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An investigation of user perceptions and behavioral intentions towards the e-library

Hanho Jeong*

Center for Teaching & Learning, Kwangwoon University, 447-1, Wolgye-dong, Nowon-gu, Seoul 139-7-1, Republic of Korea

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ABSTRACT

The purpose of this paper is to explore the understanding of e-library usage and e-library acceptance behaviors. In this paper, we use the technology acceptance model (TAM) and flow theory as theoretical frameworks in order to propose a new model for explaining users' intentions to continue using the e-library. The sample for this study consisted of Korean elementary students that use an e-library system (booktobi). Booktobi, which was established in 2005 in Korea, is the earliest and most famous e-library for elementary school students in Korea. The data for this study were gathered in February 2009 by means of a paper-and-pencil survey. In total, 541 students participated in the study, and a total of 395 students completed the survey, resulting in a response rate of 73%. Of the 395 participating students, 192 were male and 203 were female. With respect to age and education, most of the participating subjects were between 11 and 13 years old. The participants had approximately six to seven years of computer and Internet experience and reported spending an average of 1 to 4 hours on the computer and/or Internet every day. In terms of their usage tendencies, 34% of respondents chose gaming, 29% chose chat-rooms, 19% chose Web browsing, 13% chose e-mail, and 5% chose downloading.

The results of this study indicate four major findings. First, interface characteristics (in terms of terminology, screen design, and navigation) can indirectly influence the perceived usefulness via the perceived ease of e-library system use. Second, system characteristics (in terms of relevance and system quality) can directly influence the perceived usefulness of e-library systems. Three, system quality can positively influence both perceived usefulness and the perceived ease of e-library system use. Finally, the total influence of the perceived ease of use can be singled out as a primary determinant of behavioral intention. Although smaller in magnitude, the significant effect of system quality on perceived usefulness suggests that by improving the fit between e-library systems and user information needs, we cannot only generate positive perceptions about the usefulness of e-libraries but also about the ease of their use. These findings highlight the importance of e-library system characteristics and, in particular, system quality.

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1. Introduction

Today, we are challenged by the notion of electronic libraries. Over the course of the last two decades, information technology (IT) has tremendously impacted libraries. This has led to drastic changes in the provision of information services to users and to the library profession itself (Deb & Kar, 2003). Libraries have experienced a decided shift in focus towards digital formats for information resources (Shelburne, 2009). Because online access to documents is becoming increasingly popular, the emergence of

* Fax: +82 850 644 4179.
E-mail address: hjeong@kw.ac.kr.

the e-library has brought fundamental changes to the library enterprise (Chen, 2010). An e-library provides highly efficient and consistent methods for the search and retrieval of information and for the satisfaction of users' demands (Hsieh, Chin, & Wu, 2004). The emergence of the e-library provides opportunities to users to access a variety of information resources (Yusoff, Muhammad, Zahari, Pasah, & Robert, 2009). The following are some of the principal advantages of the e-library in comparison to the traditional library: (1) resources are stored in a digital form are, therefore, easier to track; (2) the access to e-library collections is remote, fast, and fair; and (3) searching techniques offer increased flexibility and power to users (Barnett, 1998; Thong, Hong, & Tam, 2002). In addition, the goal of the e-library is to perform all of the functions of the traditional library online, as well as to make available the many opportunities and resources of today's digital world (Deb, Kar, & Kumar, 2003).

While there are numerous potential benefits to the e-library, it could still potentially be unnoticed or under-used by users (Ramayah, 2006a, 2006b). Although the e-library has been promoted to various levels of users, the intention among these students to continue using such systems remains very low (Chu, 2003). In addition, the acceptance–discontinuance anomaly, wherein users discontinue using the e-library after having initially accepted it, occurs frequently (Carlock & Perry, 2008). Although the initial acceptance of the e-library is an important first step towards achieving e-library success, actual success requires continued usage; however, there is a modicum of research that has examined the e-library from the users' perspective (Hsieh-Yee, 1996; Ramayah, 2006a, 2006b). Thus, it is important to examine how users perceive the usefulness and ease of e-library usage. It has been emphasized that the value of an IT innovation lies not so much in the technology itself, but instead in its effective and efficient usage (Kremers & van Dissel, 2000; Lau & Woods, 2009). Previous research has found that in order for users to maximally utilize and enjoy the benefits of the e-library, IT innovation must first be appropriately accepted and used by its intended users (Igbaria, Zinatelli, Cragg, & Cavaye, 1997). Therefore, there is a need to understand users' acceptance of the e-library and identify the factors that influence their intention to use it. The measurement of users' perceptions (McMahon, Gardner, Gray, & Mulhern, 1999) and an understanding of the factors that promote the effective use of systems (Yi & Hwang, 2003) have become increasingly important to IT evaluation. Based on the same rationale, learning objects can only make a difference if they are accepted and used by the learners; hence, it is imperative to conduct research that identifies the underlying factors and causal relationships that affect learners' behavioral intentions to use an e-library system. Understanding the factors that affect users' intentions to continue using the e-library will not only assist e-library developers in designing popular content, but they will also help teachers and systems design strategies that are more likely to increase the use of the e-library.

In this paper, we use the technology acceptance model (TAM) and flow theory as theoretical frameworks in order to propose a new model for explaining users' intentions to continue using the e-library. TAM is an established model that explains IS adoption behavior (Davis, 1993). Over the course of the last few decades, several intention-based theories and models have been proposed and empirically tested in order to understand user IT innovation adoption and usage: For example, the theory of reasoned action (Fishbein & Ajzen, 1975), TAM (Davis, Bagozzi, & Warshaw, 1989), the theory of planned behavior (Ajzen, 1991), the innovation diffusion theory (Rogers, 1995), and the information system (IS) success model (DeLone & McLean, 1992). These frameworks have been applied to a variety of ITs, in different contexts, and to different populations (Chang & Tung, 2008; Hassan, 2003; Saade & Bahli, 2005; Venkatesh, Speier, & Morris, 2002). Among these frameworks, the TAM is one of the most influential and most frequently tested models, and it has been widely applied to the explanation of general IT adoption in the IS literature (Cho, Cheng, & Lai, 2009; Ma & Liu, 2004). The TAM is a specific model that has been developed to explain and predict users' computer usage behavior.

We employ this theoretical perspective for the following three reasons. First, the TAM is effective and simple, and it provides an effective explanation of the determinants of e-library acceptance. In general, it is capable of explaining user behavior across a broad range of end-user technologies, and it is both parsimonious and theoretically justified. The TAM helps to predict IT acceptance by identifying the causal relationships that exist among individuals' perceptions of an IT's usefulness, their perception of an IT's ease of use, and their behavioral intention to use IT (Davis, 1989; Davis et al., 1989; Adams, Nelson, & Todd, 1992; Venkatesh & Davis 1996). Furthermore, findings that emerge from the use of the TAM are easy to understand and can be deployed in system requirement analysis and other system development stages. These findings are common in technology-usage settings and can be ubiquitously applied to solve acceptance problems (Taylor & Todd, 1995a). In consideration of both the effectiveness and simplicity of the TAM and its wide applicability to different kinds of IT, we feel confident that the TAM can be used as a theoretical framework in the analysis of the factors that affect users' adoption of e-library systems.

Second, the benefit of using the TAM in the understanding of e-library usage behavior is that it provides a framework for investigating the effects of external variables on e-library usage. The TAM traces the impact of these variables on the beliefs and intentions to use IT (Davis et al., 1989; Legris, Ingham, & Colletette, 2003). According to Taylor & Todd (1995a, 1995b), the TAM assists in the identification of the external variables that have significant effects on potential users' intentions to use IT. Moreover, because each use–belief has distinct roots and is based on a different set of external variables, we contend that they independently provide a partial understanding of users' cognitive processes as they relate to e-library usage (Lee, 2010). In this paper, the TAM offers an improved and more comprehensive understanding of the cognitive processes and behaviors that relate to e-library usage than is available when each attitudinal belief is individually considered.

Third, the TAM can be used to examine the critical categories of external variables that have significant effects on potential users' intentions to use the e-library. Previous research on the TAM has identified two such categories of variables: (1) individual differences and (2) system characteristics (Hong, Thong, Wong, & Tam, 2002). Empirical research has found significant relationships between individual differences and users' intentions to use IT (Agarwal & Prasad, 1999; Jackson, Chow, & Leitch, 1997; Venkatesh, 2000). On the other hand, system characteristics are recognized to be capable of influencing users' intentions to adopt new ISs. In the e-library sub-field itself, specific system features are believed to critically affect the usage of the e-library (Fox

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