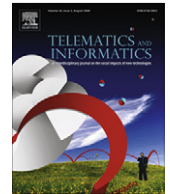


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## An integrated adoption model for e-books in a mobile environment: Evidence from South Korea

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### ABSTRACT

This study examines what factors lead to the adoption of the mobile e-book in South Korea. For this purpose, this research integrated the diffusion of innovation theory and technology acceptance model with the model of innovation resistance and applied this integrated model to the context of mobile e-book adoption. An online survey was administrated, and the data collected were analyzed with the structural equation model (SEM). Research results showed that individual innovativeness has a significant influence on perceived usefulness and perceived ease of use. It also revealed that both of perceived usefulness and perceived ease of use affect not only intention to use but also the innovation resistance. The innovation resistance has significant negative influence on the intention to use. Perceived risk of mobile e-books increases innovation resistance in a positive way. The implications of these results are discussed.

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## 1. Introduction

Information and Communication Technology (ICT) and digitalization have changed how people read books. Contents once available only in printed media (such as books, newspapers, and magazines) have been converted and published in digital form. Numerous devices for storing and reading electronic books (e-books), ranging from dedicated e-book readers such as Amazon's Kindle to tablets like Apple's iPad, are increasingly available. In this context, more users can access e-books whenever and wherever they wish by downloading content to their devices from any online site which offers such files (Vasileiou et al., 2009).

An e-book is defined as “a digital object with textual and or/other content, which arises as a result of integrating the familiar concept of book with features that can be provided in an electronic environment” (Vassilious and Rowley, 2008, p. 363)<sup>1</sup>. Even though the early development of e-book technology dates back to 1970s with *Project Gutenberg* and *Oxford Text Archive* (Bansal, 2010; Vasileiou et al., 2009), it was after the Internet became widespread in the early 1990s that many publishers realized the market possibilities of providing content in the form of e-books (Shin, 2011; Vasileiou et al., 2009). Recently, many major publishers and start-up businesses have entered the e-book market vigorously with the expectation that the market will generate huge revenues. It was originally predicted that e-book sales worldwide would jump from \$323 million in 2008 to nearly \$9 billion in 2013 (In-Stat, 2009). Moreover, it was reported that some leading players such as Amazon sold more e-books than their corresponding printed editions (Techcrunch, 2011).

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<sup>1</sup> They also note that e-books “typically have in-use features such as search and cross reference functions, hypertext links, bookmarks, annotations, highlights, multimedia objects and interactive tools” (p. 363).

Nevertheless, e-book use is still minimal compared to reading print editions despite the fact that the Internet and other new media technologies which enable e-book use are gaining popularity at an exponential rate (Nelson and Webb, 2007). Moreover, the projected growth rate and revenues in the e-book industry have not been realized (Shin, 2011).

In South Korea there has been increasing interest in e-books. Many microelectronic companies including Samsung have produced various types of e-book readers (see Appendix A), and several major publishers and mobile telecommunications companies have entered into e-book market. Also, the number of popular printed books released simultaneously with e-books has increased (The Hankyoreh, 2011). However, the market for e-books in South Korea has not taken off yet fully, and represents only a small portion of the entire publishing industry.

As e-books have drawn growing interest from many parties, there is a growing accumulation of research focusing on e-books. Recent studies regarding e-books have focused on e-books use in the higher-education sector (Lam et al., 2009), in libraries (Croft and Davis, 2010; Nicholas et al., 2007), and in medical contexts (Mortan et al., 2007). Moreover, a number of recent research efforts address what determinants affect the adoption of e-books. Jung et al. (2011) argued that demographic, personal innovativeness, and the perceived attributes of e-books influence whether or not someone will begin reading e-books. Shin (2011) also pointed out that the moderating effect of communication and gratification is significant in the adoption of e-books.

However, while there has been much study on the adoption of e-books, there is still limited research on users' resistance to them. Little effort has been made to examine why users develop resistance to e-books as innovations. Ram (1987) pointed out that most innovation research is biased, restricting itself to the adoption perspective through a "pro-innovation bias" (Rogers, 1995). He also argues that innovation resistance should be studied because innovations impose change on the users, and resistance to change is a normal user response. Shrimplin et al. (2011) also posited that users' attitudes towards e-book usage "are more nuanced than simple 'like vs. do not like' dichotomies" (p. 182). Indeed, the time has come to research the sources of resistance to e-books when e-books markets have yet to realize their projected potential.

The major purpose of this study is to examine factors influencing users' adoption of e-books in the mobile environment in South Korea in a more integrated way than existing research. This paper proposes a research model that modifies and integrates previous adoption models including the technology acceptance model (TAM) (Davis, 1989; Venkatesh and Davis, 2000; Venkatesh, 2008) and diffusion of innovation theory (DIT) (Rogers, 1995) with the model of innovation resistance (MIR) (Kang and Kim, 2009; Ram, 1987).

Moreover, this study applies this incorporated model to the adoptive process for e-books in the mobile environment in South Korea. Even though there are wide variations in formats and devices (Shin, 2011), the scope of this study is limited to users' attitudes and behaviors toward reading digital contents via smart mobile devices such as smartphones and tablet PCs with non-embedded reader applications as in some previous research (Kim et al., 2011).

As such, this research will help scholars and marketers understand not only what factors facilitate the adoption of e-books, but also what the barriers have been in the diffusion of e-books in a mobile environment. Moreover, it will assist them in developing more appealing features for e-books. This study will also provide insightful guidelines into what kinds of strategies service providers might use to reduce users' resistance.

## 2. Theoretical background and literature review

### 2.1. Overview of e-book industry in South Korea

It is estimated that the size of South Korea's e-book market in 2010 amounted to about \$80 million, and it is expected that the market size will grow from \$220 million in 2011 to \$420 million (Koreastock.co.kr., 2010). The changes occurring around the e-book market in South Korea favors the future e-book market; particularly, the rapid diffusion of smartphones and tablet PCs in South Korea enables service providers to easily and efficiently distribute e-books to a large consumer group. It is expected that the number of smartphone users in South Korea will reach 20 million in November, 2011 (Koreatimes, 2011). In fact, smartphones and tablet PCs are major devices for most users of e-books in South Korea. It was reported that around 60% of users used e-books through the smartphones and tablet PCs in the first quarter of 2011 in South Korea (Bloter.net, 2011). Moreover, the South Korean government has devised a plan mandating the digitization of elementary-level education materials by 2014 in order to invigorate the e-book market (GottaBeMobile, 2011).

Despite the seemingly steady growth and favorable environment, there is still much pessimism about the future of e-book markets in South Korea. In fact, the sales and profits generated by e-books are not yet substantial. According to Bloter.net (2011), the sales of e-books by the largest book distributor accounted for less than two percent of their entire book sales. The sales of dedicated e-book readers are also disappointing. As of 2010, it was reported that only around 50,000 dedicated e-book readers were sold in South Korea (MK News, 2011). It is also said that there are other systematic problems in the printing industry which must be resolved before the fledgling e-book market can be fully realized in South Korea. The major problem is that the current Digital Right Management (DRM) system in South Korea cannot effectively protect publishers' interests. Another problem is lack of standards among e-book service providers (The Bookseller.com, 2011).

### 2.2. Adoption of innovation: Diffusion of innovation theory (DIT)

Diffusion of innovation theory (DIT) as promulgated by Rogers (1995) has long been treated as a significant theoretical framework in technology/innovation diffusion research (Lee et al., 2011). Rogers argued that a person's perception of

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