

Chapter 27

Development and Validation of the Technology Adoption and Gratification (TAG) Model in Higher Education: A Cross–Cultural Study Between Malaysia and China

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ABSTRACT

The prime objective of this study was to develop and validate the Technology Adoption and Gratification (TAG) Model to evaluate the adoption and gratification of lecturers in using ICT facilities for their teaching and research purposes in higher education. The second objective of this study was to evaluate the cross-cultural validation of the causal structure of the TAG model. A total of 396 lecturers were collected from two public universities, namely, University of Malaya in Malaysia and Jiaxing University in China using stratified random sampling procedure. The questionnaire's validity was established through Exploratory Factor Analysis (EFA) using SPSS version 21.0. The data was analyzed applying Structural Equation Modeling (SEM) using AMOS version 18. The findings of the research using the TAG model discovered that the computer self-efficacy of the lecturers had a positive direct impact on their perceived usefulness and ease of use, while the latter two factors also had a significant direct impact on gratification and intention to use, separately. Meanwhile, gratification and actual use of ICT facilities were directly affected by intention to use. Moreover, computer self-efficacy had a positive and significant indirect impact on gratification and intention to use mediated by perceived usefulness and ease of use, respectively. In addition to lecturers' perceived ease of use and usefulness had a significant indirect effect on their gratification mediated by intention to use. The results of the invariance analysis of the TAG model also demonstrated that the model was valid for measuring lecturers' adoption and gratification in using ICT facilities. However, the TAG model works differently in cross-cultural settings. The findings contribute to the existing body of knowledge in the field of ICT by developing and validating the applicability of the TAG Model within institutions of higher education. Once validated the model could then be applied by future researchers, academicians and practitioners in the diverse context of education.

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INTRODUCTION

Information and Communication Technology (ICT) constitutes a key dimension in the process of the wider development of a country. The estimation of the ICT evolution involves use of an appropriate metric for assessing the information society in a country on the sub-indices of access, use and skills (Kyriakidou, Michalakelis & Sphicopoulos, 2013). Their study of the influential components on the ICT maturity level revealed considerable discrepancies in their influence in developed and developing countries. The use factor was found to be considerably more important in developed countries than in developing countries. Notwithstanding the fact that, during previous years ICT witnessed an escalating dissemination. The distinctions in the level of use, access and skills of ICT can be identified both within and between countries. The policy and decision makers have stated that these dissimilarities cause an ICT gap and thus strategies aiming at the expansion of ICT have been applied in many countries. Hence, assessing and analyzing the digital split among countries is of overriding consequence for researchers as well as managers.

As the adaptation of ICT facilities in education increases, its further integration into teaching, learning, and research has had a significant impact in paving the way for technology-based education among university academicians, students and staff. Hong and Songan (2011) contend that in Southeast Asia, ICT is being utilized more to deal with the challenges that are faced by higher education systems. However, there is very little research on effective utilization of ICT in tertiary education programs in Southeast Asia. Thus, it is immensely significant for related and advanced staff of higher education institutions to learn from success stories, experiences and lessons from the application of ICT in countries within the region.

With rapid expansion of ICT, information access is expected to become central to life in the 21st century (Huang, Liu, Chang, Sung, Huang, Chen, Shen, Huang, Liao, Hu, Luo & Chang, 2010). The integration of a vast spectrum of learning activities is possible through the incorporation of ICT into classroom routines. The spectrum of activities spans from those designed to inspire learners towards knowledge absorption (e.g. a teacher's use of presentation software, DVDs or podcasting) to those designed to further expand the capabilities of students to produce their own knowledge (e.g. development of a reflective blog, collaborative wiki site or e-portfolio). Thus, the practices of teaching and learning have a favourable prospect of improvement through the use of ICT facilities. The strategy and decision regarding how and when to apply ICT facilities depend on the educator. Nevertheless, there is extensive agreement in the literature demonstrating that teachers are not willing to acquire the complete benefit of these opportunities (Groff & Mouza, 2008; Sutherland, Robertson & John, 2009; Levin & Wadmany, 2008), they even failed to use ICT facilities in ways that are in line with their established pedagogical beliefs (Bate, 2010). Zhou, Zhang and Li (2011) stated that over the last two decades, the incorporation of ICT into teaching and learning has become an indispensable topic in education. Studies have revealed that ICT can improve teaching and learning outcomes. However, the insufficient access to technology was also demonstrated by the disappointments voiced by teachers having restricted access to the computer labs. In a related study, Lai (2011) asserted that the use of digital technologies may facilitate a shift in cultural practices related to teaching and learning which better serves the needs of 21st century higher education students. Notwithstanding these points, from the studies that have been undertaken to assess the overall impact of ICT on teaching and learning within institutions of higher education in the last two decades, one can conclude that these institutions have been sluggish in obtaining the complete benefit of the prospective advantages offered through the adaptation of ICT facilities. Despite a decade of existence, the literature has demonstrated that the majority of studies were concerned with

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