CHAPTER 7

CONCLUSION AND SUGGESTION
7.1) SUMMARY AND CONCLUSION

E-Learning will continue to become more thoroughly integrated into the preK-12 market. E-Learning will enable schools to offer more classes to their students, make learning more flexible to meet individual needs and help schools meet the requirements of No Child Left Behind. While the data is still being collected on the success of e-Learning, proactive schools will prepare for the future by investing in the technology and teacher training necessary to develop and implement e-Learning.

The Office of the National Education Commission (ONEC), (2006), said the main problem to begin with is the quality of the information that the schools are able to give us about how they are delivering the education to students, how the students are learning and how they know that the students are learning. So we think that probably this issue is the most difficult for us to deal with. And then to find ways of using the information that the school has. So the school find answers to the thing that it is not to do it or not doing it as well as it could. The quality of information is the problem itself. Schools may sometimes try to deceive you and may sometimes try to say this is what we do. But the person goes to this school can really quite quickly tell whether they have just been doing it this week or whether they have been doing it for a year or so.

We know for examples that the way in which schools carry out their own administration and management has been able to demonstrate that they have really improved at very great deal over the last eight years. We know that school principles and teachers are now much more
aware of their own educational responsibilities. We also know that they are much more conscious of the responsibility they have to the parents and the wider community. They are really able now to be held to account for the teaching that they provide for the children. Because everything is in public, it is all in the public area and people in different part of the country can look at the report and think "my children are not getting an education that is as good as that" or "my children are getting an education that is better than that". And so, it has been very important in helping to improve the quality of education. As well as improving the quality of education on the national scale like that, we are also been able to evaluating schools and going back where they were failing to make the community the board of those schools focus on the issues, focus on what was wrong and generate to improve things. At the moment, we go back and do a follow-up review in about 25% of our schools and of those about 70-80% made sufficient improvement in six months for them to come back into the regular process of reviewing and that is quite significant. Before the Education Review Office started reviewing in this way, people had no way of knowing that some New Zealand children were being properly taught.

The indigenous knowledge or local wisdom enables lifelong learning in society. It not only strengthens the community's economic situation on the basis of self-sufficiency, but also moral values, and local culture among community people.

In the globalized world, it is certain that most of the contents in the internet will focus on the Western knowledge, ideas, and culture. However, if there is nothing done to promote the learning of local
knowledge, our future generations will definitely not understand where we are in the world or even lose the root of their culture.

Education in the globalization age should therefore be the balanced integration between global knowledge and indigenous knowledge. Therefore, modern science and technology must go hand in hand with indigenous or local knowledge for sustainable development in any community, international understanding, and peace and harmony of the world.

Dalsgaard, Christian (2006), said in conclusion, it is not necessary to use an expensive LMS for online collaboration; "small pieces loosely joined" could provide an adequate learning solution as well. In fact, social software might provide a starting point for the personalisation and individualisation of learning.

The author provides a good introduction to the potential of social software as tools for learning including examples on how to use the different applications. The article falls short of solving the problem between self-direction of the learning process (implying that no structure should be imposed on the learners) and the necessity of supporting students by scaffolding the learning process.

Although the results from the above study show that the teacher-directed group obtained higher achievement gain than that of the e-Learning experimental group, it does not mean that e-Learning is not effective.

1. **Design of e-Learning resources**

Perhaps, the e-Learning platform would provide a better resource when animation can have a greater impact on students’ need to
understand abstract topics like 3-dimensional trigonometry, relative velocity and even rate of change. The animations can provide visualization of a 3-dimensional effect.

2. Student readiness

As quoted by Ellis et al. (2004) “learning is increased when teaching is presented in a manner that assists students in organizing, storing and retrieving knowledge. Students can become independent, self-regulated learners through instruction that is deliberately and carefully scaffolded”. As such, for e-Learning to be effective, students must be equipped with the necessary skills to be independent learners.

1) CONCLUSION FROM MINISTRY

The Office of Basic Education Commission (OBEC), (2006), said the relatively short pilot trial confirmed that students can benefit from e-Learning 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 e-Learning 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 e-Learning could help them to explain difficult concepts and their students could learn more quickly. They realized that the e-
Learning 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 e-Learning 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 e-Learning 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.

2) CONCLUSION FROM TEACHERS

OBEC (2006), the teachers agreed that the majority of the topics provided in the e-Learning 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 e-Learning. 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 e-Learning to stimulate the students’ interest in ways not possible with traditional content for teaching mathematics.

3) CONCLUSION FROM STUDENTS

OBEC (2006), the students said that e-Learning 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 e-Learning to be more
interactive. Some students said that they may feel something is missing if they have no e-Learning in the next semester. In the pilot trial the LMS was provided by E-Learnings 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.

7.2) SUGGESTION

As a result of this, research student expect this research can solve a shortage of schools and teachers.

1. The principal and the teachers should make improvements in teaching and make the right use of the internet in every faculty.

2. Parents should closely take care of their children when the children use the computer longer than usual and should observe whether or not the children use the internet for entertainment or academic work. Moreover, they should suggest the suitable period of time and the right use of the internet.

3. The student should contact with good friends and may agree with them in the proper ways. He should not follow them in the wrong ways. Whenever the student has a problem, he or she should consult his or her parents, guardian and teacher.

4. Parents, guardian and student should carefully perceive the information or modern technology especially the computer technology since most business on the internet focuses on the profit only. Hence, it may have bad effects to the children.
5. Government should issue a strict law to prevent an offence which may occur in commercial system, educational system and social system.

Education Review Office (ERO) The Government has stated as key goals that it will grow an inclusive, innovative economy for the benefit of all; reduce inequalities in education.

Thailand highly skilled workforce. High quality education delivery is one of the important outcomes that support these students who have learned to engage with learning are better equipped to participate fully in society as adults. Similarly, knowledge, skills and values for life-long learning – and the skills for information literacy provide a foundation for students to build on in later life, however well they achieve while at school. E-Learning has the potential both to promote students’ engagement with learning and to foster development of their information literacy.

‘Learning how to learn’ – is a critical part of this development. ‘Learning how to learn’ is a transferable skill that students need to develop throughout their schooling to enable them to become independent life-long learners. ICT and e-Learning improving learning experiences and outcomes for all students; supporting educators in integrating ICT into curriculum and management practices; increasing efficiency and effectiveness of educational management and administration; and developing partnerships with communities, businesses and other stakeholders.

ICT is a very powerful organizational tool. However, if not used with determination and focus, as well as versatility, it will not deliver
or, in best case, only provide fragmented organizational impact and benefits. This applies to all types of organizations, also schools.

When looking at the impact of ICT on the organizational situation, the results from *E-learning Nordic 2006* show a multifaceted picture: The basic elements of the technical infrastructure are at hand – i.e. computers, internet and intranets, e-Mail and various software tools, both at school and at home, and available to the large majority of teachers, pupils and parents.

At Greve Gymnasium (a secondary school in Denmark), the headmaster has not found that ICT has made it easier to share knowledge or to manage administrative tasks. However, as the complexity of the school organization and the management of daily activities increases, access to effective ICT tools becomes vital. The headmaster at Greve Gymnasium considers the administration of a modern school to be impossible without effective ICT.

At Greve Gymnasium class and activity schedules change regularly and almost on a daily basis, e.g. due to meetings, illness and other unscheduled events. Furthermore, every second week on the average, regular class schedules are put on hold to allow for interdisciplinary teaching sessions, excursions or special projects. To manage such flexibility and complexity requires powerful planning and information tools.

Greve Gymnasium uses a system that, among other things, helps school administrators revise and update class schedules. It is updated daily with changes and cancellations and all information is personalized. The system is web-based and can be accessed anywhere.
At school, a terminal is designated for use by pupils checking their personal schedule. Alternatively the pupils can do it from any computer at school and at home. Pupils use the system daily and they report that sometimes their parents also use it to check their schedules: Have the two first classes Monday morning really been cancelled?

Both pupils and teachers find the system to be very helpful. It is described as simple, user-friendly and an effective tool in the daily planning activities. Greve Gymnasium recently purchased a more advanced LMS, but the headmaster and teachers assessed it to be too complex, not as much ‘needed’ and therefore used much less.

However, on other areas, the impact seems more moderate. The majority of parents, headmasters and teachers assess that the use of ICT has supported an improved impact in the following areas:

- Parents feel better informed to a moderate degree about activities at the school
- Parents experience to a moderate degree improvement in the dialogue they have with the school about their child
- Parents assess that they only to a moderate degree engage themselves more often in activities at the school. This is supported by headmasters and teachers. They also assess that there is only a moderate degree of greater involvement of parents in their children’s schoolwork.

If the potential impact of ICT in Nordic schools is to be further realized, school owners and management need to be more professional in their organizational implementation of ICT. Substantial investments in ICT have been made at both regional and local level, but often with no clear criteria for success and no structured monitoring of the
benefits. At many schools, the situation can be compared to buying 10 new laptops and not un-wrapping them.

Return on investment from ICT investments and ICT projects require a commitment to organizational implementation on the part of the school management. They must be visionary enough to initiate and continuously support the use of ICT as a strategic tool for developing the general ambitions of the school. Successful organizational implementation of ICT is the most important prerequisite for maximum impact of ICT in schools.

At Århus Statsgymnasium (a secondary school in Denmark), the headmaster sees the new curriculum as a strong driver for the integration of ICT into all subjects. This is because the new curriculum plan sets very clear goals for how ICT must be used. The use of ICT was also written into the former curriculum plan, but in a more unclear way. The new more precise demands make it easier to follow-up on whether the goals have been achieved. Two barriers mentioned by most headmasters and teachers for achieving a greater impact from ICT are:

- Too little ICT equipment at the school.
- The teachers do not have sufficient ICT competences to teach with ICT.

States and school districts must develop effective policy to prepare for and incorporate e-Learning into curriculum offerings. Policy issues cover a range of topics including:

- Teacher certification
- Credit for classes
- Class ranking
- Quality of online instruction
- Funding
- Alignment of online instruction with national and state standards
- Student access to equipment and Internet
- Evaluation of e-Learning courses and materials
- Teacher training
- Accessibility for students with disabilities

Recommendations in regards to e-Learning from The National Education Technology Plan for states and schools districts include :-
- Provide every student with access to e-Learning.
- Enable every teacher to participate in e-Learning training.
- Encourage the use of e-Learning options to meet No Child Left Behind requirements for highly qualified teacher, supplemental services and parental choice.
- Explore creative ways to fund e-Learning opportunities.
- Develop quality measures and accreditation standards for e-Learning that mirror those required for course credit.

SUGGESTION FROM THE RESEARCH

When a change comes through which affects the original functionality so much so that there is very feeble resemblance to the original, then the change would result in a new requirement specification. This would be treated as a new programme request and
will go through the full life cycle. The scenario could be either Pre-delivery or Post-delivery. Given below are the steps for the Change Management Process:

![Change Management Process Diagram]

**Figure 7-1**: The Step for the Change Management Process

When MOE is interested to implement an e-Learning solution to further strengthen the education system in Thailand. The intended solution will be used to distribute/publish uniform course content across the country. Students will take courses using computers at school level. Students would appear for computer-based tests to evaluate their learning progress. In future, MOE is also interested to upgrade this system to encompass features such as conducting on-line tests, publishing progress reports on the internet and connecting this entire system with a portal that can be accessed by teachers and students and works as a single point of information sharing. When
implemented successfully, this project would be treated as a turning point in the history of Thai education system.

If MOE wants to develop education system into e-Learning system completely, the main concerns that the administrator should realize are budget and competence of teachers and students. This is because a great deal of money is needed for providing tools and equipments which cost a lot at present. Moreover, to get an achievement from this, e-Learning must be applied continuously from primary level up to university level. In addition, teachers should specialize or have skill in using the equipments of e-Learning system in order that they can enjoy their studies and follow up what they are interested.

The e-Learning project scope contains end-to-end integration and deployment of e-Learning solution across pilot sites and subsequently at all the school locations in Thailand. The project should involve following activities :-

1) Undertaking a study to identify the existing infrastructure at pilot locations.

2) Make the infrastructure gap analysis.

3) Finalize the proposed architecture for content delivery for schools with and without Internet.

4) Setting up data center infrastructure at Central, province locations.

5) Design, construct, deploy and implement the eLearning software solution.
6) E-Learning Software Solution to be implemented only at Data Centre in Bangkok to be accessed in web enabled mode from schools.

7) Instituting an operations team to undertake the project. Project team could constitute :
   a. Content creators including QA, Developers, Graphic Artist, programmers
   b. Content Quality Auditors (CQA)
   c. Course Management team (CM)
   d. Program Management team (PM)
   e. Region Management team (RM)
   f. Information Management team (IM)
   g. Technology Management team (TM)
   h. Training Management team (TrgM)
   i. Administrators (Admin)

8) Procurement of hardware, storage, security equipment at Central, province and school levels.

9) Execute end-to-end networking of central and province locations with robust network design with fail over, redundancy and content backup.

10) Setting up infrastructure at the school locations.

11) Providing networking solutions to schools to connect to province / central servers.

12) Configuration and installation of Learning Management Software (LCMS, LMS).

13) Channelize the content creation in regional and standard languages either through in-house development or through partners.
14) Train the trainers at administrative locations in Central, province and school locations.

The Data Centre is the most crucial part of the project. The Data Centre would be hosting the Content Management System (CMS) and the Learning Management System (LMS). Together this would provide a comprehensive eLearning framework.

Figure 7-2: The Deployment Model for Data Centre

Figure 7-3: The Organization Chart of e-Learning Project
Besides, the researcher found that weaknesses of e-learning in Thailand were no improvements in the students' other good skills because the students learnt only the subject matter in the curriculum. They had no opportunity to develop their own ability and this caused a great loss for them. Moreover, the subject matter focused on academic affairs which excluded virtue and moral. The students were not encouraged to work in teams. These seemed unimportant but they were necessary to their social lives, their interaction with other people in different organizations and the country as a whole. Therefore, the researcher thinks that there should be more complete e-learning system for fulfillment and the students will be able to acquire a good knowledge from e-learning system. He also believes that education management system will help the students to have better learning quality. Flexible and various learning processes should be related to the students' style of learning, their aptitude, their ability, and their interest for their potential. Various learning
sources both in school and outside school should be arranged so that the
students can learn from real situation, can apply what they have learnt in real
life and can establish their own conceptual framework of knowledge which
is a fundamental of continuous learning in all their lives. By means of this,
the students can develop their potential according to their aptitude and can
form education community system for their communication so that those
who lack of learning are able to live in the same community happily and
they have goodwill and help one another and work in teams.

At present, e-learning system is the system of two dimensions. That is
learning via internet which is convenient to the student in terms of
time, place and expense. The lesson is Digital Multimedia System
which includes contexts, slides, motion, sound, and video from which
the students can learn by themselves. They choose the lessons which
they want to learn. These lessons have been already prepared. The
students can do the tests to check their comprehension in different
lessons. E-learning lesson is shown below: -

![E-learning lesson example](image)

**Figure 7-5 : Sample of e-learning lesson**

The disadvantage of e-learning system is that learners have to
learn only the lessons which have already been prepared by the
teachers. When they have questions they have to click into webboard to ask and wait for the answers from their teachers. If the students need more knowledge, they can search for it by themselves. Teamwork is not available and they may get bored at last.

From Pisit Nakrumpai’s research, it was found that e-learning system had been developed to be three dimensions. Virtual Cyber School is put into e-learning system. This makes the students feel that they are in the real classroom, not just work with a computer alone. They may have a feeling that they can meet other students who enter the same system. They help to form education community system. Each student has to register and get individual password. They can build their own characters to represent them. They can determine their characters’ hair color, appearance and costumes and can also control the characters’ movement within the virtual Cyber School.

Figure 7-6 : Sample of creating a character

The students can enter e-classroom or can see activities. They communicate, help one another and talk with the teacher or other students. This gives them a good opportunity to respond to each other immediately by pressing the keyboard. With this method, the students
gain better skills in learning, reading and writing. The picture is shown below.

![Image of an e-classroom interface](image)

**Figure 7-7 : Teaching through e-classroom**

This new e-learning system has e-library which is ready to provide the learners with academic sources and accuracy. The learners can click to search for additional information that they need. From this system, various activities are arranged to meet each learner’s aptitude in order to develop his EQ and his potential and also to encourage the learners to establish an education community in their own group.
Modern methods of evaluation are determined to relate with the standard of the Education Ministry.

Hence, the students' better learning, better skills and better achievement are acquired by means of new technology. They gain knowledge and get pleasure at the same time. This technology is very suitable for the students at present.

7.3) FUTURE RESEARCH

As delegates to the www2006 symposium prepare to meet in the capital, keynote speakers reveal why e-Learning is vital to future prosperity. The school of tomorrow will not be at the end of your street. It will be everywhere, and getting there will only take a click of a mouse. In this vision of the future, every school will have a web portal where the pupils, parents and teaching staff will have the opportunity to interact and share information. In this virtual space, lessons will be beamed direct to anyone who wants to attend, while all the teaching materials required can be downloaded in a trice.

Meanwhile the research's opinions are as follows:-

1. It should research by using e-Learning system in any schools from each region which are similar qualification apart from the schools in the Southern part of Thailand as well.

2. The researcher should apply e-Learning in other subjects not only skill aspects and non skill aspects such as Mathematics, Science, Social Studies, Thai, English.

3. It should research e-Learning system with other level apart from first level of secondary School.
4. In case of e-Learning system is being used for all over the schools in Thailand, it should research the e-Learning system would being used in the South where is much different situation from other regions. The researchers should research in the provinces where violent situation occur. The problems of e-Learning system after announcing to launch in every school would be avoided.