DEVELOPMENT OF AN ONLINE LEARNING TOOL FOR TEACHING HIGH SCHOOL MATHEMATICS

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ABSTRACT

This study is focused on the design and development of an Online Learning tool for teaching High School Mathematics.

Online learning can be described as instruction that is enhanced by the use of interactive multimedia authoring and production software, personal computers, Web and/or Intranets, and learning management systems for delivering instruction.

This study aims to produce a new framework for an Online Learning Tool and a prototype of an Online Learning Tool.

In this study the researchers follow a step-by-step procedure. First, the researchers compare the features of three (3) existing web-based courseware and three (3) online learning tools used in teaching High School Mathematics. Next, the researchers conduct a survey on both public and private high school mathematics teachers to determine the methodologies and tools that they use in teaching. Then, a new framework for an online learning tool is designed. Lastly, the researchers are able to implement the new framework and develop an Online Learning Tool in teaching High School Mathematics.

A prototype of an application of an Online Learning Tool in teaching High School Mathematics is developed.

CHAPTER I

INTRODUCTION

1.1 Background of the Study

The computer was originally invented to perform complex mathematical operations. However, man has found several uses for this computing machine. It later on became an important device in data processing and storage. Throughout the years, as it continuously evolves into a more sophisticated machine, its scope grew even wider. At present, computers play a key role in communication, business and trade, production, politics, science, medicine. With the advent of Computer Aided Instructions (CAI), its influence in education is growing, as well.

Coursewares serve as a teaching aid for the teachers. It is a new approach in teaching, mostly Mathematics subjects, used by teachers to help improve the performance of the students. Currently, the coursewares in the market are interactive and features movie clips, simulations and graphs which make learning Mathematics interesting for the students. However, one major flaw of courseware is that it is inflexible. The CD-ROM based coursewares are static. Its contents cannot be modified by the teachers to suit their needs. Some topics covered by the courseware may turn out to be irrelevant or even insufficient. Coursewares become a liability for the teachers when it can no longer cope up with the change in the syllabus of the subject.

Recent development in the Internet technology provides another teaching alternative for teachers. Tools such as Gopher and the World Wide Web have been developed largely to facilitate sharing of technical and corporate information at colleges, universities and research institutions. But very quickly, potential educational applications of these technologies became apparent, especially for open and distance learning. In this regard, WWW has more appeal, because of its hypermedia foundation. Its use is growing very rapidly, and it can now be used to access an immense volume of rapidly evolving information. Because of this, CAI evolved into other forms such as Web-Based Instruction (WBI) and Web-Based Training (WBT).

In the Philippines, CD-ROM based Coursewares are being used in some schools. For instance, Daniel R. Aguinaldo High School (DRAHS) located in Bangkal, Davao City is currently implementing Computer Aided Instruction in Mathematics and Physics for first year and fourth year students, respectively. With the aid of CAI, the school administrators hope to improve the poor performance of Filipino students in the areas of Science and Mathematics.

The cost and availability of foreign-authored coursewares, and also their inflexibility, prevent the teachers from enjoying the benefits of using CAI as supplement in teaching High School Mathematics. As Computer Science students, the researchers would like to help the Filipino Mathematics teachers through the development of an Online Learning Tool.

1.2 Statement of the Problem

The main problem of this study is how to design and develop an Online Learning tool for teaching High School Mathematics.

1.3 Objectives

The main purpose of the study is to develop a Web-based Online Learning tool for teaching High School Mathematics.

Specifically, the researchers aim to:

- Identify three existing web-based Coursewares in High School Mathematics.
- Identify three existing Online Learning platforms or tools.
- Survey the teaching tools used by High School Mathematics teachers in Davao City.
- Identify key features of each web-based courseware and Online Learning tool.
- Design a new framework for an Online Learning tool for teaching High School Mathematics.
- Implement the new framework for an Online Learning tool in teaching High School Mathematics.

1.4 Scope and Limitation

The study covers the design of an Online Learning tool framework. It also focuses on the features of the identified web-based coursewares for the development of the Online Learning tool. It will also concentrate on High School Mathematics.

This study is limited on the development of an Online Learning tool. The tool will also create an online learning that would serve as a supplement in learning High School Mathematics. It is also limited to Online Learning tool for teaching High School Mathematics in Davao City.

1.5 Significance of the Study

This study shall serve as an aid for teachers in teaching High School Mathematics.

This study shall help promote Information Technology in the Philippines.

Finally, this study can be a basis for further research on the field of web-based courseware design and development especially in the field of Mathematics.