# Skills and Competitiveness for Poverty Reduction in Northeast,Thailand by Enhancing Knowledge Management in Capacity Building Framework

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## ABSTRACT

This research aims to study on skills and competitiveness for poverty reduction in northeastern Thailand in order to improve the competitiveness of the Northeast and increase the quality of human resources with a use of ICT. The study found that students' competency in using the IT tools was significantly lower than what is required by employers, which might be one of the major factors that has limited the opportunities for students in obtaining jobs in their local region, as was also indicated in the findings. A need to design a curriculum and teaching strategies that maintain students' frequent use of computers and the Internet with a view to completing course assignments is urgent, when considering the relatively less frequent use of computers and the Internet reported by the students in the present survey. Furthermore, the training sessions, formulation of a virtual community that involves teachers in the Northeast region of Thailand is recommended. The community enables participating teachers to maintain and expand their knowledge and network after the training and give support in development of knowledge management (KM) contents, which would encourage them to improve the level of education in the region through the corporative projects.

**Keywords**: Competitiveness, poverty, knowledge management, capacity building framework.

## I    INTRODUCTION

An interim report of productivity analysis of skill delivery institutions from the World Bank (Foresight Research, 2014) has evidenced that recovery from the poor productivity performance of Thai firms as well as gaps in international competitiveness is an urgent demand on the Royal Thai Government. In particular, the high concentration of poverty in the Northeast region of Thailand requires improvement in its competitiveness. Findings on the previous research on factors that are impacting on students' competency in IT skills are reviewed. Based on his case studies on a number of early childhood, high school, and university classrooms in the United States, Cuban argues that investment to increase the number of computers as well as Internet access does not necessarily improve academic learning and prepare students for an information-based workplace (Cuban, 1993; Cuban, 2013). It can be highlight the importance of the school's schedule and equipment that allow students to work on computers on a daily basis.

The positive association between students' frequent technology use and their academic achievement has been evidenced by previous research (e.g., Bussière & Gluszynski, 2004; O'Dwyer et al., 2014). A number of researchers have supported this argument. The percentage of students using the Internet on a daily basis was nearly the same as that of Vitartas and Sangkamanee's (2012) research conducted on 170 students studying at an international university in Bangkok. It is reasonable to assume the percentage of students accessing the Internet at least once per day may be much higher now. Information and Communication Technology (ICT) has become an important role in both society and community. Thai citizen allows to access unlimited useful data and resources by using ICT. This creates a new mechanism to expand knowledge network for their community (Sutasinee, 2014).

Generally, the purpose of this research is to improve the competitiveness of the Northeast by building skills to increase the quality of human resources with a use of ICT. The current Skills and Competitiveness for Poverty Reduction in Northeast Thailand is an approach to improve the competitiveness and thus reduce the poverty of the region of Northeastern Thailand with a use of ICT.

## II    METHODOLOGY OF THE RESEARCH AND ANALYSIS PROCESSES

### A.  Participants

For the institution survey, a total of 180 colleges and universities that had vocational programs located in the Northeast region of Thailand were selected. For the employer survey, a total of 60 organizations were selected for the survey. Criteria of the selection were: (a) located in one of the19 provinces in the Northeast region of Thailand, and (b) at least 90

percent of employees had to have completed their education in the Northeast region of Thailand. Finally, a total of 200 students studying at either one of the educational institutions that participated in the institution survey responded to the student survey.

## B. Instruments

Prior to a development of the questionnaire, the survey team conducted interviews with two education commission offices in Bangkok (i.e., the office of the higher education commission and the office of the vocational education commission) and six educational institutions located in the target region. Based upon the interview data, the survey team members developed the questionnaire.

## C. Procedure

Prior to the data collection, the survey team visited the selected participants to explain the purposes and significance of the survey and request their participation. At the same time the team sent official letters to those institutions and organizations requesting participation. On agreement with the institutions, the team arranged times and dates for the interview. Prior to the interview, the team provided the questionnaire form to the institutions and organizations so that they could prepare for it by obtaining information that their responses were based upon and filling a part of the questionnaire that requested numerical responses. A trained member of staff visited each participant on the appointment date and interviewed the representative of the institution and a student recommended by him or her, or the representative of the organization. Numerical responses on the survey forms completed by the representative were first entered onto excel files by the admin team.

## D. Analysis Processes

For the quantitative data, descriptive statistics were analyzed to examine characteristics of responses. ANOVAs and T-tests were used to contrast groups. Correlations were calculated in order to find any meaningful relationships between variables of interest. Multiple regression analysis was performed to find a linear relationship between the criterion variable and its predictors.

## III SUMMARIZED RESULTS OF THE SURVEY (QUANTITATIVE AND QUALITATIVE)

A following is a summary of the major findings.

## A. Institution Survey

A total of 180 colleges and universities that had vocational programs located in the Northeast region of Thailand were selected for the present survey. Among those 180 institutions, 129 (45%) were vocational colleges, 30 (43%) were regular colleges and universities, and 21 (11%) were community colleges.

Size of institutions: regular colleges and universities appeared to have a higher number of students and instructors than did the other types of institutions; however, the student-instructor ratio did not differ among institutions.

### i. E-learning

Over 90 percent of regular colleges and universities, and nearly a half of vocational and community colleges had offered E-learning course(s). E-learning courses were most likely to be developed by the course instructors.

Factors that prevented institutions from offering e-learning courses: institutions that had not been offering e-learning courses were significantly lower than their counterparts on levels of budget, hardware, Internet access, instructors' skills and motivation for teaching e-learning courses, and students' skills for learning through e-learning courses. In particular, budget was significantly lower for institutions that had no plans for offering the e-learning course than those that had not offered e-learning courses but had plans to do so in the future. As it can be shown in Figure 1
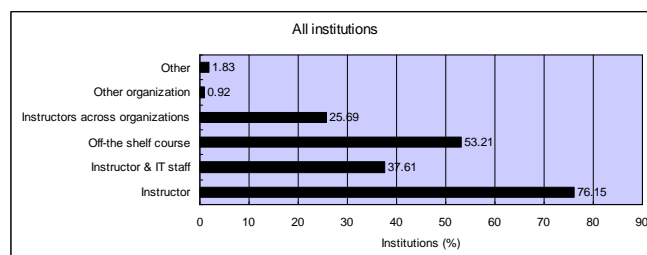


**Figure 1. Sources of E-Learning Courses.**

Note :( from bottom)
Instructors fully developed courses.
Instructors and IT staff developed courses.
Instructors purchased off-the shelf courses.
Instructors at the institution and from other institutions developed courses.
Used courses developed by other organizations.
Other.

### ii. Employment

Overall, a half of the students who were employed after graduation stayed in the Northeast region, while less than 40 percent of them moved to Bangkok.

Effective sources for obtaining a job: institutions reported that career placement center (CPC) and training programs such as Co-op training program (CTP) and Dual vocational training program (DVTP) were less effective sources for getting jobs than students' directly approaching employers and medium such as information available on newspapers and the internet. It can be summarized in Figure 2.
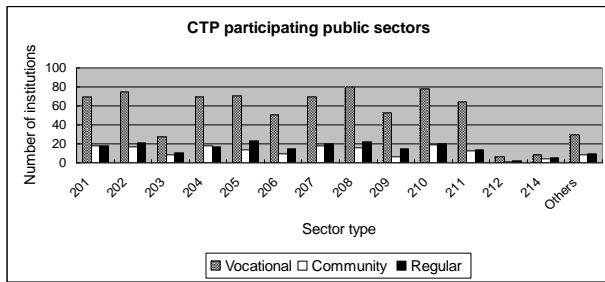
**Figure 2. Types of CTP participating organizations for vocational colleges, regular colleges and universities, and community colleges (Public sectors).**

Note: 201: State bank 202: State hospital 203: Public health care 204: Cooperative store 205: City hall 206: Court 207: District office 208: Local administrative office 209: Electrical generator authority 210: Provincial electrical authority 211: Provincial water authority 212: Telephone organization of Thailand 214: State educational institution

## B. Employer Survey

A total of 60 organizations that were located in the target region and having at least 90 percent of employees who completed their education in the target region. A half of them were in the private sector (n = 32), and the other half consisted of government sectors (n = 14) and state enterprises (n = 14).

1. Type of gender that the organizations employed. The following patterns were commonly found among all three sectors: nearly half of the positions were currently open to both males and females. Regarding positions that were limited to either males or females, currently more were for males than for females.

2. Positions that was open to both males and females would be increased in the future; however, they would still remain less than 60% of the total positions available.
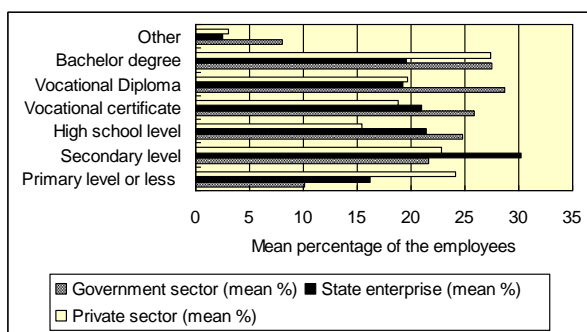


**Figure 3. Employees' Education Level for Each Sector Type (%).**

## C. Student Survey

A total of 200 students studying at the educational institutions that participated in the institution survey responded to the present survey. Among those 200 students, 136 (68%) were from vocational colleges, 42 (21%) were from regular colleges and universities, and the rest of 22 (11%) were from community colleges.

The main purpose of the survey was to draw comparisons to find gaps among institutions, employers, and students.

1 Competitiveness in autonomous learning skill and other critical skills:

- Skills those students and institutions estimated equally, but significantly lower than did organizations: interpersonal skills

- Skills in which students expected to achieve significantly higher than the current levels reported by the institutions (both were significantly lower than what employers required): problem solving, responsibility, and leadership

2 Skills that students expected to achieve to the level of what the employers required: autonomous learning skills and foreign language skills. It can be categorized type of student's skills and in Table 1

**Table 1. Comparisons of Means and Standard Deviations on the Degree of Perceived Levels of Students' Competitiveness. Note: Degree of consideration differs from 0 (poor) to 10 (excellent).**

| Type of Skill | Institutions ($n = 179$) | Employers ($n = 60$) | Students ($n = 200$) | F values |
|---|---|---|---|---|
| **Autonomous learning skill** | $7.62_a$ (1.54) | $8.75_b$ (1.43) | $8.28_b$ (1.32) | 17.21 $p = .000$ |
| **Interpersonal skill** | $8.03_a$ (1.26) | $8.97_b$ (1.43) | $7.83_a$ (1.74) | 12.99 $p = .000$ |
| **Knowledge and skill in concentration** | 8.20 (1.28) | 8.50 (1.53) | 8.03 (1.64) | 2.50 n.s. |
| **Problem solving skill** | $7.46_a$ (1.50) | $8.60_c$ (1.54) | $7.95_b$ (1.53) | 13.36 $p = .000$ |
| **Foreign language skill** | $5.89_a$ (1.72) | $6.90_b$ (2.30) | $6.67_b$ (2.12) | 9.20 $p = .000$ |
| **IT / computer skill** | 7.86 (1.76) | 8.37 (1.67) | 7.77 (1.79) | 2.72 n.s. |
| **Responsibility** | $8.09_a$ (1.28) | $9.27_c$ (1.22) | $8.57_b$ (1.43) | 18.27 $p = .000$ |
| **Leadership** | $7.48_a$ (1.44) | $8.85_c$ (1.26) | $8.25_b$ (1.66) | 21.80 $p = .000$ |

## D. Major Areas for Action

After reviewing and analyzing the results of institution, organization and student surveys, we found that the major areas that brought the most attention are;

1. Areas with High Job Market Demand

The study shows that presently organizations have a high demand for employees with an educational background in Accounting/Accounting software, Computer/Computer for Business, and Business. This finding is in line with the study result which shows that there is also a high demand for academic study in these areas: Accounting/Accounting software, Computer/Computer for Business. The study also indicates that in the future there will be a high demand for employees with qualifications in Computer/Computer for Business, Business and Marketing. Computer qualifications continue to be in high demand in the job market because computers are playing a significant role in various areas of business: accounting, human resources management, and inventory management. The

current education system, however, does not encourage the development of students' computer skills because it focuses mainly on theory, not on hands-on practice. In addition, most computer classes are lecture-based for which instructors use computers solely as class presentation tools but not for students' hands-on practice. This ineffective computer teaching method therefore reduces students' enthusiasm to use computers for self-learning.

## 2. Practical Training

The study reveals that institutions have three types of practical training program: Co-Op Training Program, Dual Vocational Training Program, and Non-Student Training Program. In general, organizations are only involved in specifying training schedules and in identifying students' assessment criteria. They are hardly involved in designing the training programs. The lack of active participation in designing training programs generally generates poor training results: student trainee's end up performing work in the areas out of their concentrations. This mismatch of qualifications has therefore made organizations mistakenly perceive that students lack adequate knowledge and analytical skills to perform the assigned work.

## 3. IT Utilization

The study shows that most organizations are using computers, especially basic software and accounting software, for their businesses. Their staff members are very skillful with basic computer software such as MS Office, but they hardly ever use other advanced software programs due to the lack of skills. Like most employees at organizations, students are very competent in basic computer software and lack other advanced computer skills.

Institutions still do not widely use E-learning in teaching and learning because of the limitation on support equipment and funding. The teaching method commonly used at institutions is of a lecture type. E-learning poses some concerns over student learning effectiveness: students may not be able to follow E-learning lessons well, in which case they will lose their enthusiasm, and their study performance will be affected. These concerns are tied to Thai culture. Thai people do not like to learn by themselves, when there is no one around to control their learning process, and they prefer doing enjoyable, entertaining and fun activities. Therefore, it would be difficult to persuade them to sit down and learn by themselves via E-learning, with all lesson content the same as is taught in class. Although E-learning can encourage self-development in students, lack of sufficient

interactive and interesting E-learning programs and close follow-ups from instructors will affect students' perception towards E-learning and their ability to use it in the future. Institutions in fact view E-learning as useful, but they lack enough funding to support it.

For the Internet, nearly half of the students from the regular colleges and universities (20 out of 42 students) and vocational colleges (66 out of 134 students) and about 63 percent of the community college students (14 out of 22 students) used it not on an everyday basis, but two or three times per week (see Table 2). Only about 17 percent of the vocational college students (23 out of 134 students), 24 percent of the students from the regular colleges and universities (10 out of 42 students), and 14 percent of the community college students (3 out of 22 students) reported to use the Internet on an everyday basis.

**Table 2. Numbers and Percentages of students using the Internet**
**Note: Percentage refers to that of students out of those from the corresponding type of institution**

| Use the Internet: | Vocational (n = 136) | Regular college and university (n = 42) | Community college (n = 22) | All (n = 200) |
|---|---|---|---|---|
| Every day | 23 (17.16) | 10 (23.81) | 3 (13.64) | 36 (18.18) |
| 2 to 3 times a week | 66 (49.25) | 20 (47.62) | 14 (63.64) | 100 (50.51) |
| Once a week | 14 (10.45) | 9 (21.43) | 5 (22.73) | 28 (14.14) |
| 2 to 3 times a month | 12 (8.96) | 1 (2.38) | 0 | 13 (6.57) |
| Once a month | 8 (5.97) | 2 (4.76) | 0 | 10 (5.05) |
| Do not use | 11 (8.21) | 0 | 0 | 11 (5.56) |

## IV CONCLUSIONS

This research indicated that how many of the school computers were equipped with the Internet connections as well as how many of the school computers were available for classroom use accounted for the competency in using IT tools to some extent, but there might be more important factors to be considered.

In order for participants of the current workshop sessions to retain and improve knowledge and skills that they have acquired through the session, it is necessary to provide further training sessions in the future. Those sessions should include the following two skills in addition to those in the current sessions: prerequisite skills that are necessary for the mastery of the succeeding courses, and skills to apply what the participants have learned through the current sessions to create effective knowledge management contents and online course.

A demand for providing the prerequisite skills' training comes from the finding in which a large number of teachers did not have sufficient skills for using the computer. It is recommended that those prerequisite training sessions target skills that are necessary for teachers to use the computer at work, including: (a) operating the computer (e.g., using a keyboard and a mouse quickly and appropriately,

becoming familiar with the fundamental computer terms, creating folders and managing files, and navigating on the Windows); (b) using tools on the Internet (e.g., sending and receiving e-mails with or without attachments, using the search engine to find information, browsing websites, and downloading the target files); and (c) using the major applications including Word, Excel, and PowerPoint. Those skills are not only required for the mastery of the skills and knowledge that were provided in the current training, but also should be helpful for teachers to prepare instruction and to efficiently manage knowledge sharing and the administrative work. Furthermore, for each type of training, it is necessary to provide opportunities for participants to: monitor their learning after the completion of each session, and practice in the classroom on their own with the assistance of the instructor as is necessary. More importantly, training for instructors to direct the project-oriented group work is needed in order for each course to be more effective, and for the trainers to be able to apply the format to their own instruction.

Finally, in addition to the training sessions, formulation of a virtual community that involves teachers in the Northeast region of Thailand is recommended. The community enables participating teachers to maintain and expand their knowledge via understanding a knowledge management process and network after the training, which would encourage them to improve their level of education in the region through cooperative projects.

- **Policy Recommendation**

Even though the assessment project is completed, but there are several processes that the Ministry of Information and Communication Technology (MICT) should put in place as part of the policy development. There are several improvements that could be made to enable a strategic vision to be developed for effective e-learning practices. This recommendation has five related parts:

1. Utilizing the analysis of the research findings

The MICT should provide support by any means to assist all trainees to be able effectively to identify, acquire, and integrate learning objects that they have learned from the training programs of the project. By doing so, this will be achieved through a combination of enhanced professional development activities including digital resources and the ongoing support of e-learning specialists. The MICT should continue undertake and support projects for e-learning in conjunction with the local government and the private sectors in order to secure the sustainable production, acquisition, and maintenance of learning resources.

2. The capacity building program

It can be seen that the project provides training as a support for the people creating and using e-learning systems for the human resource development of the Northeast of Thailand. A crucial success factor for e-learning usage is the adopted to implement on the improved learning by the trainees The MICT should expand its training and support programs, directly targeting all users of e-learning systems. The private sectors involved in IT businesses and related fields should be included in these training sessions and support programs. The re-training programs should be provided to include pedagogical design support and discipline-specific design. In addition, a significant focus on effective use of technology needs to be considered to enhance the context of effective pedagogy.

3. IT Utilities and E-learning Environment

It is recommended that MICT should provide better IT utilities and e-learning environments for all schools in the NE of Thailand on an "equal-opportunity basis." The assessment confirmed that about half of all students leave NE Thailand upon graduation for work elsewhere and those that graduated were not as well prepared in terms of ICT skills as the educational institutions thought. Students were shown to be lacking in ICT and foreign language skills in particular, and specifically within the ICT skills set, the weakest skills were in more technical areas where there is growing demand for labor, such as accounting and software development. The report also pointed to an educational system that was relatively unequipped to use and facilitate student learning through ICT tools, but those schools that were well-equipped with computers, internet connections, etc. had better prepared students. The schools appeared to be most in need of the appropriate hardware, software, and maintenance of their IT systems, but the level of instructional readiness was viewed as strong. In addition, over 90% of the colleges and universities, and over 50% of vocational schools were using e-learning courses, but they were not active programs. Finally, the other interesting finding was that students found that open sources (i.e., internet, newspapers, etc.) were more effective at finding jobs after graduation than the schools or the on-the-job training programs.

4. Knowledge Management and Knowledge Sharing

It can be found an initiative teacher who can be multiply his knowledge and sharing with other teachers. Developing their performance and

processes. In this regard, knowledge management (KM) processes have turned out nowadays to become a strategic resource to the extent in which KM is viewed as a base of success or failure. It may need a policy in place to foster the flow of knowledge among teachers. Moreover, a successful knowledge management system is a shared system where teachers can retrieve and contribute to the knowledge pool as well (Meng, H., Chun, M., 2014).

## 5. IT infrastructure

The sum total of the aforementioned issues points to various possible policy reactions from MICT and the Government. The most obvious one would be to establish facilities to help the schools make the necessary investments in the IT infrastructure. Secondly, the findings reveal a need for a renewed emphasis on training in the core skills areas demanded in the local economy and finding new ways to use e-learning tools and knowledge management contents to access the best knowledge available to develop those skills among students. Third, a more systematic approach to linking the employers with the schools should be found to encourage better targeting of on-the-job training programs and courses that are more applicable to the job market. Finally, linkages by the schools to the open source job search websites, companies, etc. should be made to link the job seekers (students) to the employers, as well as to provide the schools with a better idea of the skills demands in the market.

The above recommendation should be considered as it is feasible. This study indicated that the most important is to multiply number of train the trainers as well as develop e-learning and knowledge management contents. Teachers can deploy their contents at any prefer time. Moreover it needs to encourage teachers to see the real benefits of e-learning and knowledge management process.

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