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INFORMATION SYSTEMS EDUCATION JOURNAL

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Student Characteristics and E-textbook Experiences: The Direct and Moderating Effects of Technology Savvy and Gender

Jun Sun
jsun@utpa.edu

Javier Flores
jflores6@utpa.edu

Computer Information Systems Dept.
University of Texas-Pan American
Edinburg, TX 78539, U.S.A.

Abstract

The adoption of e-textbooks in universities by the majority of students has yet to materialize, requiring a better understanding of the differences among users to cater for their different needs. The main focus of this study is to examine the role of technology savvy in terms of the experiences, skills and self-efficacy of students in using information technologies. It is hypothesized that technology savvy directly affects major e-textbook experiences, including perceived e-textbook helpfulness, student involvement and learning outcome, as well as moderates the relationships among them. Based on the data gathered through a survey, the results suggest that the e-textbook experiences of students vary significantly across technology veterans and novices, suggesting a salient direct effect of technology savvy on e-textbook experiences. Also, the mediating relationship between e-textbook helpfulness and learning outcome through student involvement is stronger for technology veterans than novices, suggesting a salient moderating effect of technology savvy on the relationships among e-textbook experiences. An additional comparison based on gender is performed to find out whether the gender stereotyping regarding technology usage holds true for the new generation of students in the use of e-textbooks. The results show that gender does not fully account for the differences in e-textbook experiences, and its moderating effect on their relationships is not as strong as that of technology savvy. To enhance the adoption of e-textbooks, therefore, it is important for publishers and instructors to customize training and support for students at different levels of technology savvy.

Keywords: e-textbook experiences, e-textbook helpfulness, student involvement, learning outcome, technology savvy, IT experiences, IT self-efficacy, IT skills, gender difference.

1. INTRODUCTION

In the educational settings, the use of electronic books (e-books) as teaching tools lead to the transition from traditional paper textbooks to paperless electronic textbooks (e-textbooks). E-textbooks have a stronger presence every year with a higher potential to influence the learning experiences of students. This trend accompanies the emergence of new mobile devices such as tablets, smartphones and iPods that provide flexible learning environments to students (Al-khamayseh, Zmijewska, Lawrence, & Culjak, 2007; Mellow, 2005).

Compared with paper textbooks, e-textbooks provide additional functionalities like searches within the text, hyperlinks to related topics, case examples and even videos to facilitate the content understanding (McGowan, Stephen, & Bradley, 2009). Economic situations also provide incentives for students to adopt e-textbooks. The cost of textbooks increases two times faster than the inflation rate in recent years, reaching up to $898 per year for an average college student (Singletary, 2006). Meanwhile, the market share of e-textbooks will increase from 3% of total textbooks sold in 2010 to 10-15% by 2012, according to the National Association of College Stores (Foderaro, 2010).

Despite the fast growth, the penetration of e-textbooks has still a long way to go. In addition, the actual use of e-textbooks does not automatically come with the purchase of e-textbooks. For instance, the libraries of high education institutions include more and more e-book titles, but most of the students still prefer the websites on the Internet (e.g. Wikipedia) to e-books as their main sources of information (Sutton, 2003; Jamali, Nicholas, & Rowlands, 2009). If students do not actually use e-textbooks to enhance their learning, it is meaningless to push the diffusion of e-textbooks. In this sense, student adoption of e-textbooks is not just the acquisition of digital copies but the actual use of them to enhance learning experiences.

In the diffusion of this new innovation, some students are quicker to adopt e-textbooks than others. Using Everett Rogers' (1962) terminology, they can be labeled as innovators, early adopters, early majority, late majority, or laggards depending on how soon they switch to e-textbooks once they become available. This study focuses on the individual factors that contribute to the differences across students in their adoption of e-textbooks. In particular, it examines how prepared students are to use this IT innovation in terms of technology savvy, and its direct and moderating effects on their e-textbook experiences. To find out whether such variations are mainly due to gender difference or not, this study also compares e-textbook experiences between males and females.

The understanding obtained may provide educators useful guidelines on how to engage students of different technology backgrounds in learning using e-textbooks. Publishers and IT managers can also customize e-textbook content, support and training to user characteristics. For policy makers and administrators, the findings may yield insights on how to promote e-textbook adoption and usage in higher education.

2. CONCEPTUAL FRAMEWORK

In his Innovation Diffusion Theory, Rogers (1962) used the S-shaped curve to describe different stages of adoption and user categories. The presumption is that people vary in their innovativeness regarding the use of new technologies. For instance, innovators and early adopters are generally information seekers and risk takers who like to try new things (Rogers, 1995). Researchers of IT adoption have examined how technology innovativeness may affect people's adoptions of new applications.

In particular, Agarwal and Prasad (1998) developed the construct and measure of personal innovativeness in information technology (PIIT), defined as the willingness of an individual to try out any new information technology. However, the empirical studies using PIIT to predict how likely individuals are to adopt new applications have yielded inconsistent results (Lu, Yao & Yu, 2005). A closer look at Agarwal and Prasad's (1998) definition and measurement items suggests that PIIT is a single-dimensional construct that indicates the tendency to try out new technology. It may be over-simplified to conceptualize technology innovativeness as a single-dimension construct.

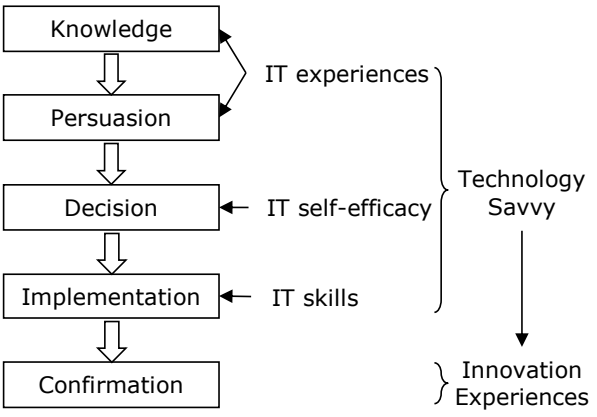

Figure 1. Innovation Adoption Factors

According to Rogers (1995), individual decision-making regarding whether to adopt an innovation involves five stages: knowledge, persuasion, decision, implementation, and

confirmation. As shown in Figure 1, they describe the process that an individual first gets exposed to the innovation (stage 1) and becomes interested (stage 2), evaluates the advantages and disadvantages (stage 3), tries the innovation (stage 4) and adopts the innovation if the experiences are positive (stage 5). Thus, decision-making on innovation adoption is not simple but a multi-faceted phenomenon.

Among the five stages, the first two are related to a person's indirect experiences with the innovation such as the word of mouth and the experiences with other related technologies. Experienced users that are familiar with different kinds of IT applications are more likely to know and pay attention to new technologies than inexperienced users (Raymond, 1985; Bhattacherjee, 2001). Thus, the general "IT experiences" of an individual are closely related to the knowledge and persuasion stages of decision-making.

The third stage of decision-making involves the comparison between the pros and cons of using an innovation. In the adoption of IT applications, they typically take the forms of perceived usefulness and perceived ease-of-use as in the technology acceptance model (Davis, 1989). Whereas the actual use of an IT application may not be needed for the perception of usefulness (e.g. an individual reads the description of functions), it is generally required for the perception of ease-of-use. At this stage of decision-making, however, an individual has not tried the innovation yet. Rather, the concept of self-efficacy is more appropriate here as it is related to the expectation of control for an upcoming task (Bandura, 1997). In IT adoption research, Compeau and Higgins (1995) defined computer self-efficacy as "a judgment of one's capability to use a computer" (p. 192). For an IT application like e-textbook, therefore, the "IT self-efficacy" of an individual is closely related to the stage of decision. If a person is not comfortable to use IT applications, the individual is not likely to adopt the e-textbook technology.

The implementation stage requires a person to actually use an innovation. Some basic skills are needed for the use of IT applications (Nelson, 1991). For a student to use an e-textbook, the individual must have certain skills, such as how to browse the Internet (e.g. publishers' websites) and download files. Thus, the "IT skills" of an individual is closely related to the stage of implementation. If a person does not have the basic skills needed, the individual is not likely to try out an innovation.

Finally, whether a person decides to adopt an innovation depends on his/her actual experiences with it. At this stage, the individual has already used the innovation. Thus, it is not a stage that is pertinent to how innovative the person is. Rather, IT experiences, IT self-efficacy and IT skills that are closely related to the previous stages largely determine whether or not an individual is likely to adopt the innovation. The aggregation of these three aspects of personal characteristics, therefore, can be denoted as "technology savvy". Unlike PIIT, it is a multi-dimensional construct related to different stages of decision-making before adopting an innovation.

3. RESEARCH HYPOTHESES

As the earlier stages influence the later stages in the innovation adoption decision-making process, people's technology savvy is likely to influence their actual experiences in using an innovation. Regarding the adoption of e-books, Bennett and Landoni (2005) found that librarians, authors, publishers and readers who have some technical knowledge about the innovation are likely to have positive attitude toward it. Cope and Ward (2002) found that experienced and inexperienced users have very different perceptions of e-books: those who prefer technology also perceive e-books as a key element of learning technologies.

In the context of e-textbook adoption, students who are technology savvy are more likely to be open to the use than those who are not. McGowan, Stephen and Bradley (2009) found that among the students who prefer e-textbooks, most believe that the technical features are helpful for learning. When students have positive experiences with e-textbooks, they are likely to actively use them. Black and Toner (2009) found that students who have used online textbooks (a form of e-textbook) are significantly more satisfied and more inclined to use them later than those who have not.

Sun, Flores and Tanguma (2012) identified major e-textbook experiences in terms of e-textbook helpfulness, student involvement, and learning outcome and examined the relationships among them. This study proposed a research model to examine the relationships

between technology savvy and e-textbook experiences. As shown in Figure 2, there is a partial mediating relationship between e-textbook helpfulness and learning outcome through student involvement. Whereas e-textbook helpfulness may have some positive direct effect on learning outcome, most of its effect on learning outcome is realized through student involvement from the use of e-textbooks. That is, if a student perceives the e-textbook helpful, the person is likely to get involved in the learning activities facilitated by it, which enhances the outcome of learning.

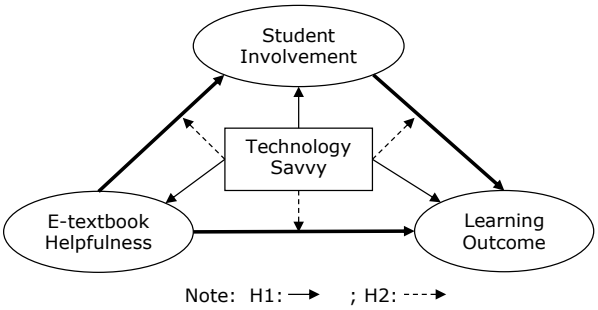

Figure 2. Technology Savvy and E-textbook Experiences

As a user characteristic closely related to technology-related behavior, technology savvy is likely to influence each e-textbook experience. First of all, students who are technologically savvy are likely to perceive e-textbooks helpful as they know and understand the technology. Then they are also likely to get involved in e-textbook use as they know how to use the innovation to facilitate learning process. Finally, they are likely to have positive learning outcome due to the effective use of e-textbooks. This leads to the following research hypothesis:

H1: Technology savvy directly affects e-textbook experiences in terms of e-textbook helpfulness, student involvement, and learning outcome.

In addition, the relationships among e-textbook experiences may vary across people of different technology savvy levels. Student involvement largely converts perceived e-textbook helpfulness to actual learning outcome, and its role as a mediator may be more salient for students who are active in using e-textbook than those who are not. Thus the second hypothesis is as follows:

H2: Technology savvy moderates the relationships among e-textbook helpfulness, student involvement, and learning outcome.

Researchers notice that there is some gender difference in information technology user behavior (Janssen Reinen & Plomp, 1997), but the gap is narrowing especially for new-generation student users (Sherry & Fielden, 2005). To check for the possible confounding effect of gender on technology savvy due to the stereotyping view that males like technology more than females, this study will examine whether gender has similar effects on e-textbook experiences. If the effects of technology savvy and gender exhibit different patterns, there is evidence that the two user characteristics are relatively independent.

Like technology savvy, gender has two possible routes of influence on e-textbook experiences. First, it may directly affect e-textbook helpfulness, student involvement, and learning outcome. Previous studies suggested that males have more positive perceptions and attitudes related to information technologies than females (Broos, 2005). Here is the third hypothesis:

H3: Gender directly affects e-textbook experiences in terms of e-textbook helpfulness, student involvement, and learning outcome.

Second, gender may also moderate the mediated relationship between e-textbook helpfulness and learning outcome through student involvement. Though males may use more technical features of e-textbooks, females may get more involved in the technology-facilitated learning process (e.g. discussion and collaboration in doing exercises on the platform of e-textbooks). Rather than holding a stereotyping view, therefore, this study suggests that different genders may exhibit different behavioral patterns in terms of the relationships among e-textbook experiences. Hence the last hypothesis follows:

H4: Gender moderates the relationships among e-textbook helpfulness, student involvement, and learning outcome.

Because gender and technology savvy are equivalent in statistical modeling, their effects are directly comparable. As the effect of gender is well-established, it provides a benchmark for the effect of technology savvy. Compared with gender difference, technology savvy is more closely related to how prepared each individual

is to use the e-textbook innovation. Thus, it is expected that the direct effects of technology savvy on e-textbook experiences as well as its moderating effects on their relationships are stronger than those of gender.

4. METHODOLOGY

Measurement

The Appendix gives the instrument of technology savvy developed for this study. There are six items of IT experiences that indicate how often students use common information technologies (e.g. email). Six items measure IT skills by indicating how capable the students are to use various information technologies (e.g. anti-virus software). Four items of IT self-efficacy indicate how comfortable and confident the students are to use IT applications in general.

E-textbook experiences are measured with the instrument developed and validated in Sun, Flores and Tanguma's (2012) study. There are three items each for e-textbook helpfulness, student involvement, and learning outcome. All the technology savvy and e-textbook experiences items use five-level Likert scale.

Subjects

Students participating in the survey were elicited from an undergraduate statistic class at a southern university in USA. Their major fields were in business and psychology, and they accessed the same e-textbook with computers through the Internet. There were a total of 108 usable responses out of 170 students surveyed, and the response rate was 64%. Among the participants, 58 were females and 50 were males.

Procedure

A survey questionnaire was developed to measure the variables in the research hypotheses. The survey was administered electronically using an online survey website. It was administered to a student population taking statistical classes using electronic book. Emails with the link to the questionnaire were sent to the students at the beginning of the semester. The survey was anonymous and it usually took less than 10 minutes to complete the questionnaire.

Statistical Analyses

Before testing research hypotheses, it is necessary to validate the newly-developed technology savvy instrument. In particular, its convergent and discriminant validity will be assessed with factor analysis. In addition, reliability analyses will obtain Chronbach's alphas of technology savvy factors. If the responses exhibit acceptable levels of internal consistency, index scores of IT experiences, IT skills and IT self-efficacy will be calculated by taking the averages of their item scores.

The next step is to classify students into technology veteran and novice groups. This allows the comparison of e-textbook experiences across students at different levels of technology savvy. A *k*-means cluster analysis will be performed based on the scores of IT experiences, IT skills and IT self-efficacy. The results also indicate the significance of each of the three clustering variables, and give the means of cluster centers.

Then, research hypotheses will be tested. First, a *t*-test will compare the e-textbook experiences in terms of e-textbook helpfulness, student involvement, and learning outcome between technology veterans and technology novices. This result pertains to the first research hypothesis (H1). Next, a multi-group structural equation modeling (SEM) analysis will compare the structural paths among e-textbook experiences across the two groups. This tests the second research hypothesis (H2).

In addition, the direct and moderating effects of technology savvy on e-textbook experiences will be benchmarked with those of gender. Similarly, a *t*-test will examine males' and females' e-textbook experiences and the comparison will provide the clue about the third hypothesis (H3). Finally, a multi-group SEM analysis will compare structural paths between gender groups. With this, the fourth hypothesis (H4) will be tested.

5. RESULTS

Table 1 gives the results of factor and reliability analyses. The factor analysis extracted three factors using the latent root criteria (i.e. eigen value>1), and 64.32% total variance was extracted. The rotated solution using Promax method shows that each item was loaded to its own factor without any cross-loadings. All the standardized loadings were above 0.5. Thus, the convergent and discriminant validity of technology savvy measures were supported. In

addition, the Chronbach's alpha was well above 0.7 for each technology savvy factor, indicating an acceptable level of internal consistency for the calculation of its index score.

Table 1. Factor and Reliability Analyses

Item	IT experiences	IT self-efficacy	IT skills
EX1	0.784		
EX2	0.609		
EX3	0.621		
EX4	0.756		
EX5	0.849		
EX6	0.588		
SE1		0.649	
SE2		0.850	
SE3		0.742	
SE4		0.777	
SK1			0.565
SK2			0.786
SK3			0.764
SK4			0.799
SK5			0.615
SK6			0.585
α	0.847	0.885	0.846

Note: Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization. Factor loading below 0.5 were suppressed. α - Chronbach's alpha.

Table 2 shows the final cluster centers from the *k*-means cluster analysis on the index scores of technology savvy factors. There were two clusters and the first cluster had much higher average scores on IT experiences, IT skills and IT self-efficacy than the second cluster. Thus, the first group of participants can be labeled technology veterans and the second group can be labeled technology novices. There were 59 participants in the veteran group and 49 participants in the novice group.

Table 2. Final Cluster Centers

	Veteran	Novice
IT Experiences	4.84	4.17
IT Self-efficacy	4.78	3.72
IT Skills	4.25	3.21

Table 3 reports the comparison between veteran and novice groups on e-textbook experiences. The veteran group had consistently higher average scores on e-textbook helpfulness, student involvement, and learning outcome than the novice group. The differences were significant for e-textbook helpfulness and learning outcome, and marginally significant for student involvement. This provides supporting evidence to the first hypothesis (H1). That is, students with higher level of technology savvy are likely to have more positive e-textbook experiences.

Table 3. Direct Effects of Technology Savvy

E-textbook Experiences	Technology Savvy		*t*-test	
	Veteran	Novice	*t*	sig.
E-textbook Helpfulness	3.54 (.85)	3.25 (.76)	1.90	.03
Student Involvement	3.66 (1.03)	3.44 (.77)	1.23	.10
Learning Outcome	3.49 (.95)	3.23 (.75)	1.59	.05

Note: Standard deviations are shown in parentheses; observed significance levels (sig.) were based on one-tailed *t* tests.

Table 4. Moderating Effects of Technology Savvy

	Veteran	Novice
E-textbook Helpfulness --> Learning Outcome	0.25	0.18
E-textbook Helpfulness --> Student Involvement	0.89**	0.54**
Student Involvement --> Learning Outcome	0.83**	0.89**

Note: **-significant at 0.01 level; *-significant at 0.05 level.

Table 4 reports the structural path estimates from the multi-group SEM analysis. The relationships among e-textbook helpfulness, student involvement, and learning outcome varied across the veteran and novice groups. Additionally, the relationship between e-textbook helpfulness and learning outcome was not significant for either group, suggesting that there was a full mediating relationship through student involvement in both. However, the mediating path through student involvement was much stronger for the veteran group than for the novice group. In the veteran group, the total effect of E-textbook Helpfulness on Learning Outcome was: 0.25 + 0.89*0.83 = 0.986, and in the novice group, it was: 0.18 + 0.54*0.89 = 0.664. The total effect of the novice group was 67% of that of the veteran group. The results suggest that technology

savvy does moderate the relationships among e-textbook helpfulness, student involvement, and learning outcome. Thus the second hypothesis (H2) is supported.

Table 5 presents the comparison between the two gender groups on e-textbook experiences. Males had consistently higher mean responses on all the aspects of e-textbook experiences than females. However, the differences were not significant except for e-textbook helpfulness for which the difference was marginally significant. In this sense, the third hypothesis (H3) is partially supported.

Table 5. Direct Effects of Gender

E-textbook Experiences	Gender		*t*-test	
	Male	Female	*t*	sig.
E-textbook Helpfulness	3.54 (.78)	3.31 (.85)	1.43	.08
Student Involvement	3.61 (.89)	3.52 (.97)	.53	.30
Learning Outcome	3.43 (.86)	3.33 (.89)	.56	.29

Note: Standard deviations are shown in parentheses; observed significance levels (sig.) were based on one-tailed *t* tests.

Among the e-textbook experiences, e-textbook helpfulness is related to user perception and attitude, whereas student involvement and learning outcome is related to the actual behavior and behavioral consequences. Most of previous studies focus on gender difference in user perceptions and attitudes related to information technologies, but not many addresses the difference in actual behaviors and behavioral consequences. The results of this study seems to suggest that though males have somewhat more positive perceptions related to e-textbook helpfulness than females, they are not much different in student involvement and learning outcome.

Table 6 presents the statistical relationships from the multi-group SEM analysis. The structural path estimates among e-textbook helpfulness, student involvement, and learning outcome varied across two genders in an alternating pattern. The mediating relationship through student involvement was significant for both groups. The direct relationship between e-textbook helpfulness and learning outcome was significant for the male group, showing a partial mediation (i.e. both direct and mediating relationships were significant). The same relationship was insignificant for the female group, showing a full mediation (i.e. only the mediating relationships were significant). In the male group, the total effect of e-textbook helpfulness on learning outcome was: 0.31 + 0.68*0.83 = 0.874, and in the female group, it was: 0.14 + 0.89*0.88 = 0.923. The total effect of the male group was 95% of that of the female group. The results suggest that gender moderates the relationships among e-textbook helpfulness, student involvement, and learning outcome to some extent. Consequently, the fourth hypothesis (H4) is partially supported.

Table 6. Moderating Effects of Gender

	Male	Female
E-textbook Helpfulness --> Learning Outcome	0.31*	0.14
E-textbook Helpfulness --> Student Involvement	0.68**	0.89**
Student Involvement --> Learning Outcome	0.83**	0.88**

Note: **-significant at 0.01 level; *-significant at 0.05 level.

Contrary to the direct effect, the total effect of e-textbook helpfulness on learning outcome was higher for females than for males. This is mainly due to the fact that the mediating path through student involvement was much stronger for females than for males. This suggests that males tend to try out the technology at the beginning, but they get less involved in the learning process later. However, once females start using e-textbooks, they get more engaged in learning to obtain a better outcome.

6. IMPLICATIONS AND CONCLUSION

This study mainly focuses on the relationship between technology savvy and e-textbook experiences. Based on innovation diffusion theory, it develops the multi-dimension technology savvy construct and measures. The analyses of the observations collected from a survey suggest that technology savvy does influence students' e-textbook experiences. In particular, technology savvy has generally positive effects on e-textbook helpfulness, student involvement and learning outcome. Also, it moderates the relationships among these e-textbook experiences. Compared with the novice group, the veteran group exhibits a stronger mediating relationship through student involvement.

In the same vein, this study tests gender difference as the literature suggests that males and females exhibit different technology preferences. Results indicated that gender makes some difference in the e-textbook experiences, and moderates the relationships among them to some extent. This result is aligned with findings by Alshare, Grandon and Miller (2004) that gender gap regarding technology use and technology efficacy is still there but shrinking. Females and males exhibit different behavioral patterns: for male students e-textbook helpfulness seems to be linked more closely with learning outcome, but for females, student involvement plays a more salient mediating role between two.

This study has limitations. Most importantly, the scope of this study is relatively narrow. The participants were elicited from only statistics courses in one institution, both using the e-textbooks of the same title and version. The lack of variations in the course subjects as well as e-textbook contents and formats leaves the generalizability of the findings in question. Nevertheless, responses were taken from the participants in terms of their relatively general perceptions regarding their learning experiences associated with e-textbooks. That is, the survey did not ask questions about specific e-textbook features but how the platform may influence their learning experiences. Still, the relationships among the constructs may vary more or less across different subjects and e-textbooks. This suggests a future research direction to collect data from different courses adopting different e-textbooks in multiple institutions.

Despite the limitations, this study has some important implications. The results provide practical guidance on how to adapt the specific implementation of e-textbooks to user characteristics. Compared with students with a higher level of technology savvy, students with a lower level of technology savvy are less likely to get involved in learning activities facilitated by the e-textbooks. Educators and publishers can work together on providing customized training and guidance to such students. As previous studies indicated, higher education institutions and publishers introduce e-textbooks to the classrooms for considerations such as costs and logistics. From the perspective of students, however, it is very important to find out how such technology may enhance their learning experiences. Learning is not just knowledge absorbing but rather a dynamic process.

The results of this study suggest that e-textbooks are not simply the electronic version of paper books, but they provide the platform for students to engage themselves in learning. This confirms Arend's (2004) and Astin's (1999) theory that the student engagement plays an important role in learning as an experience booster. Enabled by the advance in information and communication technology (ICT), therefore, e-textbooks facilitate student involvement and enhance the learning experiences. It is important to let students use the e-textbook platforms to collaborate with each other. For example, the publishers may provide discussion board on their platforms for students to exchange views on group discussion questions. In this sense, e-textbooks have great potentials as the means to active learning.

The results also suggest interesting patterns in gender difference related to the use of e-textbooks. Generally speaking, males tend to try out various features of e-textbook technology, but females are more likely to engage in the innovative learning process. Instructors may adapt the new teaching methods with e-textbooks to such a gender difference. For example, they may assign group projects to students so that female and male students can collaborate together in learning. In that way, students can complement their strengths and weaknesses with each other for more effective use of e-textbooks.

In conclusion, e-textbooks not only include the same content as the paper textbooks, but they also provide a platform for active and collaborative learning for students. They may enhance the engagement of students and promote their learning experiences. If the use of e-textbooks promotes student involvement in their learning process, the possibility for students to succeed in their learning increases. The accomplishment of this goal requires that publishers, educational institutions, instructors and students work closely together.

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APPENDIX
Technology Savvy Measures

IT Experiences (EX):
EX1: I have at least a computer.
EX2: I regularly download files from the Internet.
EX3: I check email at least once every day.
EX4: I use online messaging services to communicate with others.
EX5: I often use the Internet for research purposes.
EX6: I solve all kinds of problems using the Internet.

IT Skills (SK):
SK1: How would you rate your level of computer skills in general?
SK2: I know how to test my computer for the presence of malware.
SK3: If my computer became infected with a virus, I would know how to get rid of it.
SK4: I can usually sort out any Internet access problems I may encounter.
SK5: I know how to deal with annoying advertisements while I'm using the Internet.
SK6: I usually find it easy to learn how to use a new software application.

IT Self-Efficacy (SE):
SE1: I am comfortable working with computers.
SE2: Computers make me much more productive.
SE3: I am confident in my abilities to make use of computers.
SE4: I can solve a problem by searching online.