DEVELOPMENT OF LEARNING OBJECT FOR REGRESSION AND
CORRELATION

KOH SENG YORK

This report is submitted in partial fulfillment of the requirements for the award of
Bachelor of Electronic Engineering (Telecommunication Electronics) With Honours

Faculty of Electronic and Computer Engineering
Universiti Teknikal Malaysia Melaka

MAY 2011

UNIVERSTI TEKNIKAL MALAYSIA MELAKA
FAKULTI KEJURUTERAAN ELEKTRONIK DAN KEJURUTERAAN KOMPUTER

BORANG PENGESAHAN STATUS LAPORAN
PROJEK SARJANA MUDA II

Tajuk Projek : DEVELOPMENT OF LEARNING OBJECT FOR REGRESSION AND CORRELATION

Sesi Pengajian : 2010/2011

Saya KOH SENG YORK mengaku membenarkan Laporan Projek Sarjana Muda ini disimpan di Perpustakaan dengan syarat-syarat kegunaan seperti berikut:

1. Laporan adalah hakmilik Universiti Teknikal Malaysia Melaka.
2. Perpustakaan dibenarkan membuat salinan untuk tujuan pengajian sahaja.
3. Perpustakaan dibenarkan membuat salinan laporan ini sebagai bahan pertukaran antara institusi pengajian tinggi.
4. Sila tandakan (√) :

☐ **SULIT*** *(Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub di dalam AKTA RAHSIA RASMI 1972)

☐ **TERHAD*** **(Mengandungi maklumat terhad yang telah ditentukan oleh organisasi/badan di mana penyelidikan dijalankan)

☐ **TIDAK TERHAD**

Disahkan oleh:

_____
(TANDATANGAN PENULIS)

_____
(COP DAN TANDATANGAN PENYELIA)

"I hereby declare that this report is the result of my own work except for quotes as cited in the references."

Signature : ……………………………………….

Author : KOH SENG YORK

Date : ………………………………………...

"I hereby declare that I have read this report and in my opinion this report is sufficient in terms of the scope and quality for the award of Bachelor of Electronic Engineering (Telecommunication Electronics) With Honours."

Signature   : …………………….....................

Supervisor's Name : MUHAMMAD NOORAZLAN SHAH BIN ZAINUDIN

Date   : …………………………………..

This work is dedicated to my parents, lecturer, supervisor and also to all my friends

ACKNOWLEDGEMENT

I would like to take this opportunity to express my gratitude to my supervisors, Muhammad Noorazlan Shah bin Zainudin and Miss Farah Shahnaz bte Feroz for their help and guidance to complete this project. Their guidance is truly appreciated because without their guidance, this project will not completed in time. Besides that I would like to express my appreciation to all my friend and family that help me during the difficulty in this project.

ABSTRACT

E-Learning is important in education because it provide many information and also provide enhanced services. Learning Objects plays an important role element in E-learning which to produce the quality of the content of the E-Learning. By creating learning Objects, it enable the learning objects can be editable, usable, accessible and durable. The Learning Objects is used to create an interactive website about Regression and Correlation purpose for the student in the University by using macromedia Dreamweaver software and Flash player.

ABSTRACK

E-Learning adalah penting dalam pendidikan kerana banyak memberikan maklumat dan juga menyediakan perkhidmatan dipertingkatkan. Belajar Objek memainkan peranan penting dalam elemen E-learning yang untuk menghasilkan isi kandungan yang berkualiti tentang E-Learning. Dengan membuat Objek belajar, itu membolehkan objek belajar boleh diedit, bermanfaat, boleh dicapai dan tahan lama. Objek Belajar digunakan untuk membuat sebuah website interaktif tentang Regresi dan Korelasi untuk mahasiswa di Universiti dengan menggunakan software Macromedia Dreamweaver dan Flash player.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER I

INTRODUCTION

1.1 PROJECT INTRODUCTION

E-learning is modern technology have enhanced the old method of teaching classroom experience by introducing e-learning.E-learning has been widely use in many course or training. This project is about creating or developing a teaching method using Macromedia software such as Dreamweaver by creating a website and interactive data This Learning Objects are generally understood to be digital entities deliverable over the Internet , meaning that any number of people can access and use them simultaneously. [7]The learning object will save a lot of cost and time where the content inside which won't need to be created again by other people.

The new mode of content development and delivery can be used to play a supporting role with instruction that support active learning strategies online learning objects for regression and correlation that could be used as a replacement of face to face lecture will be developed. Inputs such as assignments, projects, notes, quizzes, etc will be uploaded to enhance students' understanding about the topic.

1.2 PROBLEM STATEMENT

Nowadays, face to face lectures can be tedious, boring and inconvenient for part time students .This may due to the student sometime will not able to cope the lecture. Besides that, students with health issues / disabled students such as sick on a particular day and unable to attend lectures will most probably face difficulties catching up with their peers on that particular subject. In universities, certain lecturers face difficulty in getting students' attention. Most often than not, the lectures are not creative enough to capture students' mind. Most probably by creating an interactive website, the lecture can provide more information and able to share the knowledge more deeply through website. Learning objects are developed to overcome these problems while lecturers now have the freedom to use certain tools to gain students' interests.

1.3 OBJECTIVE

The objectives of the project are:

1. To create a creative environment for students' learning and to overcome the hassles of face to face lectures.

2. Create an interactive educational game such as quizzes about regression and correlation

1.4 PROJECT SCOPE

The scope of this project consists of exploring the relationship between two variable in two ways which by computing the correlation coefficient and by using regression analysis. Graphical and numerical methods of exploration will also be discussed, and relationships will be compared, namely the perfect positive linear

correlation, perfect negative correlation, positive linear correlation, negative linear correlation, no linear correlation and non linear relationship ;

- The linear correlation coefficient formula will be discussed;

- Simple Linear Regression using the least squares regression method will also be discussed.

- Examples and tutorial about the correlation and regression and also fixed quizzes with answers by using Dreamweaver software will be created. The language which been use is html type.

- Software used macromedia Dreamweaver CS5 for interactive website and to publish the webpage into the website.

1.5 PROJECT INTENTION

This project intention is for educator and learner to understand the concept and the usage of learning object and to help them by providing the information or knowledge about the topic. Besides that, they also can get the benefit of the way of the learning object useful to them and make life easy for them and the efficiency of it.

1.6 EXPECTED OUTPUT

At the end of the project, the website should contain the information about the topic of regression and correlation. Besides that the output of the project is able to provide student and educator the knowledge of the topic and able to understand it. Furthermore it also can also create a creative environment for students and educators where quizzes, tutorial and notes are able to provide in dept information of the topic.

The results of the website are able to give more detail for the learner and educator about the topic and make them more understand of the topic and enjoy the topic.

CHAPTER II

LITERATURE REVIEW

2.1 E-LEARNING CONCEPT

The concept of e-learning is *E-learning* is usually referred to the worldwide use of the networked information and communications technology in education system where it based on web based learning and this teaching method where it refers to the educational process that make use of the communication technology[1]. The "e" in e-learning stands for the word "electronic", e-learning would incorporate all educational activities that are carried out by individuals or groups working online or offline, and synchronously or asynchronously via networked or standalone computers and other electronic devices[4]

Improving problem solving skills, preparing to solve non-routine tasks, working in project teams, and keeping up with permanently changing requirements are expectations that higher education students can fulfill if they can identified their learning strengths and weaknesses and the strategies that are the most effective for their own learning processes, these are the important criteria to consider in developing the learning objects [1].

E-learning is describe by the freedom of place and time, its integrated presentation and communication facilities, and its opportunities for reuse of instructional materials in the form of learning objects[5]. The information development meta-environment deals with the making of plans for informing clients where this meta-environment includes a model for creating plans, plans for creating instances, and instances[3]. This corresponds in the higher education to activities that range from (at a university level) deciding on what faculties or majors to offer, to developing curricula for a given major, to developing and implementing individual courses[3].

The delivery environment is concerned with the available ICT as well as the packaging of the information into the optimal sequence and media for the target learner where the information using environment contains the experts on the topics being taught and the students who wish to learn this information [3].

The essence of teaching adults is to provide them with the tools they information and tools they need to solve problems and to provide these in the proper sequence, level of depth, and format to maximize their usefulness[3]. That is, as jobs evolve in response to the changing economy, workers need to learn new skills, and this retooling occurs throughout their lives. In this way, e-learning is a technological response to society's need for lifelong, rapid learning[3]. E-learning can best be understood in the broader context of using technology to meet society's needs for learning. It also requires us to understand that adult learners have psychological needs that e-learning must address[3]. The Informing Science framework helps us understand that teaching in higher education involves a cast of roles that might best be performed by different specialists [3]. Examples are provided and described to show the application of the model within e-learning environments and a short factual situation is presented using the model in an undergraduate systems analysis and design course, which further illustrates the application of the model in an actual e-learning environment[2].

2.2 TYPES OF E-LEARNING

The design of the tie in should be able to provide the ease of delivering the information and instruction to the students. The e-learning should be easily been access from anywhere and also anytime by the students. The students should be able to access the question and answers that the lecturer had inserted into the online learning package in the online learning application. The students are able to answer the quiz and view the summary of the quiz after they had answered all the questions. The lecturer however had to be the moderators who control the level of difficulty of the questions[2].

E-learning can be describe into four different types:

- categorized individual self-paced e-learning online.

-categorized individual e-learning offline.

- Group-based e-learning synchronously.

- Group-based e-learning asynchronously.

- **Individualized self-paced e-learning online** associate to a situations where an individual student is register into the learning resources such as a database content online through the Internet. An example is, a student self-study or searching information on the Internet can access to the content.

- **Individualized self-paced e-learning offline** refers to a situations where an individual student is using learning resources such as a database in a offline mode where it is not connected Internet. An example of this is a student study alone by using a CD that content the learning object.

- **Group-based e-learning synchronously is** refers to a situations where a groups of student are working together using the Internet. It may include take part in text-based, and one or two-way video and audio conservation among the group . Examples of this include the student conversation in a in chat or an audio-video type conference.

- **Group-based e-learning asynchronously is** refers to situations where there are groups of students working over Internet where exchanges information among participants occur with a time delay .Examples of this kind of activity is on-line discussions through electronic mailing lists within learning managements systems.

E-learning can also be combinations of the few types of activities. E-learning is become more popular in all levels of education and training. The good use of e-learning include adaptively of time, place and convenient of study. E-learning affords opportunities to design learning environments that are actual, situated in the learning context, and also problem-based in order to provide students experiences in the problem solving[9].
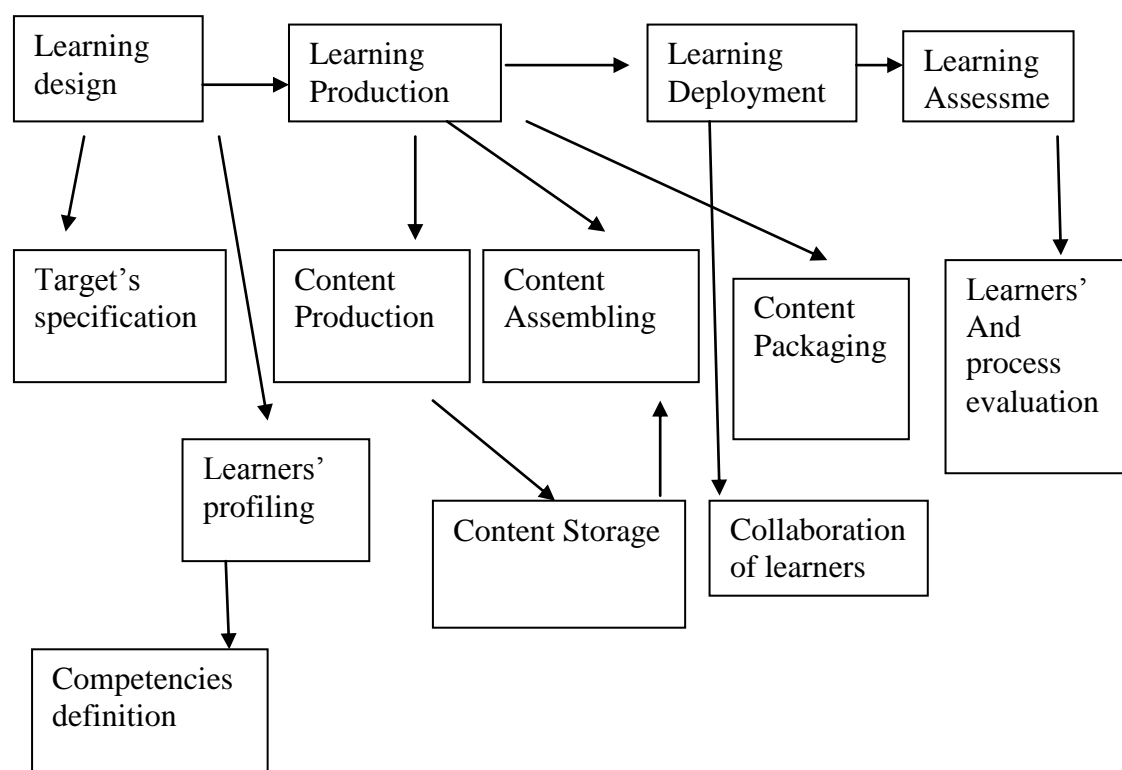
2.3 THE LIFE CYCLE OF THE E-LEARNING [5]

Figure2.1: Life circle of e-learning

2.4 ADVANTAGES OF E-LEARNING

1. **Create an interactive environment** where the object in the learning environment can be used and manipulated by the user . Example is, the user can click on a appropriate answer to a question and by constantly making decision such as clicking on button to start process a image for better viewing. Besides that, inserting games for the sub topic which related to the subject which involve of multiple part of the brain in learning such as quiz.

2. **Low cost**. The e-learning provide lower cost where students no need always attend the classes, seminar or training program. Besides that, students doesn't

need to spend a lot time away from their work . Besides that, students no need to spend their money on travel and other expenses.

3. **Convenient.** It is convenient for students where students can adjust their learning activities easily with their daily work where they will not or maybe leave their home for activity on study.

4. **Easily updated and upgraded.** The modules of the subject can be easily revised and additional activities can be added into it. Besides that, learning software can also be automatically updated by connecting to the server.

2.5 WEB PAGE BUILDING

In the webpage for the e-learning, there is a group learning resource inside the system which is tutorial, notes, assignments and etc. The webpage is build on using software tools where uploading the material into the webpage. The learner can choose a subject to view the content and also go through the working example and also the assignment. Web enhanced courses combine advantages of synchronous learning where learning and teaching takes place in real time with asynchronous learning where learning and teaching takes place with a time delay. Web enhanced courses move students away from being passive recipients of knowledge to becoming more actively engaged in the construction of knowledge which E-learning thus makes the process of learning interactive and collaborative, less time-dependent and not subject to geographic location, which makes it time- and cost-effective for students[7].

In the webpage building Dreamweaver software is chosen in my task where the Dreamweaver is a web development application originality created by Macromedia. Dreamweaver allows users to preview websites in locally installed web browsers. It provides transfer and synchronization features, the ability to find and replace lines of text or code by search terms and regular expressions across the entire site, and a