Chapter 107
Adoptability of E–Textbooks Featuring Educational Online Games

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ABSTRACT

Currently, the South Korean government is in the process of transforming school textbooks from a paper-based platform to a computer-based digital platform. Along with this effort, interactive online educational games (edu-games) have been examined as a potential component of the digital textbooks. Based on the theory of diffusion of innovations, this study examined how 4th, 5th, and 6th grade students perceive an interactive online edu-game and whether or not their communication attributes predict their willingness to diffuse the game. A hierarchical regression analysis revealed that four perceptions of the innovation – relevant advantage, complexity, compatibility, and observability – were statistically significant predictors of students' willingness to diffuse an online edu-game as indicated by the theory of diffusion of innovations, while only trialability was not. Based on these results, this study provides some implications for the diffusion of interactive online educational games as a potential component of the digital textbook.

INTRODUCTION

It is undeniable that the Internet has become a main source of information as well as a crucial communication tool in the 21st century. The Internet also provides a major platform for the entertainment industry as people seek ways to enjoy online activities while using their mobile communication devices. Perhaps, it is not an exaggeration to suggest that the Internet turns the wheel of social and global change, as we

have, in fact, observed in many countries, such as the Arab Spring. Due to its incomparable advantages including, but not limited to, convenience, mobility, and communicability, many social sectors and industries have sought ways to use the Internet for their own purposes.

Applying the advantages of the Internet to an educational system, the South Korean government has been planning ways to develop online teaching methods to improve their education system. The digital textbook project is one such online teaching method. The government expected that the e-textbook (digital textbook) project would enable students to have immediate access to their textbooks from any computer or mobile communication device. This project also considered some more additional expectations that a digital textbook would increase students' motivation for learning and comprehensibility of the contents by including many digitalized educational resources, while reducing the weight of students' backpack. Furthermore, the government expected that, to some extent, this project would contribute to the development of the nation's blueprint on information technology (Ministry of Education, Science, and Technology, 2010). Related to this policy initiative, educational online games are now considered an important component of the e-textbook project. For example, edu-game players can choose their own avatars (in-game characters) and access game rooms separated by different levels of academic subjects. The players may also choose whether to play a game competing against the computer or other human players in cyberspace. While playing the game, players may communicate with each other through a chatting function in the game. Although such online edu-games share many similarities with other online games created solely for entertainment, the uniqueness of the educational games is their educational content. In other words, the purpose of edu-games is to teach students various levels of academic subjects by letting them play online games they enjoy within an educational environment, yet void of the traditional printed textbooks.

The popularity and variety of online gaming products as well as their appeal to young people make online games worthy of careful scrutiny for enhancing students' learning effectiveness (Colby & Richard, 2008; Ebner & Holzinger, 2007; Yip & Kwan, 2006). In particular, *interactive* features afford the ability for a student to communicate with other students at a distance while playing an edu-game can offer a unique and interesting experience in learning. Interactive online games also help students immerse themselves within a simulated educational content environment while simultaneously applying new knowledge to practice certain skills without fear of real life consequences (Cameron & Dwyer, 2005). Moreover, the communicative nature of online edu-games can provide students with opportunities to learn more than what traditional school material affords. As students talk, collaborate, and compete with culturally diverse individuals in cyberspace, they can simultaneously learn the skills necessary to prepare themselves for living and working within the globalized environment (marketplace). Although this textbook reformation project is expected to have many educational values as described above, the success of this reformation ultimately depends on whether or not an e-textbook featuring online edu-games can be successfully diffused and adopted by students.

Focusing on the diffusion process, this study examined how students perceive an interactive online edu-game designed to be a part of e-textbooks and investigated their willingness to diffuse the edu-game. In this study, the participants' sociability and communication skills were also included as influencers that affect diffusion of the educational innovation. From the diffusion perspective, an individual's perception towards an innovation and his/her communication attributes greatly affect the success of diffusion and implementation of an innovation (Rogers, 2003; Dearing & Kim, 2008). Methodologically, this study employed an interactive edu-game developed to teach English vocabulary to Korean elementary school students in 4th, 5th, and 6th grades.

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