eLearning Education for Thai Teachers

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Abstract— This paper describes the rationale for developing a Masters degree in eLearning for teachers and educators in Thailand. Ten years after the education reform started in 1999, major problems in education still exist. The eLearning project for basic education level (K12) was expected to improve education quality and fill the gap among schools. Project activities included the K12 eLearning Survey in Thailand in 2008, and the development of a suitable LMS and samples of contents according to the basic education curriculum. The main problem is the lack of teachers with sufficient knowledge to bring the system into use in schools. Rapidly expanding the number of qualified teachers by developing a Masters degree in eLearning can help to create higher quality education in Thailand.

Keywords— Development of Teachers, Education, eLearning, Master Degree in Thailand

I. INTRODUCTION

The work our team has done over many years in Thailand has convinced us that there are immense benefits to be gained through the introduction of eLearning into the Thai curriculum at all levels.

Our experience has shown that the students are ready and eager to learn using new technologies. Students who have been exposed to eLearning content have said that for the first time they did not find mathematics or science boring. They found exercises with instant answers an exciting challenge and they were keen to score well and achieve higher grades. They found animation, colour and movement attractive and time spent learning passed more quickly. They said that they wanted more eLearning introduced into their classes. [1]

Improved technology has resulted in LMS designs with greatly enhanced performance and facilities that are easier to use by content developers, teachers and students.

We consider that one of the most important factors hindering the expansion of eLearning is the ability of the teachers to adjust and embrace the new concepts.

Teachers find it difficult to find the time to take on something new especially if it does not replace but adds to the work activities. Teachers need time to learn and understand the content so that they can integrate it effectively with the traditional lessons. They need to appreciate where eLearning content can be used to assist the explanation of difficult concepts or to
enhance students’ comprehension. They need to learn how to introduce blended learning where part of the students’ time is spent in-class and part of the time spent learning on-line, they need to understand how to develop eLearning materials and how they could be used, introduced and integrated with traditional teaching methods. [2]

School head teachers need to be able to give advice to teachers and school directors and administrators need to understand the relevance and advantages that well planned and designed eLearning courses can give to the students, and to the prestige of the school.

We have found that many teachers, especially those who are relatively new to the profession, are prepared to devote time and effort to understand how eLearning works. To help them to develop a formal structured process of learning how to benefit from eLearning, a new Master degree in eLearning has been developed.

II. EDUCATION REFORM

Thailand introduced a major reform in education in 1999. The reform involved changes in education administration, curriculum development, teaching methods and teachers’ development and also introduced public participation in education management. The Constitutional Law states that the government should provide at least 12 years of basic education free of charge. Ten years have passed since the education reform started. Education administration has been reorganized and there are 79 education administration regions over the country. Education management has changed significantly but the education quality has not improved. Problems, which existed before the education reform, persist. There is still a lack of qualified teachers, an uneven distribution of teachers across functions and in particular in science, mathematics and foreign languages, and the number of teachers in rural areas is insufficient. These problems have created secondary effects. People who are able to chose where they study select schools or universities that have a good reputation and this has left many other schools and universities inadequately utilised.

The most important problem is the quality of education, especially at the basic education level. The Office of Basic Education Commission (OBEC), which is responsible for kindergarten, primary and secondary education, has evaluated the quality of education over the six year period 2001-2006. The results are shown in Table 1. National academic tests, which are conducted annually, have shown that performance in the main subject areas is less than 50% and the results have not improved over time.

<table>
<thead>
<tr>
<th>TABLE I</th>
<th>QUALITY OF BASIC EDUCATION 2001 TO 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education Year</td>
<td>2001</td>
</tr>
<tr>
<td>No. of Students (x 1000)</td>
<td>695</td>
</tr>
<tr>
<td>Thai Language</td>
<td>46.27</td>
</tr>
<tr>
<td>Math</td>
<td>32.36</td>
</tr>
<tr>
<td>English Language</td>
<td>38.95</td>
</tr>
</tbody>
</table>

Source: http://bet.obec.go.th/equ

Ten years of education reform should have been sufficient to produce positive trends especially since the annual education budget has been increasing steadily as shown in Table 2.

<table>
<thead>
<tr>
<th>TABLE II</th>
<th>ANNUAL EDUCATION BUDGET IN THE YEARS 2007 TO 2010 (Billions of Thai Baht)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget Year</td>
<td>2007</td>
</tr>
<tr>
<td>Country</td>
<td>1,556</td>
</tr>
<tr>
<td>Min of Education</td>
<td>282</td>
</tr>
<tr>
<td>% of Country</td>
<td>332</td>
</tr>
<tr>
<td>Basic Education</td>
<td>180</td>
</tr>
<tr>
<td>% of Country</td>
<td>221</td>
</tr>
</tbody>
</table>

Source: www.bob.go.th/bbhome/page.asp

One could conclude that the conventional education process cannot provide the desired results and it may be time for eLearning to play an important role.
In 2007, OBEC started an eLearning project to enable every school to utilize eLearning. The project will provide a user friendly Learning Management System (LMS) and contents samples in every subject.

The Suranaree University of Technology (SUT) was assigned to develop the LMS and contents samples.

III. DEVELOPMENT OF LMS AND CONTENT SAMPLES

The SUT research objective was to develop a Multilingual Learning Management System (MLMS), consisting of CMS, LMS, e-Library, MMS, Portfolio, and User, to be a simple, beautiful, and wanted system by using open source technology.

Researchers reviewed popular LMSs which are open source by both Thai and foreign developers such as Learnsquare, TCU-MLS and CLMSIS and Moodle and Atutor. After reviewing the LMS systems and the pros and cons of each, the SUT objectives were determined.

A. Concept of designing MLMS

The system supports all languages, and users are able to switch languages easily. Thus, MLMS can be used by anyone around the world without limitation.

MLMS consists of 6 related subsystems, as shown in Fig. 1. User system will assign and check the uses of all members. It will also facilitate the use of CMS, LMS, e-Library, Portfolio, and User.

In order that users have all rights to use, modify, or improve the software independently, the system is developed under the basis of non-copyright open source.

- Script Language: PHP, Java Script, HTML
- Database: My SQL
- Web Server: Apache
- Operating System: Linux

Fig. 1 Structure of 6 subsystems

B. System Development Principle

The system has been developed according to the software engineering principle that the system has to be improved and used with other systems. Also, the system should be able to support more needs in the future.

The core structure is created by integration of header, menu, content, and footer as shown in Fig. 2.

The multilingual feature has been implemented to the system from ground up which has an algorithm as shown in Fig. 3.
In figure 3, a switch language button will control the language in the page for all requests (show, add, edit, del) data in the database. When data have been processed, data will be sent to display as assigned.

- **Show** -> display only a requested language
- **Add** -> add every record requested
- **Edit** -> edit data only particular language
- **Del** -> delete every record requested.

The skin for the multilingual display is shown in Fig. 4.

The username, password and secret code are needed to be filled every time users want to log in. Secret code has been added for extra security. The login screen is shown in Fig. 5.

The system can be personalized by 24 available themes, as shown in Fig 6.

**C. Content Management System (CMS)**

The CMS is responsible for managing all content in the website which helps the administrator update content efficiently, such as news, activity, faculty and publication.
D. Learning Management System (LMS)

The LMS is responsible for managing learning content between instructors and students. LMS has a lesson and activity management in various formats; for instance, homework assignment, practice exam, lesson equipment, etc.

The e-Library classifies groups of content according to librarianship and also has an indexing service for easier and more efficient search.

The MMS is the storage system which contains all knowledge resources in various formats such as still image, motion image, sound, etc.

The Portfolio is an achievement accumulated system containing personal information, education, work, vacation and seminar history and also assignment reports.

The Administrator can control any individual task’s privilege for any users and make sure of data usage and storage.

E. Test System

The test can be separated into 3 parts consisting of a unit test and an integrated test, which will be conducted by researchers, and the last one, a system test, will be conducted by four educational institutes in Department of General Education. These are Kanlayanawat School, Boonwattana School, Suranareewittaya 2 School, Academic for Education Service Centre of Phitsanulok Educational Service Area Office 1, and 10 private schools in Narathiwat province: Darissalam School, Rahmania School, Tayulislam School, Nurudin School, Sirithamwittaya School, Ackerasatwittaya School, Alheeyawittaya School, Nadortulsuan School, Samanmitwittaya School and Sukansatwittaya School. From the MLMS testing, researchers asked users to complete satisfaction surveys.

This research has developed a multilingual learning and teaching system which consists of 6 sub-systems: CMS, LMS, e-Library, MMS, Portfolio and User. By studying the advantages and disadvantages of existing LMS and taking into account the WYSIWYG (What You See Is What You Get) principle, the outcome is a system that has a nice interface and is easy to use, and it passes all the tests effectively.

There are some areas that can be improved in the future and these include providing support by the sharable content object reference model (SCORM), random questions and answers, and importing examinations by file.

IV. DEVELOPMENT OF A MASTER DEGREE PROGRAM IN Elearning

Chandrakasem Rajaphat University was established in 1940 as a college of teachers’ training. It is regarded as one of the most advanced academic institutions in Thailand for ICT and it is one of the first universities to implement a comprehensive Master degree program for teachers.

A. Faculties and Students

Chandrakasem Rajaphat University has seven faculties. They are Faculty of Education, Faculty of Agriculture and Biology, Faculty of Humanities, Faculty of Science, Faculty of Management of Sciences, Graduate School and College of Medical Options. There are more than 20,000 students as shown in Table IV.
TABLE IV
CHANDRAKASEM RAJAPHAT UNIVERSITY
FACULTIES AND STUDENTS

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Regular</th>
<th>Extra</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>1,278</td>
<td>224</td>
<td>1,502</td>
</tr>
<tr>
<td>Agriculture</td>
<td>365</td>
<td>-</td>
<td>365</td>
</tr>
<tr>
<td>Humanities</td>
<td>3,535</td>
<td>1,606</td>
<td>5,141</td>
</tr>
<tr>
<td>Science</td>
<td>2,878</td>
<td>1,732</td>
<td>4,610</td>
</tr>
<tr>
<td>Management</td>
<td>6,131</td>
<td>4,588</td>
<td>10,719</td>
</tr>
<tr>
<td>Graduate</td>
<td>140</td>
<td>114</td>
<td>254</td>
</tr>
<tr>
<td>Medical Options</td>
<td>49</td>
<td>-</td>
<td>49</td>
</tr>
<tr>
<td>Total</td>
<td>14,376</td>
<td>8,264</td>
<td>22,640</td>
</tr>
</tbody>
</table>

B. Teacher Training in ICT

As the university was founded to serve teachers’ training, it performs many tasks which include training teachers to use ICT in their schools. A Master degree program in Education in Technology and Communications was established many years ago the program will be extended to eLearning.

C. eLearning Master Degree

The program will commence in June 2010. The objectives of the curriculum will be to provide students with a comprehensive understanding of eLearning and especially for students to:

1) Have ability in the design, development and assessment of e-media for eLearning systems
2) Be a leader in IT media utilization
3) Be a researcher and developer in education technology
4) Utilize appropriate technology for learning and training management.

The admission requirements are:

1) Teachers in schools who have completed a Bachelor degree in Education of other fields
2) Any person who has completed a Bachelor degree in Education or other fields and is interested to study Learning and Training Management Technology.

The curriculum will be composed of three sections with a total of 41 credits. They are a core course of 9 credits, specific subjects 20 or 26 credits and thesis 12 credits or term papers 6 credits as shown in Table V.

TABLE V
CURRICULUM DETAILS FOR MASTER DEGREE IN eLEARNING

<table>
<thead>
<tr>
<th>Sections</th>
<th>Plan A</th>
<th>Plan B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Core</td>
<td>Electives</td>
</tr>
<tr>
<td>1. Core Subjects</td>
<td>9</td>
<td>-</td>
</tr>
<tr>
<td>2. Specific Subjects</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>3. Thesis/ Term Paper</td>
<td>12</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>9</td>
</tr>
<tr>
<td>Grand Total (credits)</td>
<td>41</td>
<td>41</td>
</tr>
</tbody>
</table>

eLearning and digital contents development are the main subjects for the program. Students will gain experience not only in using the LMS and digital contents provided but will learn how to modify an existing LMS and develop more interaction multimedia contents. Students can implement eLearning in school or develop a modified LMS for their thesis or term paper.

V. CONCLUSIONS

Thailand has experienced ten years of education reform with a steadily increasing education budget. The quality of education still falls short of expectations.

Since the conventional education process cannot deliver the desired results it may be time to take advantage of developments in ICT and introduce eLearning.

An LMS and contents samples have been developed that are suitable to be adopted in Thai schools and a Master degree program in eLearning has been developed by Chandrakasem Rajaphat University. The program will commence in June 2010 and it is expected to provide teachers or training leaders with sufficient knowledge to bring the eLearning system to the next generation of education.
REFERENCES


