="list-style-type: none"> • Coding • Report 										
Testing <ul style="list-style-type: none"> • Survey • Report 										
Presentation										