

Introducing eLearning into Secondary Schools in Thailand

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Abstract

This paper reviews a pilot project to introduce eLearning to support the mathematics curriculum in five schools in Bangkok and surrounding provinces.

The eLearning materials were used by students aged 12-14 years for the first semester in 2005.

The paper highlights the readiness of the schools' administrators, teachers, technicians and students to accept the new technology and provides lessons learned to help to understand the key issues involved.

Introduction

The Office of Basic Education Commission (OBEC) organized the pilot trial from July to September 2005 and selected two schools in Bangkok and schools in three provinces, Nonthaburi, Khon Kaen and Uthai Thani.

The content provided in the pilot project supplemented the Thai Mathyom 2 curriculum in mathematics.

The pilot trial objectives addressed the following questions:

- How readily can the students adapt to accessing content by computer and Internet?
- How quickly can the teachers adjust to the technology?

- How well can the schools support the introduction of the new technology and content?
- How efficiently can the technical infrastructure perform?

Information Background

The OBEC has responsibility for the basic education sector which has 32,368 schools, 421,604 teachers and approximately 9 million students in the education year 2005. There is a shortage of well qualified teachers, especially in the fields of mathematics, science and English and the application of new technology to assist solving this resource issue is a priority.

The Ministry of Education has a policy to expand utilizing ICT in all schools and a plan to implement the policy, which involves four major activities:

- Allocate 250,000 desktop computers to equip all schools to reach at least a computer to student ratio of 1:20, and provide Internet connection for all schools.
- Develop content according to the curriculum and extend it for students' use which includes purchasing some advanced content, especially for English language study.
- Expand web portals to facilitate access of eLearning content by students and teachers.

- Train teachers in pedagogy to utilize ICT and the integration of ICT in teaching and learning.

All activities are planned to be completed by the end of 2006.

Administration of the Pilot Trial

The schools administrators working on the advice of the OBEC officers determined the number of classes to join the pilot trial.

There are 71 English programme (EP) schools in Thailand, which mostly have two groups of students in each class and normally have smaller class sizes than the non-EP schools. In four of the five participating schools, English programmes were operational and in these schools classes were selected to include students who were being taught in English and students who were being taught in Thai.

A total of 451 students participated in the pilot trial. Of these, 187 were studying in English programmes and 264 were studying in Thai programmes. The average size of the classes was 31 students per class for the English programmes, and 44 students per class for the Thai programmes.

The students accessed the eLearning content for 1 hour per week in three of the schools and for 2 hours per week in two of the schools. The students worked in the classrooms under the supervision of their teachers, who guided the students to the content to be studied during each one-hour lesson period. The pilot trial was therefore a precursor to eLearning when the students would study on their own and at their own pace.

OBEC officers arranged to visit each of the schools during the pilot trial to monitor the progress and to have discussions with the schools' administration, heads of departments and teachers and to observe the students in the classrooms. In all schools except one, each student accessed the content

on a dedicated computer. In the other school two students shared one computer.

It was observed that the students were able to navigate around the content well and generally the contents, technology and methods of presentation were in accordance with the needs of the students and the teachers, useful for the teaching procedures and interesting and suitable to support the curriculum. The students were attentive and absorbed by the content and the students gained more understanding of the content and knowledge of the subjects covered.

The schools were able to access the Internet without difficulty. Most schools had at least 2 Mb/s access to the Internet although some schools outside Bangkok experienced some delays accessing the Internet especially during the morning periods.

The schools publicized the pilot trial with banners and signs near to the classrooms where the eLearning was taking place and some schools made a point of announcing the pilot trial to the parents.

Feedback from the teachers

In interviews with OBEC officers, the teachers agreed that the majority of the topics provided in the eLearning content had good presentation, good activities and understandable steps of presentation. The teachers liked content that challenged the students and the teachers expressed interest in having more in-depth content on some subjects and more exercises to test and verify the students' capability. The teachers expressed the view that it is good for the students to be able to study anywhere and to learn new techniques. The teachers also liked the opportunity to gain experience in using eLearning. Some of the teachers had not used e-mail before and needed to sign up for an e-mail account to participate in the pilot.

The teachers said it is good for all students to practice English and to gain a better attitude towards mathematics at the same time. The teachers would like more interactive activities and more detailed contents to cover the Thai curriculum and an improvement in the network capacity in the schools. The teachers developed their own ways to introduce the content to their students based on their own ability and on their knowledge of the students' needs and capability. The teachers said that they could use the eLearning to stimulate the students' interest in ways not possible with traditional content for teaching mathematics.

Feedback from the students

In interviews with OBEC officers, the students said that eLearning is suitable for them. The steps and methods of presentation are easy to understand and they are able to gain mathematics skills and learn some new English vocabulary. Many students used an English-to-Thai dictionary which was opened as a separate window on the computer screen and although this worked very well many students would prefer the content to be in Thai because it would be easier to understand. The content is generally interesting and they can learn anytime and revise the mathematics lessons by themselves at any time too. They find that learning using new technology is not boring for them.

The students found the computer generated exercises with instant answers stimulating and useful for practicing the application of formulae. The students expressed the view that the content should range from introductory level for each topic to quite advanced or difficult level. They also would like the eLearning to be more interactive. Some students said that they may feel something is missing if they have no eLearning in the next semester. In the pilot trial the Learning Management System

(LMS) was provided by eLearnings Asia Pacific Ltd., and hosted on a computer at Auckland University, New Zealand. The LMS features that were used most were the ability for the students to perform on-self tests and to receive the results of the tests via the students' e-mail addresses.

Lessons learned

The Internet capacity should be increased in schools and the eLearning timetable should in the meantime allocate the lessons to be when the network is not heavily used or congested. The directors and senior administrators at the schools play a very important role and where they are enthusiastic for the new procedures and new technology this has a critical impact on the head teachers and teaching staff involved in the eLearning programmes. This interest is noted by the students as well, especially where banners publicize and promote the eLearning programmes. Some of the directors of the schools said that they would ensure that more capacity building opportunities for teachers in eLearning would be provided through appropriate training and that network capacity would be added to provide faster and more reliable Internet access. It was suggested that knowledge networks could be created among the schools adopting eLearning so that experiences could be shared.

The motivation of the teachers towards the new technology is very important. Some teachers even at the prestigious schools selected for the pilot trial had not used e-mail before. Some teachers do not have a computer at home and need support to understand how to navigate around a web site and plan and prepare for the eLearning lessons.

The mathematics content should include sufficient explanation to illustrate the principles of each topic in the curriculum. Where the concept is difficult for the

students to comprehend more worked examples should be given and these should use colour and animation to emphasise each step in the logical process. Students like the moving objects and the colourful representations. It is worth noting that several students who previously had found mathematics boring or difficult were starting to take a real interest in the subject.

Although a comprehensive training programme was organized to train the teachers in the use and value of the LMS features before the eLearning commenced in the schools, not all the teachers who attended the training were actually engaged on the eLearning programme. Teachers who did not attend the training received additional training at their schools. Some teachers needed to receive assistance in signing-up for an e-mail account but soon became confident.

In general, the students in the English programmes made faster progress than the students in the Thai classes. This is because there are smaller numbers of students in a class, they have greater computer literacy, they appear to adapt to the eLearning because it seems natural for them and they can use their competence in English to help them to quickly understand mathematical terms in English.

In Thailand there are only 71 schools running English programmes and while this number is increasing every year the needs of the students attending the Thai programmes have to be addressed by making the content available in Thai.

Conclusions

The relatively short pilot trial confirmed that students can benefit from eLearning content in various ways. The students find the content presentation interesting and by end of the semester all of the students had adjusted to the new method of delivering mathematics content. It was encouraging

that students made observations about how to improve the presentation of the content and expressed the hope that the eLearning would continue.

The teachers had to spent time learning the new technology and techniques. The teachers needed time to plan and prepare their lessons and to understand the content so that they could integrate it effectively with the traditional lessons. The teachers gained confidence when they saw how eLearning could help them to explain difficult concepts and their students could learn more quickly. They realized that the eLearning materials would be used to supplement the normal lessons and not replace them at least in the short term.

There will be a role for the teachers to play in helping to refine the eLearning content based on their experience in delivering lessons in the traditional way.

The ICT infrastructure in all the schools was adequate to support the access to the eLearning materials. However improvements would need to be considered separately by each school because their circumstances differ depending on their demands, the number of students accessing the Internet at one time and their location.

The new technology has the potential to contribute to the solution of problem of the shortage of qualified teachers in mathematics.

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