e-Education in Thailand: Equity, Quality and Sensitivity for Learners and Teachers

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Abstract: This article looks at e-Education in Thailand with a focus on its equity, quality and sensitivity for learners and teachers. The first part includes a brief history of Thailand's ICT Development and ICT in Thai education. The second part of this article reviews the current status of information infrastructure and the way Thailand attempts to overcome the digital divide, featuring samples of the current national initiatives for the academic sector (both K-12 and university levels) as well as community sector. Third, the issues on the quality of e-education and key success factors are described. Fourth, the article examines how well Thai teachers, educational personnel and learners accept e-Learning. Lastly, the article concludes by considering the challenges posed to Thai education by the needs for new learning approaches that respond to changes in knowledge and skills needed for "Smart Thailand."

E-Education in Thailand: A brief history about Thailand ICT Development and ICT in Thai Education

Based on the data of the World Economic Forum (WEF) Global Competitiveness Report 2006/2007, a relationship was found between a level of innovation development competence and Gross Domestic Product (GDP) per Capita. From the same report, Thailand was listed in the factor-driven group, meaning that the country still relied mostly on natural resources and agricultural products. However, given that Thailand is still in the early stage of economic development, it has done quite well in a number of areas that have enhanced its efficiency and innovative capacity. Thailand is beginning to show its benefits of substantial improvements in a number of key areas such as the development of high speed backbone network which can respond well to the Thais' incessant need of information. However, as compared with six Asian countries which are Japan, South Korea, Taiwan, India, Singapore and Malaysia, the country still needs to catch up with others especially in terms of digital divide and quality infrastructure (Ministry of ICT, 2009).

In Thailand, ICT implementation in various sectors has formally been initiated since 1992 when the Thai government set up the *National IT Committee, or NITC,* which is a high-level policy body chaired by the Prime Minister. Later in 1995, the Thai government has announced the Year 1995 as the Year of ICT for the Thai nation. The national ICT policies together with their master plans have been our key frameworks and guidelines to govern Thailand ICT development (Figure 1).

Brief History of Thailand ICT Policy

Period	IT 2000 (First National ICT Policy)	IT2010: 2nd Nat'l ICT Policy Master Plan I (2002-2006,- 2008)	Thailand ICT Master Plan II (2009-2013)
Major Goal	-achieve economic prosperity & social equity	- towards the knowledge-based economy n society	- Smart Thailand through ICT use
Key Policies	- Equitable national information infra. - Develop ICT manpower, workforce - Good governance through ICT use	- Build Human Capital - Promote Innovation - Continue invest information infra. - Promote information industry	Through ICT - Eco development - Human Resource Development -Leverage Industry Competition Competency - Sustainable Dev.
Successes	-National Internet Exchange Points - Schoolnet Thailand, GIS and Electronic Transaction Bills	- Clear cut leadership mechanism in National ICT development (MOICT) in 2002	- ICT manpower, workforce (but still needed esp for government organizations)
Unfinished Projects	-Human resources development - e-Government and other government related policies	-Human resources and personnel development - Closing digital divide	- Focus on closing digital divide -Last mile access - Access for Disabilities/Needies

Figure 1: Brief History of Thailand ICT Policy and Master Plans

The first is the National IT Policy called IT 2000, announced by the NICT and endorsed by the cabinet. The goal was for the country to utilize ICT to achieve economic prosperity and social equity. The policy had 3 main objectives namely a) building an equitable national information infrastructure b) investing in human resource to accelerate the supply of ICT manpower and developing an ICT literate workforce and c) achieving good governance through the use of ICT. Many development programs were achieved under IT 2000 policy, while many others were not. For example, those concerning human resources and government sector were still incomplete. However, one project worth mentioning was the project called "Schoolnet Thailand" "Schoolnet Thailand" aimed to empower all schools to access a large pool of information resources using the Internet without access charge (except the phone line charge), regardless of where they are located. Under "Schoolnet Thailand", several thousand schools have been connected to the Internet. Also, content creation programs and activities have been initiated to promote the use of Internet in teaching and learning (Thuvasethakul & Koanantakool, 2002).

Next in line is the second ten-year phase of national IT policy or IT2010. The IT2010 has set the key development objectives to exploit the benefits of ICT to move Thailand to the "Knowledge-Based Society and Economy". The development focused on the good use of ICT that would drive overall national economic and social development. The focus is on 1) Building human capital, 2) Promote innovation, and 3) Invest in information infrastructure and promote the information industry (Laohajaratsang, 2006).

To achieve the goals, IT2010 identified five main flagships which included:

1. e-Society, covering issues such as digital divide, quality-of-life, culture, health, public participation;
2. e-Government, including public service via electronic service delivery, employment, legal infrastructure;
3. e-Commerce, with special focus on 'e-services' including not only finance, tourism and IT services, but also other industries;
4. e-Industry, focusing on e-manufacturing and IT-related industries, plus issues such as standardization; and
5. e-Education, includes issues of life-long learning, computer literacy, human resource development, virtual education, creation of useful information, contents and knowledge etc.

IT2010 policy was applied to strategic planning which is Thailand ICT Master Plan Issue I (2002-2006). Seven major strategies were identified. They were 1) developing ICT industry 2) uplifting quality of life for Thai society through ICT 3) reforming and creating ICT-related research and development capability 4) using ICT to leverage Thai society standard for future global competitiveness 5) developing Thai SMEs competence in order to extend global market 6) supporting SMEs to implement ICT and 7) utilizing ICT in government management and services. An analysis of impacts during IT2010 implementation revealed that still some objectives were achieved while some weren't. For example, an attempt to create a clear-cut leadership mechanism in National ICT Development was successfully done through the establishment of the Ministry of ICT (MICT) in 2002. However, some of the tasks remained to be completed which were closing the Digital Divide; developing human capacity on a continual basis, and linking the policy with the operations. Due to an internal political crisis, the government extended the period of this master plan to the year 2008.

Thailand ICT Master Plan 2009-2013: Smart Thailand

The second ICT master plan (2009-2013) or Thailand ICT Master Plan Issue II follows the IT 2010 plan and the first ICT master plan (2002-2006), updated with new policies to keep up with the changes in technology, economics and society. The plan is both a tool and an opportunity for increasing the competitiveness of Thailand (Ministry of ICT, 2009). During this second ICT master plan, six major strategies were identified. They were 1) Increasing ICT human resource in both quality and quantity 2) developing good governance frameworks for national ICT governance 3) Continuing to develop basic infrastructure in order to minimize digital divide and developing high speed ICT networks 4) achieving ICT management governance 5) supporting manufacturing, empowering businesses and the ICT industry in order to create economic value, leverage industry competitiveness competence, and generate more income and 6) increasing smart and skilful ICT workforce and utilizing ICT for sustainable growth of the nation (Ministry of ICT, 2009). In addition, the objective was on achieving what have not been achieved under Thailand ICT Master Plan Issue I. The points addressed by this plan are closing digital divide by the use of new technology such as last mile access and providing an access for disabilities and needy people.

Brief History of ICT for Education in Thailand

Period	MOE ICT Master Plan (2000-2002)	ICT For Education Master Plan (2004-2006)	ICT For Education Master Plan (2007-2011)
Major Issues	- Prepare Thais for IT society and knowledge society	-Equal access and benefits from ICT for life-long learning	- Smart Thais with information literacy
Key Policies	- Distribution of computers and networks in Schools -Professional Development in ICT - Digital Content and Curriculum Devt.	-ICT for effective management -Professional development in ICT - ICT info. Infra.	- Educational human resource and professional Development (Conti-) - ICT Info. Infra. - Digital Content in every subject areas
Teaching-Learning	-ICT Literacy -Introduction of ICT use in classrooms	-Internet as an educational tool	-Integrating ICT into T/L - Blended Learning
Successes	Internet Backbone, Pilot projects i.e. Schoolnet Project	- Awareness of change /paradigm shift - Projects for Remote areas i.e IT Princess	- Quantum Jump Policy/ Strategies and budget to acquire hw, sw and digital content
Unfinished Projects	Educational infrastructure and HR Development	-Educational infrastructure and HR Development (Conti.)	-Systematic / Holistic approach to restructure the entire system - Inappro. use of Internet

Figure2: Summary of ICT for Education Policies in Thailand

A brief history of ICT for Education in Thailand can be reflected upon with a brief look at the Ministry of Education (MOE) ICT Master Plan 2000-2002, the ICT for Education Master Plan 2004-2006 and the ICT for Education Master Plan 2007-2011.

MOE ICT Master Plan 2000-2002

The First phase is considered an initial phase of creating a framework for ICT in Education development in Thailand. Its goal was to prepare Thais (both learners and educators) for an IT society and knowledge society. The focus was on the distribution of computers and expansion of networks in schools, professional development in ICT and acquisition of digital content and development of curriculum. Regarding teaching and learning, ICT literacy and introduction of ICT use in classrooms are the focus. The successes are finishing setting up internet Backbone for the country and pilot projects i.e. Schoolnet project. However, the plans that we did not manage to see through during this phase was the educational infrastructure and the educational human resource development.

ICT for Education Master Plan 2004-2006

The Second phase is during the ICT for Education Master Plan 2004-2006. Its goal was to provide Thai learners and educators with equal access to and benefit from ICT for their lifelong learning. The focus was on ICT for effective management, professional development in ICT, and ICT information infrastructure. Regarding teaching and learning, due to the policy of providing internet access to all the schools by 2005, the use of the Internet as an educational tool became the focus during this phase. The successes are the awareness of the need for the change in learning approach and projects to help lessen the digital divide like the IT princess project.

ICT for Education Master Plan 2007-2011

The third and current phase is during the ICT for Education Master Plan 2007-2011. The implementation of ICT for Education Master Plan was delayed due to a delay of endorsing the National Master Plan 2009-2013. This was again due to the internal political turmoil. Its goal was to create Smart Thais with Information Literacy. Some of the focuses were (again) on educational human resource and professional development, an investment in ICT Information Infrastructure and creation of digital content in every subject areas. Regarding teaching and learning, the challenge has moved to integrating ICT into teaching and learning in Thai classrooms as well as using ICT as a part of their blended learning. Despite the fact that this plan has just been endorsed, one of the things worth mentioning here is the success on instant policy/ strategies and budget to acquire hardware, software and digital content (and perhaps networks) for every school under the national Strong Thai or “Thai Kem Kang" (TKK) project. However, the two most important issues that need to be seriously taken into consideration are 1) to implement a systematic / holistic approach to restructure the entire educational system with the use of ICT and at the same time 2) to vaccinate Thai youths or young learners to have strong netiquette to prevent an inappropriate use of the Internet.

Equity: The Current Status of Information Infrastructure and Digital Divide Issues

Overall Thailand ICT infrastructure is growing at a steady pace (National Statistical Office Report, 2009). However, quality infrastructure is not yet sufficient to serve the needs of the population of over 70 million. Still about 1% of all households in Thailand lacked electricity (most are in the southern part). Level of ICT use for Thais is at 20.3%. ICT mostly used are still TVs and radios (93% and 63.3%). Currently, there are 10.89 basic phone numbers per 100 people. Regarding the access to Mobile phones, like several countries in Asia, no digital divide is found in Thailand with 68% in BKK and 55% in rural areas. However, for the access to computer, the percentage for computer use is at 26.8 %. Recent data from the Ministry of ICT (2009) showed that over 30% of the population in cities in all regions used a computer, with the highest percentage in Bangkok (40%).

The ratio of the number of computers to the number of students in schools under the OBEC is now 1:40 The numbers of users of mobile phones and computers in Thailand stand at 28.29 and 16.04, respectively. Regarding the internet access, our internet bandwidth expansion is growing steadily since 2003 (Laohajaratsang, 2008). Recent data on the Internet Usage in Asia showed that Thailand ranked 11th among Asian countries in terms of the number of Internet users (Internetworldstats, 2009). Thailand started well in 2000 with 2.3 million internet users. However, now Thailand has around 13.4 million users, which accounts for 20.3% of the whole population with the growth rate of 483.3%. Among these, 1.2 million are high speed internet users and more than 600,000 are broadband internet users. This limited progress was mainly due to the economic recession that caused the decline in government investment in ICT and the internal political turmoil that caused the constant changes of government.

According to the recent report by the Office of Basic Education Committee (OBEC) under the MOE, access to the Internet in Thai schools[1] has reached 90%. The ratio of the number of computers per school is 6:1. The ratio of the number of computers per student is 1:40**.** In addition, it was found that 58.4% of the Thai teachers under the Office of Basic have already been trained on the use of ICT (OBEC, 2009). However, it was found that the recent Thai government has set up a budget of over 43,900 million baht for Education Reform. Five thousands million baht will be allocated for hardware (Pcs, Laptops), software (system and applications) and digital content creation. The goals are to 1) Raise the ratio of the number of computer to the number of students to 1:20 2) Acquire digital content for every subject area and every class level 3) Offer professional development for teachers and educational personnel and 4) Provide secured and stable school network infrastructure. With this large amount of budget, Thailand is expected to quantum jump its ICT in education development by the end of the ICT for Education Master Plan (2013).

To decrease social and economic inequalities, special attention has also been given to those of poverty and in the rural areas. The Thai government and responsible units have come up with many initiatives to provide access to quality education through the use of ICT. Some examples are Princess IT projects for poor learners in the remote schools such as the schools in Nan, Sakon Nakorn and Nara Thiwat provinces; Distance Learning projects or "Kru Tuu" project by Distance Learning Foundation via satellite TV, cable TV and web-based instruction; Educational TV (ETV) and TutorChannel by Non-formal Division, MOE. Furthermore, several of web-based educational resources were developed by the government units under the Ministry of Education and Ministry of Science and Technology (MoST). Some of the examples are digital learning resources from the Office of Teaching and Learning, OBEC, the Institute for the Promotion of Teaching Science and Technology (IPST), MOE; and the National Science and Technology Development Agency (NSTDA) Online Learning project, Ministry of Science and Technology.

In addition, several projects were initiated to help needy people in Thailand. Some of the projects are the Internet Tambon (District) project focusing on providing internet access to several main tambons in Thailand; the Community Computer Center Development project providing computers for rural villages; the Mobile Training projects offering ICT professional development for teachers in the remote areas; and the Princess IT projects for the disabilities and the seniors.

In addition, several locally-created projects were initiated such as ICT Schools project and/or Dream Schools project (MOE), Computer for kids project (MICT) for Thai schools both in the urban and rural areas. Other pilot projects by the Thai government units with foreign partners were also co-operationally implemented i.e. IT for Education Development with JICA, Japan; Intel Teach to the Future with the Intel Company; CABTER project with the Australian government; Microsoft Partners in Learning with the Microsoft Company, etc.

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[1] The schools that were selected for the survey are limited to the schools under the supervision of the Office of the Basic Education Committee (OBEC).

Some initiatives which focus on students in higher education are the Thailand Cyber University project (TCU) under the Commission of Higher Education (CHE), the Two-way Distance Education project by the University Network or the UNINET (CHE), the project for Southern (Risky) Areas by TCU (CHE), the Mobile Learning projects by Thai open universities, and the Digital Content Development projects by several of the Thai leading higher educational institutes i.e. Chiang Mai University, Kasetsart University, etc.

In terms of the future trend in e-Education in Thailand, Thais are planning to use the technology of the future (advanced technology) to help conquer the digital divide. The two technologies that we have been piloting are Wimax and OLPCs (One Laptop Per Child) notebooks. The Wimax Technology project has recently been implemented in the IT Valley in Muang District, Mae Sarieng District and Pai District in Mae Hong Son Province in the northern part of Thailand, while the OLPCs projects have been implemented in Lampang Province (Baan Sam Kah Village), Chiang Mai province (Baan San Kampaeng) and Nakorn Nayok Province.

Quality of e-Education/ E-Learning and Key Success Factors

ICT can be a useful tool to improve the quality of teaching and learning. This is because ICT can help support a shift to a new learning pedagogy with student-centered approaches and consequently enable students to learn in a meaningful way (Law et al., 2008). Regarding the status of teaching with ICT in Thailand, several research studies have shown that Thai educators already acknowledge the needs and benefits of ICT use in schools (Supoet et al., 2005, Laohajaratsang, 2007). However, teacher training and having educators/ teachers integrate ICT in their teaching by themselves are not sufficient. Thai government and responsible units must help them to successfully use ICT to improve their quality in teaching by taking on a holistic approach. Holistic or systemic approach in integrating ICT in education needs to be formulated. The approach must include all the key success factors accounting for the success of quality development of e-education namely teachers, learners, educational institutes, regional policy, government policy, budget, leadership, community, champions/ change agents and professional development (Figure 3). In addition, teacher training on ICT in Thailand still requires better quality professional development in ICT integration from qualified personnel. Moreover, best practices (lesson plans) and Digital Learning Resources must be collected and made available for Thai educators. Lastly, producing and allocating more computer teachers and technical staffs to facilitate teachers in schools can help encourage teachers to restructure their classrooms with the use of ICT.

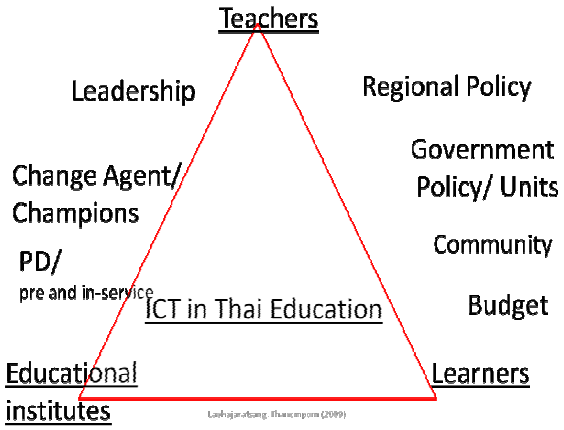

Figure3: Key Success Factors for Thailand Quality Development of e-education

Based on the data of the researcher's recent study on the readiness for developing e-Learning in Thai universities (Laohajaratsang, 2008), it was found that most institutions (93%) have already started e-Learning and assigned a department to oversee the e-learning services. More than 75% expressed their readiness to accommodate e-Learning. The e-Learning technology among higher educational institutes is adequate and ready to serve university personnel and students (NECTEC, 2008b, Komlayut & Punnakan, 2009). The opensource Learning Management System (LMS) are widely used. Also, it was found that e-learning is being used mostly as supplementary learning approach. However, accreditation and quality assurance are two most important issues that make Thai educational institutes reluctant to offer online distance programs through e-Learning.

Sensitivity Issue: How Thai Learners and Teachers accept e-Learning?

Despite the fact that increased connectivity in Thai schools has resulted in more positive attitudes of the teachers toward ICT for teaching and learning, Thais are still slow in making a progress of integrating e-Learning into their classroom settings. The major reason is that 60-75% of in-service teachers under OBEC are over 45 years old (Laohajaratsang, 2009). Therefore, a resistance to change is still found among the late adopters and the conservative group of teachers (so-called "laggards"). This happens even after their training / professional development programs. To them, adoption of ICT in their teaching seems to be a big challenge. Most of the Thai teachers are very sensitive to changes. For this reason, it is very important to make teachers clearly understand the concept of ICT implementation before trying to force them to do new things with ICT which will make them feel uncomfortable and alienated.

A recent research study indicated problems in e-Learning development in Thai higher educational institutes that they still have problems with instructors, students, and technical staff (Laohajaratsang, 2006, Komlayut & Punnakan, 2009). In effect, quite a number of instances were found in terms of instructors and students being reluctant to use e-Learning. Also, there were insufficient technical staff to facilitate instructors when integrating e-Learning into their teaching. At the same time, a low number of instances were found regarding problems with infrastructure, hardware, and software related to e-learning development in Thai universities.

Summary

To summarize, the challenges that lie ahead for ICT in Thai education remain human resource and professional development for in-service teachers and instructors as well as administrators and educational personnel at all levels. Moreover, quality network and information infrastructure for all Thai schools are urgently needed. Lastly, a revisit of instant policy on hardware provision, curriculum development and digital content development for Thai schools need to be applied to strategic planning by responsible units and effectively implemented among Thai schools nationwide.

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