

BORANG PENGESAHAN STATUS TESIS[^]JUDUL: WEB-BASED MATHEMATICS COURSEWARE FOR KIDSSESI PENGAJIAN: 2004/2005Saya FAZLIYA AZLI

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(TANDATANGAN PENULIS)

Alamat tetap : G-11-1, Lintang Lembah Permai,
11200 Tanjung Bunga, Penang

Tarikh : 23/11/05


(TANDATANGAN PENYELIA)

Pn. Halizah Basiron

Nama Penyelia

Tarikh : 23/11/05

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WEB-BASED MATHEMATICS COURSEWARE FOR KIDS

FAZLIYA BINTI AZLI

This report is submitted in partial fulfillment of the requirements for the Bachelor of Information and Communications Technology (BITM)

FACULTY OF INFORMATION AND COMMUNICATIONS TECHNOLOGY KOLEJ
UNIVERSITI TEKNIKAL KEBANGSAAN MALAYSIA
2005

DEDICATION

To my beloved parents.
Your positive inspiration and positive
strength had inspired me each and everyday.


DECLARATION

I hereby declare that this project report entitled

WEB-BASED MATHEMATICS COURSEWARE FOR KIDS

is written by me and is my own effort and that no part has been plagiarized
without citations.

STUDENT

:  _____ Date : 23/11/05
(FAZLIYA AZLI)

SUPERVISOR

:  _____ Date : 23/11/05
(PUAN HALIZAH BASIRON)

ACKNOWLEDGEMENTS

A million thank you is dedicated to my respective supervisors, Puan Halizah Basiron and En. Ahmad Shaarizan Shaarani who had put all the effort to explain on everything that needs to be done although during the hard time. Thank you for the hard job and the time given in supervising me.

Besides that Kolej Universiti Teknikal Kebangsaan Malaysia (KUTKM), who had organized the development of the Project Sarjana Muda. It will be very difficult for students to undergo the real working life without any experience. The development of the Projek Sarjana Muda had given students the chance to work on the real project development.

Last but not least, my beloved parents, friends and lecturers. Thank you for the support given during the hard time or good time. The kindness contributed is unforgettable.

ABSTRACT

The web-based courseware of Mathematics for the students of Standard 4 will be developed in the Sarjana Muda Project. The development of the Web- based Courseware had been chosen because there are lack of web based courseware which is specifically accentuate to specific students. Basically all the web based courseware exists are too general and common. The development of this courseware emphasize to the students of Standard 4 who is ten years old. The syllabus of mathematic at this level is chosen because majority of the students in standard four are weak on the subject. Actually mathematics is a simple subject that can be mastered. Students just need to know the tactic to tackle on the subject. This is why an effort had been contributed in helping those students with the subject. Interview, surveys and research had been carried out in gaining on all the information acquired. Nevertheless a project methodology had been developed in order for the project to work in a proper order. In addition a project miles stone is organized in ensuring the tasks that needs to be carried out delivers on time. The web- based courseware is fully developed in Macromedia Flash MX. The will be five sections provided in the web-based courseware which are subject, exercise, solution, quotation and email. Animated features, colourful graphic and attractive text is delivered in the web- based courseware. The entire element provided through this web-based are supported from the needs assessment and requirement analysis that had been carried out among the students.

ABSTRAK

Sebuah courseware yg akan dipaparkan menerusi web akan dibangunkan menerusi Projek Sarjana Muda ini. Sebab utama yg menjurus kepada pembangunan courseware yang berasaskan laman web ini adalah disebabkan oleh kurangnya laman web yang hanya menumpukan kepada satu generasi tertentu sahaja. Biasanya laman web yang disediakan ini adalah laman web-laman web yang bersifat umum dan ianya adalah sekadar sebuah laman web yang biasa. Laman web yang akan dibangunkan ini akan diberikan tumpuan kepada pelajar-pelajar tahun 4 khususnya. Ini adalah kerana majoriti daripada pelajar-pelajar ini lemah dalam subjek tersebut. Sebenarnya matematik adalah mudah, dengan teknik yang betul sudah semestinya pelajar dapat menguasai subjek ini. Oleh sebab itu, laman web ini akan dibangunkan dalam membantu pelajar-pelajar ini. Disamping itu, tiga topic yang paling sukar bagi pelajar-pelajar akan diajar menerusi laman web ini. Sebuah metodologi telah direka dalam pembangunan web ini. Langkah-langkah dalam pembangunan projek ini adalah berdasarkan kepada metodologi tersebut. Disamping itu, sebuah carta yang memperihalkan tentang jangka masa untuk setiap tugas tertentu akan turut dibangunkan. Projek ini akan sepenuhnya dilaksanakan di dalam perisian Macromedia Flash MX . Terdapat lima bahagian dalam web ini iaitu subjek, latihan, penyelesaian, quotes serta sudut email akan diselitkan. Secara keseluruhannya penghasilan antaramuka dan elemen-elemen lain yang diperlukan dalam pembangunan web ini adalah berdasarkan kepada pengguna iaitu pelajar itu sendiri secara amnya.

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CHAPTER 1

INTRODUCTION

1.0 Project Background

Students should be exposed in web-based courseware besides books or CD's in this era of ICT. There are a lot of advantages through web-based courseware. This is one of the main reasons why courseware had been selected in the project development. Some of the advantages are to provide a training which is immediately available to every student in 24 hours a day. There is no need to track workbooks, diskettes or CD ROMs and it provides easy navigation and interaction throughout the content and testing. Although there had been lots of web-based courseware in the internet nevertheless there is only few of the websites allocated for the standard 4 education. If so, only few questions or information are provided in it which is not enough.

In handling those problems, an adaptive web-based multimedia courseware is developed. Courseware is a software package to supplement or replace traditional course activities. The courseware contains useful information on mathematics. The title for the courseware is "Web-based Mathematics Courseware for Kids ". This web-based courseware is fully developed for the standard 4 students. The learning process is very important, due to this matter interactivity, the learning environment

and elements used in the web-based development had to be analyzed among the peer groups. By analyzing on the learning process needed, a satisfying system is produced.

The information provided will be very useful to kids. Parents no longer need to buy CDs or additional books. This web based courseware provides all the information needed by the students. More over, the information provided is interactive and interesting. It is interactively design in colourful graphic, attractive animation content. This web based will be updated every year consistently with the standard of school education. In addition the web based courseware is user friendly. Students won't have any difficulties to work over it.

1.1 Problem Statements

The main reason derived in developing the project is because of the limitation of the courseware provided specifically for the ten years old students through the internet. From the website addressed www.syvum.com it offers online mathematics activities in presenting the addition, subtraction, multiple, division and fraction skills. The activities are divided into four main categories. Each category is different where it provides different type of questions depending on the student's age. The information and activities provided are too common and general. Commencing on the phrase "practice makes perfect", more questions should be provided as this is the process needed for students in mastering the mathematics skill.

More over, the coursewares provided through the CD are not up to date. Parents might have the problems to empty their pocket to spend on that CDs. Mostly the CDs produced in the market are continuously where it is done level by level. After level 1 is completed for example, customer has to go after level 2 in getting a more detail

information. Basically this is very troublesome and it is a waste of money. The courseware is not conducive after all. But through the web based courseware application, everything needed is obtained in a single website. In addition the web based courseware is fully developed with all the information acquired.

1.2 Objective

The objectives of this project are as follows:

- **To develop an educational mathematic website courseware for students age 10 years old**

The web based mathematic courseware is a complete student's internet access service that provides a fully secure age appropriate educational and collaborative environment for the 10 years old students.

- **To develop internal selfmotivation characteristic**

Learning experiences based solely upon "Self Study" require. Self study can be used to develop and certify capability. The interpersonal structure and goal setting strategies needed for career-oriented works with self study.

- **Expose students with the accentuate requirement in education**

As education is progressing towards the Information Technology globalization, the tertiary proposes the web as the target for exploration in teaching and learning students. Besides that, this is as a step taken in introducing the innovatively changes to the traditional way of teaching and learning.

1.3 Scopes

The web based application develops for PSM gives an idea to students about the education expected through the web based. The development covers on kids' education. The target users are 10 years old students. The students are given the assessment of 24-hours to explore and learn from the website and what it has to offer. They are given the chance to work at the pace required. The web based application focuses on mathematics.

Macromedia Flash MX is the main template used in the project development. After that, the interfaces developed are integrated to the server through the website www.freesevers.com so that it can be uploaded and published in the internet. More over, a mascot is designed in Flash MX. The mascot acts as one of the attraction in the web and the mascot guides the users through the web page.

There will be five main sections in the web-based. The section consists of subject, exercise, solution, quotation and email. The subject consists of three main topics which are fraction, decimal numbers and weight scaling. The exercises section is divided into three main topics. There are two types of questions which are objective

and structure. Meanwhile the solutions section covers on the difficult questions in each of the section which are fraction, weight scaling and decimal numbers. In addition, the quotation section provides students with interesting quotes in math which are delivered by the math's famous philosopher. An email section is activated. Students can send emails on those problems occurred basically problems related to math. Hence any ideas or comments can be sent through this section.

1.4 Project Significance

The students of the 10 years old are exposed to an interactive way of learning. They are guided with a mascot through the web page. The interactive version provided through this web will help students to do better in their studies. This is because the topics are explained step by step. More over the explanation is delivered together with suitable graphics and animations in order for them to understand better.

The importance of the design in the web based courseware is becoming increasingly important. More courses begin to contain a web component understanding the factors that influence the effectiveness of such courseware essentials. Thus tertiary education had taken the step by targeting the web as an exploration in teaching and learning. They are educated in the Information Technology field as our country is leading towards the era of technology.

Web based courseware training can be scheduled to fit students schedules. Flexible course and time allows the students to work at their own pace. They can refresh their skills at anytime. They will often take training courses before the exams where web based courseware make good use of unexpected periods through the method so called "learn it yourself".

The web based courseware allows the students to be actively involved in the learning process. This interactivity reinforces the training content and helps them to retain the training message. Rather than doing a course just once, web based courseware enables them to continually go back to it in order for a better understanding which acts as a training. The training itself can also be used as an ongoing reference tool.

In addition the web based courseware provides multimedia training. Multimedia training provides a level of responsive feedback and individual involvement that had proven to be highly motivating. Web based courseware allows the students to focus their attention on the training content, reducing the potential for distraction. Attentively they can choose the way they organize in learning through the effective web based courseware provided.

Traditional learning methods typically focus on one learning style at a time. By using graphics, audio and interactive activities, multimedia training can fit a range of learning styles including visual, auditory and experiential. Multimedia training adapts itself to each student in providing realistic content and increase knowledge retention rates. It also allows learners who is typically have different abilities and knowledge levels, to control the pace and direction of their training.

1.5 Expected Output

Through the system development, an interactive way of learning mathematics is exposed. The web based courseware is delivered in an interactive way. Colourful features of numbers, images and designs are included. In assuring the web based courseware delivers a good performance, all the data that is equivalent on the topic

related in standard 4 mathematics subject are based on the Matematik Tahun 4 text book.

More over, the web based courseware is indicated by audio. Students will enjoy themselves while learning. The audio sound will lead all the way through the lesson. The appropriate media for the final output includes the facilities of text, graphics, charts and diagrams and interactive multimedia technology.

There will be five sections is delivered through the web based courseware. All of the section is presented with a suitable way of learning. The five elements are subject, exercise, quotation, email and solutions. Every single section is guided by a mascot. In addition before user enters the main interface, user is presented by a montage. The montage covers a series of text, graphic and audio.

1.6 Conclusion

In conclusion, the web application that will is developed contains useful information for kids. The five sections provided are subject, exercise, solution, quotation and email. All the information is interesting and interactive. The students can absorb easily on the education delivers because the explanation is carried out phase by phase. User friendly will be applied that will enable them in using it. As a whole, they will be impressed and satisfied. This is because, all the information can be retrieved easily which are very interesting and interactive.

Nevertheless, the web based courseware benefits the multimedia training. It is able to test and track the progress. The students will be educated excellently while enjoying their time in the web based courseware. Interactivity, the learning

environment and elements used are the basics in the developing the web based courseware.

In addition the web based courseware development courseware allows learner who are typically have different abilities and knowledge level to control the pace and direction of the training. Students work effectively through the web. This is because the students had been given the alternative to choose the way they organize in learning.

As the tertiary education had taken the step by targeting the web as an exploration in teaching and learning, it is essential for students to be expose in the web based courseware development. This shows the Information Technology education is important as our country is leading towards the era of technology.

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.0 Introduction

The literature review is one of the understood parts of a research project. A literature review is a summary of previous research on a topic. Literature reviews can be either a part of a larger report of a research project, or it can be a bibliographic essay. Either way, the purpose is the same, to review the scholarly literature relevant to the topic being studied or doing some researches on the development of a project. Through the research, a better product should be delivered.

The purpose of literature review is to help in explaining on how the question to be investigated fits into the larger picture and why the topic being approached. This section of a scholarly report allows the reader to be brought up to date regarding the state of research in the field and familiarizes them to any contrasting perspectives and viewpoints on the topic. Accurate information in strengthening the idea of the development is very important.

Project methodology is a management and a discipline which can bring significant benefits to organizations by:

- Ensuring limited resources are used on the right projects
- Harnessing the energy needed in achieving beneficial change
- Managing complex changes in an organized way
- Assessing risks, defining goals and key success areas and setting quality objectives.

To be effective and workable project methodologies should be appropriate to the task and the organization. Agreed milestones, a few checklists and someone to steer the project are all that are required in developing on the project.

2.1 Fact and Finding

Fact is an effect produced or achieved. It focuses on anything done or that comes to pass. Meanwhile finding is something which is found come open or provided. When the two words are combined, it brought the meaning on discovering or determining on accurate information. In this topic, the accurate information in strengthening the idea of the development of web-based courseware is done. The information stated are the statements that support the development of the project.

According to Thao Le, Quynh Le, (1997). Web-Based Evaluation of Courseware, University of Tasmania, though the Web has become a familiar name in many professions and disciplines, it is in the field of education where the Web has started to open many interesting promising windows. The names and titles such as Ed Web, Educational Multimedia, Hypermedia and other similar new terms reflect the rising interest in the Web. Tertiary education has recently become the Web target for exploration in teaching and learning. This is why web has been chosen as the main template in developing the courseware more over through the web; user can delivers feedbacks or any enquiry through the web easily which indicates the e-mail facilities.

Based to Oliveira 1992; Siviter & Brown 1992; Linn 1992, courseware had been introduced to conduct off-campus learning. Teachers are no longer the only resource for teaching and learning. Computer had started to be used by teachers and learners for different learning activities. This shows that they had supported that courseware is taken as a step in manipulating the multiple way of study. Students cannot fully dependent on teachers to gain knowledge and learning.

The web-based courseware developed emphasizes on the individual potential and needs. The web based courseware proceeds through the standardization of the syllabus. The questions provided are phase by phase. It starts with simple questions and end up with difficult ones. In addition, based on Dr. Ryuta Kawashima, a lecturer in the Development Institution of Cancer in Tohoku University, brain won't be active if a person is just doing a simple job or a difficult job at a time. A compilation of both jobs are needed in assuring the brain works actively and excellent. Kids will feels confident, high concentration and motivate while learning. Nevertheless, one of the experience teachers had proved this method from Japan, which is Toru Kumon.

Refer to Jan Leth, senior partner and executive creative director at Ogilvy Interactive N.A Flash is great building awareness, lending itself well to storytelling opportunities. Flash animation is one of the most effective ways to attract attention online. It has become a popular design and marketing tool and a way to give a sophisticated and professional image on the web. Flash animation enables developer to add motion and music to the message and make the user's experience more interactive.

Meanwhile according to Young Joong Kang, Founder and Group Chairman of Daekyo, education must incorporate individual attention. Overcrowded classrooms are not ideal, particularly for students who learn slowly than other and who require more personal attention. An online education is offered which operates as an institute of education. Children can excel if given proper guidance and in particular if they are