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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Research Portfolio submitted in fulfilment of the requirements for the award of the degree of Doctor of Education

School of Education, University of Adelaide

May 2007
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<td>The Office of Basic Education</td>
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<td>New Classroom Environment Instrument</td>
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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: .............................................
ACKNOWLEDGEMENTS

Throughout my research journey in the doctoral program, there have been many wonderful relevant people who have provided support and helpful assistance in the preparation and completion of this thesis.

I began my research journey with Professor Kevin Marjoribanks who was the previous principal supervisor. It was a great time in which he provided the direction to generate the theoretical framework of my thesis. So I wish to express my deep appreciation to Professor Kevin Marjoribanks for his helpful guidance and for giving me the motivation to proceed with this thesis through his generous and patient attention, and invaluable encouragement. Importantly, he has inspired me how to be a great teacher in my students’ eyes.

My thesis would not have been completed without my great principal and co-supervisors. My sincere appreciation is expressed to Dr. Margaret Secombe who is my principal supervisor for her always continuing support and persistent encouragement, her meticulous critical reading, and endless patience to listen. My warmest thanks to Professor Robert Crotty, who willingly provided his many hours that went into careful reading and editing of each new draft during the writing up stage. My sincere thanks also go to Dr. Sivakumar Alagumalai and Dr. I Gusti Ngurah Darmawan, who provided wonderful support to me during the analysis of quantitative data, particularly with statistical techniques that were used in this thesis, with their friendly and helpful guidance. Importantly, all of my supervisors have each made invaluable suggestions in their own special ways, academically and personally, to motivate me to stand firm on my own research path.

In addition, I wish to express my gratitude to the teachers and students at the model ICT schools under the ICT schools pilot project in Thailand who volunteered to participate in questionnaire surveys, interviews, and classroom observations. Without their cooperation, this study would not have been possible. Also particular thanks to all the school principals who allowed me to intrude into teachers’ working lives by observing school and classroom management and spending hours talking with me. As well, I would like to thank Ms Wipaporn Nithipreechanon, the project coordinator of the Thai ICT schools pilot project, for her help with data collection and information I needed from Thailand.
I wish to express my appreciation to several friendly and helpful academic and administrative staff for sharing their time and making the environment conducive to effective study. I specially wish to thank Ms Mary Brownlee, Dr. Margaret Scott, and Ms Wendy Zweck.

I also thank my colleagues at School of Education, particularly Ms Megan A. Yin Chyn Kek. She has helped me sincerely to get through all the hard and trying times in life through her willing support and sharing the same journey with me. Her company has made my wonderful and happy time here more enjoyable.

I also owe a debt of deep gratitude to my mother, father, mother-in-law, father-in-law, sister, sister-in-law, and my younger brother for their unconditional love and the sacrifice which they have made during this study period through their constant support and encouragement.

My sincere thanks go to my husband, Mr. Itdhiporn Rumpagaporn, for his resignation from his professional and secure work in financial and banking sector in Thailand in order to stay with me until I completed my thesis. His prayers, loyal support, and his technological and computer skills and knowledge led to the final completion of this thesis.

My special appreciation is extended to Mr. James Skipp and Ms Vanessa Whittaker, for their kind support and helpful advice on the research results and their interest from the commencement of this thesis. Finally, I would like to express my grateful thanks to the Business Education Division in the Vocational Education Department of the Faculty of Education at Kasetsart University, Thailand, for offering me this once-in-a-life time opportunity to earn a doctoral degree I never dreamed of achieving.
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.