

# Impact of ICT Usage in Primary-School Students' Learning in The Case of Thailand

Benjawan Arukaroon, Asian Institute of Technology, Bangkok, Thailand

Donyaprueth Krairit, NIDA, Bangkok, Thailand & Asian Institute of Technology, Bangkok, Thailand

## ABSTRACT

The utilization of ICT as a teaching–learning tool continues to be very popular in Thai primary schools. However, technology impact assessments are not always properly carried out, and the benefits of using ICT in primary education are not always clear. The aim of this paper is to assess whether the use of ICT has an impact on student performance compared to when such technology is not used. In the results from the two experimental units, the researchers find no significant effects of ICT usage on student performance either in classroom behaviors or in improvement scores. On further inspection of influential factors for ICT adoption, the results show that only subjective norm has a significant effect on the students' classroom behaviors. In contrast to the previous literature and conventional beliefs, the researchers found that ICT is not always an effective teaching–learning tool regardless of the educational level of students.

## KEYWORDS

Developing Countries, ICT Adoption, ICT Impact Assessment, Primary-School Student Performance, Web-Based Learning, Web-Based Teaching

## INTRODUCTION

Information and Communication Technology (ICT) provides a diverse set of technological tools and resources used to communicate, create, disseminate, store, and manage information (Blurton, 1999). ICT is a popular technology that has been widely deployed by many business organizations and especially by educational institutions for over a decade (Harkins and Kubik, 2001; Joia, 1997; Schiller, 2003; Wodi, 2009).

The popular forms of ICT are film, radio, television, computer software, and the Internet and networking. Such technology has its own beneficial characteristics that make its implementation attractive. Users gain quicker access to information compared to traditional manual information retrieval. Apart from these apparent benefits of ICT, a powerful conventional wisdom acts as a strong motivation behind the decision to adopt ICT within institutions. When employed in educational institutes, such technology is expected to enhance the educational performance of students and of the institutes as a whole (CERI/OECD Secretariat, 2001; OECD, 2004).

This research focuses on investigating the effects that ICT may have on the education of primary-school students, along with determining the surrounding factors that influence the adoption of ICT for this specific setting.

## LITERATURE REVIEW

This section aims to provide background information that is used to formulate the framework and hypothesis of this research. The relevant literature involving the topic of primary education, educational technology, and technology adoption is reviewed. Finally, a description of the factors that influence the adoption of ICT is provided at the end of this section.

### ICT and K-12 Education

The use of ICT in schools can be roughly categorized by their intended purposes, namely, ICT for administrative tasks and ICT for pedagogy-related tasks (Harkins and Kubik, 2001; Joia, 1997; Sipilä, 2011). Administrative tasks usually involve managerial aspects of school administration (i.e. ICT for informational, organizational, evaluative, and planning purposes). In its pedagogy-related aspects, ICT is used as a supportive tool for existing pedagogy employed by the teachers (i.e. ICT for communicative, activating, creative, and expressive purposes). In recent decades, governmental agencies around the world have focused on how to improve education by introducing ICT to their educational sectors. Some examples are listed as follows.

In 1997, the educational sector in Brazil became aware of the need to adjust their pedagogy to match the pace of the information age. It was thought that the Internet might be the answer to this changing learning process. A researcher (Joia, 1997) administered the project and decided to establish Educational Adventure websites to serve as online learning sources for students. Schools' agreement to embrace this Internet project, in spite of monetary difficulties and cultural diversities, reflected their strong desire to accept technology into traditional pedagogy regardless of cost.

In 2001, researchers (Harkins and Kubik, 2001) launched a pilot experiment to use handheld devices to assist US school administrators' with their tasks. Among 166 users, the devices and software were viewed as user friendly with useful graphical presentation and could be easily adapted to existing user working styles. The technology was also perceived as ubiquitous, accessible, reliable, effective and efficient. Due to positive reviews, the overall results showed that administrators were willing to adopt ICT in schools.

An experiment in 2003 (Schiller, 2003) produced evidence of how Australian school principals were well-aware of integrating ICT into their working environments. Equipped with ICT, the principals believed that they could effectively and efficiently complete their tasks and, at the same time, create new knowledge through the practice of technological exercises. The majority of principals were ready to move into the new world of techno-enthusiasm in the belief that technology would help them to improve teaching, learning and administrative processes in their institutions.

Thailand is one of the countries that recognize the possibilities of ICT-assisted education. There have been many initiatives to incorporate ICT into education including the government's One Tablet PC Per Child program in 2012. Pilot experiments were held at the selected schools to collect user responses. Students and the majority of teachers reported being satisfied with the outcomes. From teachers' perspectives, using tablets as a learning aid helped students concentrate more on lessons and boosted their enthusiasm in self-learning (Leesa-nguansuk, 2012; Vanijaka and Intathep, 2012). The tablet together with Internet connection was viewed as beneficial. Compared to traditional textbooks, they offer more attractive graphics and broader content, resulting in an enjoyable and effective learning approach (Vanijaka and Intathep, 2012). Despite certain difficulties that emerged during the experiments (e.g. some technical difficulties and the end-users' lack of technological proficiency), Thai schools are eagerly making use of this technology (Intathep, 2012).

### Educational Performance

Performance measurement methods commonly used in educational institutes include reports, key performance indicators, and surveys and appraisal (Kim Thi Ninh et al., 2010; Sotirakou and Zeppou,

20 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: [www.igi-global.com/article/impact-of-ict-usage-in-primary-school-students-learning-in-the-case-of-thailand/177899](http://www.igi-global.com/article/impact-of-ict-usage-in-primary-school-students-learning-in-the-case-of-thailand/177899)

## Related Content

---

### Redefining Interaction in Study Abroad Programs: Experience in Spain

Kim Griffin (2022). *Handbook of Research on Effective Online Language Teaching in a Disruptive Environment* (pp. 394-408).

[www.irma-international.org/chapter/redefining-interaction-in-study-abroad-programs/293384](http://www.irma-international.org/chapter/redefining-interaction-in-study-abroad-programs/293384)

### Instructional Scaffolding: The Computerized Classroom

Merrilee Cunningham and Ruth Robbins (2012). *International Journal of Web-Based Learning and Teaching Technologies* (pp. 20-36).

[www.irma-international.org/article/instructional-scaffolding-computerized-classroom/78536](http://www.irma-international.org/article/instructional-scaffolding-computerized-classroom/78536)

### Does Technology Uptake Convert to Effectiveness: Re-Evaluating E-Learning Effectiveness

Monika Mital (2010). *International Journal of Web-Based Learning and Teaching Technologies* (pp. 16-26).

[www.irma-international.org/article/does-technology-uptake-convert-effectiveness/41964](http://www.irma-international.org/article/does-technology-uptake-convert-effectiveness/41964)

### Online or Traditional: A Study to Examine Course Characteristics Contributing to Students' Preference for Classroom Settings

Tim Klaus and Chuleeporn Changchit (2010). *Web-Based Education: Concepts, Methodologies, Tools and Applications* (pp. 73-83).

[www.irma-international.org/chapter/online-traditional-study-examine-course/41332](http://www.irma-international.org/chapter/online-traditional-study-examine-course/41332)

### Destabilizing the Activity System of Online Teaching Through Critical Theory

Viktor Wang and Geraldine Torrisi-Steele (2021). *Research Anthology on Developing Effective Online Learning Courses* (pp. 1960-1970).

[www.irma-international.org/chapter/destabilizing-the-activity-system-of-online-teaching-through-critical-theory/271242](http://www.irma-international.org/chapter/destabilizing-the-activity-system-of-online-teaching-through-critical-theory/271242)