STUDENTS' CRITICAL THINKING SKILLS, ATTITUDES TO ICT AND PERCEPTIONS OF ICT CLASSROOM LEARNING ENVIRONMENTS UNDER THE ICT SCHOOLS PILOT PROJECT IN THAILAND

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LIST OF ABBREVIATIONS

NEA	**:**	The National Education Act of B.E. 2542
OBEC	**:**	The Office of Basic Education
NCEI	**:**	New Classroom Environment Instrument
CCTT	**:**	Cornel Critical Thinking Skills Test
TAT	**:**	Teachers' Attitudes Toward Information Technology
CCTST	**:**	California Critical Thinking Skill Test
HLM	**:**	Hierarchical Linear Modelling
GW	**:**	Group Work
COOP	**:**	Co-Operation
RS	**:**	Relationships in Class
TS	**:**	Teacher Support
OO	**:**	Order and Organisation
INV	**:**	Student Involvement
COMPE	**:**	Competition

ABSTRACT

This portfolio of research aimed to examine the integration of Information and Communication Technology (ICT) into computer-based classroom learning environments in Thailand. The study was exploratory, investigating to what extent schools in the Thai ICT schools pilot project had classroom learning environments which were related to two student outcomes (critical thinking skills and attitudes to ICT); and to what extent the classroom learning environments were associated with certain teacher characteristics.

The portfolio is presented in three parts. Part 1 reviewed the research literature related to the importance of ICT in education; the ICT classroom learning environments; student attitudes to ICT; students' critical thinking skills; and the role of the teacher in the ICT classroom. From this review, a theoretical research model was developed, based on teacher characteristics, student characteristics and student perceptions of ICT classroom learning environments as predictors of the two student outcomes. Four specific research propositions were formulated from the model to guide the investigation.

Part 2 of the research portfolio reports the quantitative investigation of the ICT schools pilot project in Thailand. Data were collected by means of questionnaires from 150 students in eight of the ICT pilot project schools in relation to students' background characteristics, their perceptions of actual and preferred classroom learning environments, students' critical thinking skills and attitudes to ICT. In addition, questionnaire data on teachers' background characteristics were collected from 16 teachers involved in the project. The associations among the teacher, student and classroom environment predictor variables in relation to the two student outcomes were analysed using SPSS and HLM software programs. The results, discussed in relation to the four research propositions, generally supported the research model.

A complementary qualitative investigation of the Thai ICT schools pilot project is reported in part 3 of the portfolio. This involved an analysis of school based documents, which had been collected officially in the course of the project, in order to identify school level outcomes. In addition, 30 students and five teachers from 10 schools in the ICT pilot project were interviewed to ascertain their views on the advantages, the limitations and the future of the project. The interview transcripts, translated into English, were analysed thematically. The researcher was also able to observe ICT integrated into various subject lessons in 22 classrooms, from each of the schools in the ICT project, and to evaluate them according to Bloom's Taxonomy of learning outcomes. The qualitative results provided important insights into the quantitative study in Part 2.

In the conclusion to the portfolio, the results of the quantitative and qualitative studies are synthesised in a discussion of the four research propositions. Importantly, the findings led directly to useful recommendations on how computer-based learning environments can be improved. The findings of this study have major implications for the role of teachers in ICT classrooms and for school management in providing the necessary equipment and support.

DECLARATION

I declare that this work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution, and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

I give consent to this copy of my thesis, when deposited in the University Library, being available for loan and photocopying.

Signed: **…….**
Methinee Wongwanich Rumpagaporn

Date: **…….**

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DEFINITION OF TERMS

In the current study, there are some important terms, which need to be clearly defined. These are as follows:

Electronic mail*

E-mail (email) is an online communication tool, which is a way of sending messages and data to other people by means of computers connected together in a network.

ICT-integration into teaching and learning process

The use of ICT integrated into teaching and learning process among classroom learning environments through computers or other ICT equipments in various subject lessons in eight groups of basic subjects that included (a) Thai language, (b) mathematics, (c) science, (d) social studies, (e) religion and culture, (f) health and physical education, (g) art, career and technology-related education, and (h) foreign languages in schools.

Information and Communication Technology (ICT) or Information Technology (IT)*

In terms of education, Information and Communication Technology or Information Technology is the study of the use of computers, the internet, video, and other technology as a tool to assist in teaching and learning in a variety of subject areas at school that includes multimedia (computing and teaching terms), CD-ROMs and other software, television, radio, cameras or digital cameras, and other electronic equipment.

Internet*

The internet is a computer networking system that provides connecting links between computer users and other networks through the use of computer.

Leading ICT teachers

The leading ICT teachers are the model teachers who received training in technological knowledge and skills for integrating ICT into teaching and learning process from the supervising universities or other relevant training organisation. These teachers transferred their basic and advanced understanding and their technological knowledge and skills to subject teachers who were teaching in other subjects in the eight groups of basic subjects at model ICT schools. These leading ICT teachers enabled other subject teachers to be

accustomed to the use of ICT-integration in their teaching and learning process among classroom learning environments with ICT.

Model ICT schools

Model ICT schools are the model or pilot schools that are applying and integrating ICT into the teaching and learning process and the learners' development activities in classroom learning environments with ICT at their own schools. There were 13 model ICT schools in the first stage of the Thai ICT schools pilot project. The schools pilot project provides ICT equipment, particularly computers, to classrooms to incorporate ICT into teaching and learning and support school managements through the use of ICT in their schools.

Multimedia*

In terms of learning and teaching process in classroom learning environments with ICT, multimedia refers to the use of several different ways of giving information or providing instructional materials, such as video, television, camera or digital cameras, slide for students' learning. In computing terms, it means using sound, picture and film, in addition to text on a screen.

Subject teachers

Subject teachers refer to those who are teaching in one or more of the eight groups of basic subjects in model ICT schools in Thailand. The subject areas are as follows:

- Thai Language;
- Mathematics;
- Science;
- Social Studies;
- Religion and Culture;
- Health Education and Physical Education;
- Art, Career and Technology-Related Education; and
- Foreign Languages.

These teachers received continuous training in basic and professional technological knowledge and skills from the leading ICT teachers, in order to apply ICT to developing their students' body of knowledge. They teach the students in a particular subject area

through integrating ICT into their teaching and learning process in their classroom learning environments.

* These definitions are paraphrased from Oxford Advanced Learner's Dictionary of Current English. London: Oxford University Press, 2005.