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FACTORS INFLUENCING ADOPTERS AND NON-ADOPTERS OF E-TEXTBOOKS

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Abstract:

A trend in education is the use of electronic textbooks (e-textbook). A variety of research has examined the factors influencing the likelihood to purchase an e-textbook, from motivation to continuance. This research compares student adopters and non-adopters of e-textbook using a content analysis of comments to understand influencing factors. The data were collected via an online questionnaire by students at a medium-sized (USA) university. A total of 1,434 students responded with 758 adopters and 464 non-adopters providing written comments regarding the e-textbooks. The themes identified between the two groups were usability, type of class, accessibility, ownership, and learning impacts. Understanding the influencing factors of adoption from the adopter and the non-adopter are valuable to the future of e-textbook acceptance.

Keywords: Electronic Textbooks; Adopters; Non-adopters

I. Introduction

Textbooks provide students with access to concepts, answers to questions outside the classroom, and help in preparing for exams (Gurung & Landrum, 2012; Sweeney, Siegfried, Raymond, & Wilkinson, 1983). The price of textbooks has risen rapidly in the last ten years, by 82% (Baum & Ma, 2014); students are more price conscious then ever and have access to more alternatives. On alternative is to use technology to provide digital textbooks in an electronic format (e-textbooks). Students can access e-textbooks on a website, through a PDF download, or via an electronic reading device (Rockinson- Szapkiw, Courduff, Carter, & Bennett, 2013; Sevillano-García & Vázquez-Cano, 2015).

Even with the availability of electronic reading devices, e-textbooks have had a slower than expected adoption (Robert W. Stone & Baker-Eveleth, 2013; Thomas, 2007). Some researchers have shown that students prefer e-textbooks to paper textbooks and are more successful (Hyman, Moser, & Segala, 2014; Junco & Clem, 2015; Woody, Daniel, & Baker, 2010). Understanding non-adopters' attitudes, behaviors, and concerns could help in converting them to adopters.

With an increase in student access to technology, student demand for mobility, and faculty desire for quality and up-to-date content, there is significant interest in adopting and using e-textbooks. There were several questions of interest on this research. What factors influence students in their decisions of e-textbooks? How do adopters and non-adopters differ in their attitudes? Are there differences in why one person adopts an e-textbook and another doesn't? The purpose of the research is to better understand these attitudes and perceptions regarding the e-textbooks and to develop ground theory based on these findings.

II. Methodology

The research method used was content analysis. There was not a theory established to support or refute a theoretical proposition; an inductive approach to better understand the

phenomena is appropriate. Content analysis begins with written comments or observations from the users of the technology. Independent raters review these comments or observations and identify themes based on keywords or concepts, called an open coding procedure (Strauss & Corbin, 1990). The keywords and concepts result in themes and subthemes from the comments. Within the e-textbook comments, themes and subthemes provide insights into the reasons and issues surrounding the adoption or non-adoption. Furthermore, these reasons, issues, and their interrelationships may provide directions for future, theory-driven research (Glaser & Strauss, 1967).

Data were collected via a web-based questionnaire to students enrolled in a mid-sized university in the western United States. A total of 1,434 students responded with 758 adopters and 464 non-adopters providing written comments regarding the e-textbooks. The comments were then used to conduct the content analysis. The initial question parsed participants into the adopter or non-adopter groups: "Please indicate if you have ever purchased or used an electronic textbook (for academic purposes)."

For those that responded to the questions, the average age of the adopters was 24.7 with 270 males and 380 females; the average age of the non-adopters was 27.2 with 177 males and 253 females. In terms of college affiliation, the largest group of adopters and non-adopters was from Letters, Arts, and Social Sciences. The largest group of adopters was from Business and Economics with a smaller percentage of non-adopters. All these demographics are displayed in Table 1.

Table 1. The Demographics of the E-Textbook Commenters

	Adopters	Non-Adopters
Gender		
Female	380	253
Male	270	177
College Affiliation Category		
Agriculture and Life Sciences	86	35
Art and Architecture	21	36
Business and Economics	142	40
Education	85	66
Engineering	69	62
Letters, Arts, and Social Sciences	150	104
Natural Resources	31	25
Sciences	62	53

An open-ended comment box on the questionnaire had 1,222 of the 1,434 respondents provide detailed comments. These comments in terms of their number and detail presented an interesting opportunity to better understand the factors influencing e-textbook use. Using the grounded theory approach to develop theory, the comments regarding the e-textbooks were analyzed (Charmaz, 2000; Glaser & Strauss, 1967; Locke, 2001; Strauss & Corbin, 1990). From the analysis, themes were identified and will be discussed next.

III. Findings

We identified six categories or themes as well as a number of subthemes. The primary themes across adopters and non-adopters were price/cost, usability, type of class, ownership, accessibility, and learning impacts. The research details for each theme, its properties, and sub-themes are presented below.

Price/Cost. The price of an item is the amount someone is willing to exchange for a good or service. Price was a frequent theme for adopters (52%) and non-adopters (17%). The comments from non-adopters relate the price of an e-textbook compared to a paper textbook, often didn't see the value in an e-textbook.

> "I choose not to purchase e-books because they usually are the same price as a paper-based book. I'm not paying for a printed and bound book, just a file that shouldn't cost as much. I would like all paper-based textbooks to come with an e-textbook."
> "If it is free then I will get an e-textbook otherwise the price is not cheap enough to purchase it compared to a used textbook."

In contrast, the adopters view of price as less expensive without the paper, and unlike the non-adopters, they see value in the textbook regardless of format.

> "the e-text is remarkably less expensive then I will purchase it"
> "it (e-textbook) cost HALF the price of the required text book"

Price of an item is certainly a decision factor, but value seems to be involved in the decision too. Paper or electronic, if a student doesn't see the value, the format doesn't seem to matter.

Usability. The term usability describes the user's interaction with a product to achieve a goal (Green & Pearson, 2011). Two sub-themes arose ─ positive and negative. The positive usability is the satisfaction of accomplishing the goal. Negative usability is lack of satisfaction and the inability to accomplish the goal. Both groups identified negative features of e-textbooks of eye fatigue and reading online.

> "it hurts my eyes to stare at a computer for too long"
> "strain on eyes"
> "it makes me tired sitting in front of computer and I can't study all day long"

On the positive side, both groups identified the mobility of an e-textbook and the convenience of taking it with you. The adopter students commented on the ease of taking the e-textbook to class or having the possibility of using it in class. The portability, size, weight of an e-textbook was a positive feature that drove the adopters to select an e-textbook.

Type of Class. The topic of the class is also an influence to the adopters or non-adopters (Falc, 2013). A specific topic, particularly one that is detailed or complex, leads to wanting a printed text.

> "if I need to really delve into the subject, I want the physical copy, not an e-textbook."
> "The subject matter. With math classes online is fine, but when I am reading things like history I like to hold the book."

Other comments related to the number of textbooks need to be purchased for a course and whether the textbooks are required lead to differences in adoption. The more textbooks required for a course, the more students will look for other options such as renting or an e-textbook.

> "If the professor says it is required, and the syllabus seems to follow the book closely, I buy it."
> "I'm not sure if I would like it for a class that required a lot of textbook use"
> "I would use e-textbooks for those books that are required but would not make a good reference in my field of study later on."
> "how much I'll need to annotate or write in it"
> "I don't like reading long texts online, so I would prefer to have a hard copy if I am required to read"

From the comments, usability comes into play with the course topic. If the course requires a textbook, students assume more reading. And as mentioned, the majority of students did not like reading on a computer. In addition, the type of subject also influences students. English courses with many required textbooks or a chemistry course with detailed findings led students to want paper-based textbooks.

Ownership. Anytime one makes a purchase, her/she receives something in exchange – a good or a service. In this case, the good is the textbook. A textbook that has been purchased is considered to be owned by the purchaser. From the analysis, two sub-themes related to ownership of a textbook emerged: availability and resale.

The availability sub-theme is how long the e-textbook would be available. Some students decided to purchase an e-textbook because it would be available anytime even after the end of the class, whereas another student used that same factor not to select an e-textbook.

> "I like having the option to still own something I paid over eighty dollars for after the semester I needed it for."
> "… most e-textbooks have a shelf life of either a year to 6 months, this discourages me from buying an electronic version."
> "I purchased an e-text book this semester because there was a) no wait time receiving it (plus free kindle download to PC) but I can read the ebook on my PC and android phone, so I dont even need to carry a book. Plus, I still own the book after this semester."

The second sub-theme of ownerships is resale. Many students indicated that resale of the textbook was a decision in choosing a paper-based textbook.

> "still expensive (e-textbook), without the chance of selling back for refund "
> "no sell back value"
> "Whether or not I can resell it when I'm finished with it, whether or not I can continue to use it after the semester ends."

There were a few comments that mentioned the paper-based textbooks as not being re-saleable due to changes or new editions.

> "Price and new editions come out so you can't sell hard copies back easily"

Selling back a textbook after use, the student receives the money immediately. This appears to be a motivator for a student. In addition, if a student had financial aid or had a parent pay for the textbooks, the student is the one receiving the money; it doesn't get returned to financial aid or the parent. A few comments did mention the return on the initial investment of the textbook as a concern but more comments wanted the resale available regardless of return.

Accessibility. Universal design focuses on creating a product that can be used by anyone without limitations of ability, device, or experience. In this example, a user could use an e-textbook regardless of the computer operating system. If an e-textbook is available only on a Windows operating system, it would not have universal design and therefore not be accessible. Another aspect of accessibility is the use on a device other than a computer. The ability to pick up reading at the same location regardless of device is important to users of e-textbooks.

> "but I can read the ebook on my PC and android phone, so I dont even need to carry a book."
> "I would much rather have an eTextbook because then I could access it on my phone, computer, and kindle and I don't have a backpack full of useless books."
> "...can often be accessed from both a laptop or e-reader. In addition, searching for keywords or finding certain chapters is easier electronically."
> "I like having multiple copies of any textbook and accessing in through my ipad."

Many comments focused on the need to have Internet access to use an e-textbook. Being dependent on the Internet limits the accessibility of the e-textbook.

> "I just cant focus on an e-texbook as much and it can be very dependent on internet [sic]."
> "When you have to access the book via the internet [sic] each time, it is not worthwhile."
> "whether or not I can access it. In my case I cannot, so I buy books."
> "E-textbooks are awful. They can only be used in areas with internet [sic] access."

Internet accessibility is not an issue for paper-based textbooks. Related to internet access is the speed of delivery to receive the textbook. Physical delivery of a paper-based textbook slows down the process whereas an e-textbook can be downloaded with internet access.

> "Another factor that has had major influence in the past is speed of availability - paper texts can take 2-3 weeks for delivery, whereas e-texts are accessible immediately."

Learning Impacts. The final theme is the effectiveness or lack of effectiveness on learning. Numerous comments referenced being more effective with learning the material with a paper-based textbook. The physical action of highlighting a textbook helps connect the concepts for students.

> "For me it really comes down to how much of the material I will absorb. I know that e-textbooks are generally cheaper and that future generations will likely grow up reading and learning with electronic devices, but I retain much more from reading a physical book."
> "I like highlighting physical books so I can connect visually with what I am learning."
> "Paper textbooks are more personal to my learning; I can imagine the pages where I saw particular information."
> "i find that e books or online copies are much harder to learn from, i find having a hard copy in front of me is much more effective"

If effectiveness of learning is an issue for students, they are more likely to select a paper-based textbook.

IV. Theory Development and Conclusion

Many implications appear important to developing a theory based on the generalization of the students' comments within the discussed themes and subthemes. First, many students mentioned that an e-textbook was the only option for a course. If a student doesn't feel like he/she had a choice (i.e., non-volitional), her/she won't use a decision factor to adopt; it is made for them (R. W. Stone & Henry, 1998). The perceptions of an e-textbook could be negatively tainted when the decision is made for the student. Second, the three factors of price, usability, and type of class appear to influence the remaining three factors of ownership, accessibility, and learning impacts. If the price of an e-textbook appears to be cost effective, a student would consider using it. If the price is not proportional to a paper-based textbook, the type of class or ease of use do not influence the decision. Usability of the e-textbook influenced continuing the use of an e-textbook. If a student used an e-textbook once and did not have a good experience, indicated not purchasing another one. Additionally, 11% of the non-adopters said they "hated" e-textbooks. There was no indication of why, but it could be inferred that it was the usability of the e-textbook that was impeding their desire.

Further research into the influence of pricing would enhance the understanding of this decision factor. Incorporating consumer behavior items into a questionnaire could expand this research and help in the theory development.

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