Factors Influencing the Use of Mobile Technologies in a University Environment: A Case from Latin America

Peter Yamakawa, ESAN University, Lima, Peru
Carlos Delgado, ESAN University, Lima, Peru
Esperanza Díaz, ESAN University, Lima, Peru
Erik Garayar, ESAN University, Lima, Peru
Hedda Laguna, ESAN University, Lima, Peru

ABSTRACT

The use of mobile technologies in higher education seem to be lagging those in other service sectors, which have been quick to utilize the advantages that mobile communications have to offer. Based on the Technology Acceptance Model (TAM), this study analyzes the range factors and the level of influence on undergraduate intention to use a proposed mobile technology information service on the campus of a Peruvian university. The results, derived from factor analysis and regression, support the TAM showing that Perceived Usefulness and Perceived Ease of Use are the principal factors influencing the intention to use the proposed service, with the external factors of mobility and social influence ranking as the next important. These results lead to the conclusion that the awareness of the attributes which the student’s value and their social contexts are significant factors to ensure student uptake and use when designing and introducing student focused mobile services.

Keywords: Latin America, Mobile Phones, Mobile Services, Peru, Technology Adoption Model, University

INTRODUCTION

Over the past 20 years, the management of communication and work in organizations has undergone changes due to technological influences and universities are no exception. Universities have adopted e-learning (Masrom, 2007) in which these services seek solutions in which users -students, faculty and staff- receive information and interact with each other without relying on physical presence. Mobile technologies are amplifying the range of such solutions for educational institutions (Petrova, 2007; Sharples, Taylor & Vavoula, 2005). However, reports of mobile services in higher
education are limited with studies tending to focus on disengaged learners and the limited institutional studies that are available tending to focus on examining m-learning trials, mobile technology usage stock takes, m-services as a compliment to e-learning and improving access to learning resources (Duncan-Howell & Lee, 2007). A possible reason for lower mobile service diffusion in higher education is that while mobile telephones are a ubiquitous technology (Kalba, 2008) they have a heterogeneous technological base meaning the specifications for the design and implementation of mobile services require consideration of the type and form of data and are limited by the features of the devices (Attewell, 2004; Cao, Tin, McGreal, Ally, & Coffey, 2006), however newer models of smart phones that enable advanced services and applications are reducing these performance barriers (Verkasalo, Lopez-Nicolas, Molina-Castillo & Bouwman, 2010). In addition the implementation of m-services require strategies based on the factors that influence the acceptance of the new technology (Pederson, 2001; Peters, 2005), as well as the development of an appropriate system architecture (Cavus & Al-Momani, 2011) and accessible content (Cao et al., 2006; Verkasalo et al., 2010).

From the earliest entry of information technologies to the workplace, an important feature has been ensuring the system’s use, thereby reducing the investment risks and enhancing the technology’s impact (Davis, Bagozzi & Warshaw, 1989). This has led to the study of the acceptance and use of technologies becoming an important field (Chuttur, 2009). The leading model in the field is Davis’ Technology Acceptance Model (TAM) (Bagozzi, 2007). The TAM is a methodological tool that establishes the influence of certain factors on the acceptance of a technology and it has become widely used due to its simplicity (Bagozzi, 2007) – Davis’ 1989 paper alone has recorded over 12,000 citations according to Google scholar. The TAM has been tested using students as subjects and directly with user populations, it can be applied to various technologies and it has been used in both western and non-western cultural contexts (Schepers & Wetzels, 2007). The TAM can be used to approximate user acceptance of proposed services or systems in order to better understand their user adoption characteristics (Martignoni, Stanojevska-Slabeva, & Mueller, 2008, Pedersen, 2001).

Peru shares with the rest of the world the strong growth in mobile telephone services, particularly in its capital city of Lima where the mobile telephone density reached 156.6 handsets per 100 people in 2011 (Organismo Supervisor de la Inversión Privada en Telecomunicaciones - OSIPTEL, 2012). As such, cell phones in Peru are common communication devices, with mobile data revenues predicted to treble by 2015 due to intensifying competition, decreasing smartphone prices and the extension of 3G networks (ICT Statistics Newslog, 2011).

Henceforth, this article aims to identify factors that influence the adoption of a mobile technology information service (MTIS) within the environment of a university in Lima, Peru. The theoretical framework of the TAM model is used to construct a model of the influence of the various factors affecting the intention to use the proposed MTIS, using a sample of 350 undergraduate students at a Peruvian university campus. The study’s findings support the general results of the TAM that a user’s intention to use or not to use a system is based on perceived usefulness and perceived ease of use. The results further indicate that the external factors of mobility and social influence are the next highest factors affecting the student’s intention to use the proposed MTIS.

LITERATURE REVIEW AND RESEARCH MODEL

Behavior Theory and the Technology Acceptance Model (TAM)

In 1975 the Theory of Reasoned Action (TRA) was proposed by Fishbein and Ajzen (1975) providing a useful model for predicting and explaining the actual behavior of a person (Chuttur, 2009). The TRA proposes the inten-
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