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Examining Teachers' and College Students' Perspectives Toward E-textbooks as an Educational Tool

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EXAMINING TEACHERS' AND COLLEGE STUDENTS'
PERSPECTIVES TOWARD E-TEXTBOOKS AS
AN EDUCATIONAL TOOL

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ABSTRACT

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The purpose of this research was to understand the perspectives of teachers and students regarding their use of specific e-textbooks in a higher education learning environment. The e-textbooks used by the teachers and students were examined in order to determine functions and features to focus on during the inquiry. This study was particularly interested in the design of e-textbooks and how they are used by both teachers and students in the learning process. The participants in the research were also prompted to suggest improvements to e-textbooks.

A case study approach was used as the methodology to examine three teachers represented three majors in three different colleges and a small sample of their students to gather information to answer the research questions. Qualitative data from multiple sources such as in depth interviews and document reviews were used to analyze and examine the overall utility of e-textbooks toward learning/teaching, and functions related to the instructional and navigational design of e–textbooks.

Results of this study showed that there was overall agreement that choosing books needs to be based on the quality of the material contained within the book, regardless of the format, print or electronic. E-textbooks facilitate teachers' and students' interactions and access to the materials and resources. However, both teachers and students viewed

their e-textbooks as supplementary materials, even thought these e-textbooks allowed

them to interact with the text using different tools. One recurring finding was how

flexible e-textbooks are in individualizing student learning. Recommendations by

students/teachers included the improvement of page layout, the interface, increasing

window size, providing more complex tasks, keeping up with technology, and insuring

the quality of information within the e-textbook. Implications for future research include

further investigation into the use of e-textbooks as supplementary materials, and whether

printed texts are also being considered as supplementary. Finally, there are indications

that advanced technology may be changing how students learn and if e-textbooks reflect

this change. Further research into this possible change in ways that students learn would

shed additional light on this question.

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INTRODUCTION

Technology has revolutionized the field of education in the 21st century. Countries around the world are focusing on the development of education and the provision of teaching and learning tools with high quality (Weisberg, 2011). This has resulted in increases in the integration of technology into all aspects of education. This revolution in technology in education has included the emergence of electronic textbooks (e-textbooks). Even though the printed book is still widely used in education, improvements and revisions of e-textbooks may soon lead to them supplanting traditional printed ones. However, there remain many questions about the effectiveness, usefulness, and attractiveness of technological features in today's generation of e-textbooks.

Early History of Textbooks

Printed textbooks have been supreme as the main learning resource for centuries around the world (Nature, 2009). The printing press made books more affordable and widespread. Prior to this invention, books and scrolls were handwritten, but even in those forms were a primary resource for both informal and formal learning. Historically, lecture was a very commonly used format for educators to deliver information; additional clarification and amplification were available from printed and written books. Browsing and reading information in these books assisted the learner in the consolidation of information and ideas, and in connecting them with one another. This binding process is very important, especially in science courses, where the book may contain some

graphical depiction of concepts or ideas that are difficult to understand without these clarifications. The printed book may have an active function parallel to the role of the teacher when its design helps students structure the pictures of a concept such as DNA, or the mechanism of the green house effect. Getting this kind of assistance is part of the learning processes. Supporting material such as graphical illustrations for the written text facilitates understanding and comprehension process (Nature, 2009).

As educational technologies developed and advanced, various media were introduced into the modern classroom. Audio, video, and multimedia resources were available to teachers and students in many forms such as tape recordings, film, audio and videotape, audio and video broadcasts, etc. However, textbooks remained popular and largely unaffected by the new technologies, but this would soon change.

Emergence of Electronic Textbooks

The rise of personal computers and the development of the Internet made a dramatic and significant impact on the practice of education (Chesser, 2011). With the rise of electronic means to send, retrieve, and store information, innovations in textbooks were inevitable. Publishers had a need to compete with the Internet, a ready source of free information. In the mid-1990s, innovations appeared in the form of CDs that accompanied printed textbooks (Chesser, 2011). These CDs were originally devised in order to give the publishers of the textbooks a competitive edge. Although the content on these CDs were occasionally creative and instructional such as videos or games, the content often consisted of additional to-be-printed ancillaries such as worksheets or sample tests previously created by the publisher. Instead of printing and then

shipping/selling this additional content, the information was digitally recorded and shipped/sent on a CD to the end users.

At some point, these CDs began to include access to websites that provided updates and additional information (Nature, 2009). As the possibilities of adding supplementary information in digital formats increased, and as advances in the field of technology were made, a shift occurred whereby digital information became not merely supplemental to, but began to replace the traditional printed text, resulting in e-textbooks.

Challenges of E-Textbooks

In the beginning, e-textbooks just contained the contents of the printed book in an electronic, digital format (Lee, Messom, & Yau, 2013). However, merely digitizing the content does not take full advantage of the new medium. In addition, several challenges for e-textbook publishers need to be addressed for better acceptance and use by the intended audience--students and teachers. These challenges included providing lower prices, standardizing format of content, improving service reliability, improving quality and accuracy of content, increasing life of ownership, reducing health risk and visual fatigue, improving readability, and protecting copyright materials (Lee et al., 2013). As of now, only the first challenge, that of providing lower prices, has seen some progress, and this mainly from business competition rather than any effort to address audience needs and desires.

Growth in Popularity of E-textbooks

These challenges are particularly significant given the noticeable growth in the sales of digital textbooks in higher education (Reynolds, 2011). As a result of this continued growth, it has been predicted that the digital textbook sales in the United States

will exceed 25% of total new textbook sales in the coming years. In the United States, digital textbooks are an example of an emergent technology that is influencing the sales of digital publishing, education, and technology market sectors. This growth will be influenced by a number of factors, such as the cost of textbooks, the availability of digital textbook content, the continued growth of for-profit institutions and online learning, the popularity and evolution of tablet devices and smartphones, the advances of e-reader software/hardware technology, format standards for digital textbooks, the growth of e-books in trade publishing, and further investigations into instructional principles and strategies for e-textbooks (Reynolds, 2011).

Publishers have contributed to the increasing popularity of e-textbooks in higher education (Woody, Daniel, & Baker, 2010). These e-books are used as an alternative to printed books, especially in that publishers have covered most of the academic subjects. With such increased use, however, these researchers found that the students' reading experience of e-textbooks is not equal in value to printed textbooks.

General e-books are popular among readers today and it has supporters due to the flexibility and accessibility of e-books (Woody et al., 2010). In addition, these books can be interactive by providing special multimedia features such as animation, video, audio, and links to other resources. These additional multimedia features not only represent an evolution of e-textbooks beyond a mere transference of content from a printed to a digital format, but also have led to a lack of consensus about the definition of an e-book (Sieche, Krey, & Bastiaens, 2013). At this point, an e-book can refer to a reading device, the software, the actual content, or the combination of all three of these. Nevertheless, most e-books currently only contain text and images, remaining primarily digital conversions

of existing printed books. As of yet, very few e-books truly capitalize on the full potential of an electronic environment.

Preferences and Usage

Studying factors such as gender, computer use, comfort with computers, and previous experience with e-book and their impact on students' preference for and use of electronic textbooks helps in evaluating the effectiveness of these books as an educational tool. Researchers have found that factors like gender, computer use, and comfort with computers do not seem to influence students' preference for e-books more than traditional textbooks (Shepperd, Grace, & Koch, 2008; Woody et al., 2010; Young, 2000). These authors also reported there is no correlation between the number of books used in the past and student preference for e-books.

Another study carried out by Cumaoglu, Sacici, and Torun (2013) examined preferences in e-book usage among university students, and found that the choices and reading habits of these students were associated with different variables. These variables included methods of reading e-books (download or printout), aim of usage (in-depth understanding, general overview of course material or recreational reading), and technological knowledge such as e-book related tools (links both to internal and external sources) and file formats (online reading, downloaded from original source, or obtained from secondary source). The results showed 62% of university students were using the e-book format, and students reported that carrying out research and reading course materials are the aim of reading e-books.

Dobler (2015) noted that as a result of lack of e-textbook experience, students may have a negative perception towards these books. However, an e-textbook becomes

more attractive after students use it and experience its features. Dobler posited that features of e-textbooks could affect reading and learning processes through facilitating or distracting the learning. Her study indicated that the initial ratio of students who prefer e-textbook was less than a fourth of those who preferred printed textbooks. This ratio rose to half after exploring these books and their functions in Dobler's study. This positive change is due to the students' ability to interact with these books and learn from them. Students were able to take advantage of the features of e-textbook that enables them to regulate their own learning. Some features of e-textbooks that Dobler found significant were those that provide students access to different resources by clicking the websites, being able to record their notes and share with others, using highlighters to mark text, and clicking on vocabulary definitions.

Digital note sharing capabilities is among the most popular features that had a positive impact on students (Dobler, 2015). This feature enabled the students to add their thoughts to the content using the sticky notes saved within the text. Providing access to other students' notes was a very useful function, especially in classes where the numbers of students are small and divided into groups. Another benefit of note sharing feature is allowing students to post questions and receive answers from their group members. The idea of note sharing feature is similar to social networking sites in terms of social practice, where students are familiar with through their daily interaction, which may explain the popularity of digital note sharing.

Other features of e-textbooks such as linked definitions, search function, and multimedia elements contributed to the strengthening of cognitive processes and reduce the dispersion (Dobler, 2015). Linked definitions greatly facilitated access to the

definition and the information directly without the need to refer to other sources or turn the page. Search functions can enhance students' focus, keep them on track, and save them time by allowing them to get specific information or go to specific sections according to their needs. While reading, students could choose different strategies to learn the content. It is not clear if all these strategies are positive. Student actions might also facilitate negative strategies; for instance, learners could scan information, instead of using deeper reading strategies for reading comprehension. The decision depends on several factors such as the level of difficulty of the concept, the time available, and the learning method. For example, students sometimes find it difficult to understand the content from just reading the text; they look to multimedia elements to help them understand. Multimedia elements and web-links also could be used as an additional resources based on the importance of the subject to the readers and their interest level. Transitioning between several techniques such as reading, viewing, listening, and back to reading may be difficult for some readers. Because the e-textbook reading experience is considered somewhat new to most students, teachers should play an important role in facilitating the transition process when deciding to use e-textbook (Dobler, 2015).

Stone and Baker-Evelth (2013a, 2013b) examined students' behavioral intentions to purchase an e-textbook. The first 2013 study was based on the application of the expectation-confirmation model (ECM). Using ECM helps to understand students' experience in reading e-textbooks and factors that have an impact on their intention to continue to use these e-texts (Stone & Baker-Evelth, 2013a). In terms of confirmation, this concept has an impact on perceived usefulness of and satisfaction with e-textbooks.

Theoretical Foundations

A theoretical model of adoption of e-textbooks based on social cognitive theory was developed with three antecedents: (a) ease of e-textbook use, (b) verbal persuasion/social norm, and (c) previous computer experience (Stone & Baker-Evelth, 2013b). The results showed that the adoption of e-books depends on these factors of this model. Ease of use is a factor that has been associated positively with students' attitudes toward e-textbook and behavioral intentions to purchase e-textbook. From the point of view of the students, ease of use is represented in the ability of students to access, download the text, and actually use the e-textbooks while ease of use for faculty members who require an e-textbook for their classes is based on usability for students. In addition, the verbal persuasions/social norms factor was positively associated with students' attitudes toward e-textbook and behavioral intentions to purchase e-textbook. This factor was measured by the impact of the community such as students' parents, classmates, and professors. From a faculty member's perspective, this could be through providing encouragement to students to use e-textbook. Furthermore, previous computer experience also played an important role in affecting behavioral intentions to purchase an e-textbook positively through self-efficacy. This finding suggests that faculty who choose to require an e-textbook need to make sure that students enrolled in the course have the ability and some previous experience with computers and its applications to enable them to use electronic book successfully (Stone & Baker-Evelth, 2013b).

Other theoretical linkages were explored by Sieche et al. (2013), who conducted a study to investigate university students' usage and acceptance of electronic books through applying the Technology Acceptance Model (TAM) and part of an extended

model, TAME, where the added E represents extended, reflecting additional variables that were incorporated into the model. Their study found that the TAM variables of perceived usefulness and perceived ease of use correlated with students' positive attitude toward e-books. Students who had previous experience in reading electronic books believed using e-books helped them to do their assignment more quickly and facilitated their studies. In addition, the majority of students who had read an e-book and who had never read e-book confirmed that both groups believed that electronic books are easier to use. Sieche et al. (2013) investigated the relationships between students' attitude and behavioral intention showed that students who have a positive attitude toward e-books increases their desire to read e-books in the future, and their previous e-book experiences also enhances their intention to use electronic books.

An integral theoretical basis for this study comes from Activity Theory (Kaptelinin & Nardia, 2012). Three main components of activity theory are the subject, referring to experience needs and carry out activities by interaction with objects (the second component) of the world, whether these objects be tangible such as physical objects, or intangible such as meaningful goals and accomplishments. Finally, activities in the interaction between subjects and objects involve the third component of activity theory, which are the tools or instruments used. E-books is an example of such a tool, and in understanding human use of technology, assists the subject to engage in purposeful, mediated interaction with the object to mediate and alter mental processes and behavior, which in the context of this study equates to learning.

Attitudes Toward E-textbooks

However, these beliefs and intentions do not always seem to translate into actual academic reading of these texts (Rockinson-Szapkiw, Wendt, & Lunde, 2013). Based on the added TAME factors that include emotional attachment, technology readiness, and prior knowledge, Sieche et al. (2013) found there is a negative relationship between the emotional attachment to paper books and the attitude towards e-books. This greater emotional attachment towards printed books may cause some obstacles for students to accept and read these electronic books. While technology readiness and prior knowledge correlated positively with students' attitude toward e-books, Sieche et al. (2013) also found that students who initially had a more negative attitude were more amenable to trying e-books when their knowledge of technology, media content, and electronic features of e-books was increased.

To investigate perspectives on e-books from instructors and students in the social sciences, Hoseth and McLure (2012) conducted focus groups at a mid-western university to explore attitudes toward e-books such as individual variations in preferences, scholarly behaviors and habits, and interactions with e-books. Students and teachers agreed that e-books have had a positive impact in their academic lives in changing their strategies for doing research and in the general use of the library. The search function of e-books and e-resources enables users getting specific information. Quick, easy access and convenience are other attributes that have characterized electronic books. Users who live off campus and distance student have benefited greatly from these features.

Barriers to Use of E-Textbooks

Nevertheless, there are important barriers that impede many students from using e-books and prevent their access to and understanding of electronic features embedded in them (Chong, Lim, & Ling, 2009). These authors found there was little satisfaction and acceptance of e-books because of poor design in terms of navigations design, page layout, and content design. Good design is fundamental to usability of an e-book, which in turn influence students' preferences and acceptance of e-book. In terms of navigations design, Chong et al.'s findings pointed out to the value of the links from table of contents to chapters and subchapters of the e-book, orientation clue to inform readers where they are in the chapter, insert page number, provide bookmarking, highlighting, and annotating functions, and using short pages to avoid scrolling. The suggestions for the page layout include breaking up text with images and figures, provide clean, tidy, and consistent page layout, as well as take account of including plenty of white space to avoid cluttered pages. Furthermore, the features appealing to them in term of content design are the use of consistent and readable font, ease of skimming/scanning by using short paragraphs, bulleted lists, headings, different font style and color for headings, and the use of high contrast between background and text color. Many current e-textbooks are lacking in these appealing and useful features.

Users have also pointed out some obstacles while using e-textbooks such as the inability to turn the pages, write notes, flag pages, move between several e-textbooks or electronic articles especially when there is a need to see and compare the information of these books at the same time (Hoseth & McLure, 2012). Some e-textbooks require a connection to the Internet in order to use them. In addition, reading long resources online

can cause eye fatigue and headaches, and e-book formats vary on different types of devices (smart phones, e-readers, computers) and often do not look similar or work in the same way. However, many students and teachers pointed out that the adoption of e-books has become an urgent need in this digital era, though some of them do not yet feel comfortable with these books.

Previous studies indicated that electronic textbooks are not yet the most commonly used among university students, and reasons for this need to be investigated, especially given that e-book sales continue to grow and expand (Daniel & Woody, 2013; Reynolds, 2011). When examining variation in learning and degree of difference according to usage on a variety of print and electronic format in both laboratory and at-home conditions, Daniel and Woody (2013) found that students' grades were similar in both formats, whether the reading took place in a laboratory or at home. In addition, students who read electronic texts in both locations spent more time reading, particularly in the at home setting, but this extra time did not increase their learning. However, students who read in the electronic format at home condition engaged more with media and they showed higher multi-tasking engagement. Daniel and Woody (2013) concluded that the underlying assumption that electronic textbooks are equivalent to traditional printed books needs more research before accepting this assumption and increasing the use of electronic textbooks as an alternative to traditional printed books.

Statement of the Problem

E-books will not achieve widespread success if they are simply used as a way to deliver information found in traditional textbooks (Rowhani & Sedig, 2005). Currently, most e-books are limited to presenting text in the form of a digital representation of a

printed page, along with a simple interface largely devoted to navigation. However, electronic textbooks can employ greater functionality than their printed counterparts. The problem lies in how to apply this greater functionality and then to determine if there are resulting increases in learning. At a lower level, there is continuing disagreement over whether e-texts should maintain the visual and navigational metaphor of a printed book or be treated as a unique medium. For example, Rowhani and Sedig (2005) suggested adding dynamic and interactive visuals could increase students' interaction with the textual information and improve learning, but these types of changes take the reader away from the book metaphor. At a higher level, how the context of the learning environment affects the usability and effectiveness of e-books is largely unexplored in the literature. When e-textbooks are used in face-to-face or online environments, they may create differing design considerations.

As Murray and Pérez (2011) concluded, increased e-textbook use should be driven as much by educational value as by publishing costs. Clearly, more research is needed in order to understand "how readers interact with e-books and how to design e-books for optimal usage" (Woody et al., 2010, p. 947). Because so many questions remain unanswered, qualitative research that examines the perspectives of teachers and students towards e-textbooks, their use, and effect on teaching and learning would be highly valuable to the field.

Purpose of the Study

The purpose of this research was to understand the perspectives of teachers and students regarding their use of specific e-textbooks in a higher education learning environment. The e-textbooks used by the teachers and students were examined in order

to determine functions and features to focus on during the inquiry. This study was particularly interested in the design of e-textbooks and how they are used by both teachers and students in the learning process. The participants in the research were also prompted to suggest improvements to e-textbooks.

Research Questions

The current study examined the following questions:

RQ1   How do faculty members perceive the overall utility and specific functions of e-textbooks towards their teaching and their students' learning?

RQ2   How do college students perceive the overall utility and specific functions of e-textbooks towards their learning?

RQ3   What functionality do faculty members and college students wish to see in e-textbooks in the future?

RQ4   What instructional, navigational, and other functions in the examined e-textbooks were utilized in the recalled activities of teachers and students and which were not?

Significance of the Study

This study provided a deeper understanding of how a select group of teachers and students interact with and use e-textbooks as an instructional tool. The results of this study added to the small, but growing number of empirical studies focusing on e-textbook functionality. A better understanding of the impact of e-textbook functionality on use by both teachers and students should yield better design, resulting in more effective, efficient, and attractive e-textbooks in the future. The data from this qualitative study focused on a deep exploration with a small number of participants. It also provided a starting point for researchers interested in examining e-textbook functionality from different methodological perspectives, such as quantitatively or with other qualitative lens.

Definition of Terms

Activity Theory. "A philosophical and cross-disciplinary framework for studying

different forms of human practices as development processes, with both

individual and social levels interlinked at the same time" (Kuutti, 1996, p. 25).

Critical Thinking. "Evaluating information or arguments in terms of their accuracy and

worth" (Ormrod, 2000, p. G-2).

E-book. There is no generally agreed upon definition for an e-book. The term e-book

could be referring to different things based on the context or whether the book

was written specifically for electronic transmission, with interactive elements

and/or web links or just an electronic version of an existing text (Chesser, 2011;

Gall, 2005). The simplest meaning for an e-book is storing any written material in

a digital format and transmitting these textual materials through an electronic

display.

Electronic Textbooks (e-Textbooks) or Digital Textbooks. Are a type of an e-book using

digital versions of printed text used in educational contexts as teaching and

learning tools and delivered by computer or other electronic means (Lee et al.,

2013; Tomassini, 2012; Vassiliou & Rowley, 2008). The important distinction

between e-textbooks and e-books is that the material in e-textbooks is educational

in nature versus e-books, which can be entertaining or informative in nature.

Expectation-Confirmation Model (ECM). Is adapted from consumer behavior literature

and TAM to examine the users' pre and post behavioral intentions to continue

using and adoptions to perceptions of perceived usefulness, satisfaction, and

ultimately continuance intention (Bhattacherjee, 2001).

Interactive Multimedia. Becomes interactive when allowing users to control any

      combination of text, photographs, graphic art, sound, animation, and video.

      Providing a structure of linked elements which enables users to browse and

      navigate through these elements led to making the interactive multimedia

      (hypermedia; Vaughan, 2011).

Multimedia. Consists of text, art, sound, animation, and video elements. Computer or

      other electronic means are the vehicle used to deliver these combinations

      (Vaughan, 2011).

Self-efficacy. Is a personal belief about the extent of the individual's capacity to perform

      and accomplish something successfully (Ormrod, 2008). Often termed perceived

      self-efficacy, this personal belief or perception about one's own ability to achieve

      exerts influence in several major processes of human activity, including cognitive,

      motivational, affective, and social processes (Bandura, 1993).

Social Cognitive Theory. Refers to ways people learn from one another in social contexts

      such as observational learning, imitation, and modeling (Ormrod, 2008). Bandura

      (1989), who originally developed the foundations for social cognitive theory,

      emphasized the reciprocal causation aspect in which both the individual and the

      social context, including other people, influence one another. That is, a variety of

      factors such as actions, cognitive, affective, other personal factors, and

      environmental events all interact with one another as determinants.

The Technology Acceptance Model (TAM). Focuses on people's acceptance of

      technology, using or rejecting the new technology by studying factors influence

      their choice such perceived usefulness and perceived ease of use (Davis, 1989).

Verbal Persuasions/Social Norms. "Refers to the encouragement to use e-textbooks from

individuals important to the student" (Stone & Baker-Evelth, 2013b, p. 30), and

refers to the influence of other individuals and society on student beliefs and

perceptions relating to e-textbooks.

Limitations of the Study

A limitation of this study is that analysis was only done with three e-textbooks,

each from a specific major. Also, due to the nature of a qualitative study, the number of

participants were limited. This study only interviewed three faculty members and seven

students from two of these faculty members; therefore, this study is not generalizable to a

larger population. Other limitations include a small population from which participants

are drawn, and that the study was conducted in only one university in one small mid-

Western city.

Summary

This chapter presented an introduction to the topic of revolution in technology in

education particularly the emergence of electronic textbooks. I discussed the early history

of e-text, challenges for e-textbook publishers, definition of e-textbook, preferences in

students regarding printed versus digital texts, performance and learning with digital

textbooks, attitudes and behavior toward digital textbooks, barriers and obstacles, and the

need for additional research of the topic. Next, I presented the statement of the problem,

purpose statement, the research questions, and the significance of the study. Finally, I

supplied a list of definitions of terms pertinent to the study.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

This review of literature emphasized the following critical aspects that are related

to this study: (a) a brief history of e-book (b) the rise of e-books; (c) emerging definition

of e-books; (d) activity theory; (e) preferences in students regarding printed versus digital

texts; (f) performance and learning with digital textbooks; (g) acceptance and

expectations of learners regarding electronic devices; (h) teachers and students attitudes

and behavior toward digital textbooks; (i) improving e-book usage; and (j) implications

for future use of e-books. These aspects are discussed in depth in this chapter.

Brief History of E-books

The first emergence of e-books occurred in Project Gutenberg in 1970s. Michael

Hart established this project to use computers to carry out many important functions such

as storing, retrieving, and searching for information (Embong, Noor, Hashim, Ali, &

Shaari, 2012). This computer usage was named e-books and referred to the electronic

version of printed books. From the 1970s until the late 1990s, the concept of e-books was

limited to digitizing the print text to be read using a computer (Johnson, Levine, Smith, &

Stone, 2010). In 1998, e-books moved from being only available on a computer to e-

readers to availability on specially designed devices called e-readers, which rapidly

spread in the market as an equipment designed specially for electronic reading (Terrell,

2000). During this period, the electronic reader passed through a number of

developments. It became capable of providing a good reading experience and included many of the affordances available in the printed book. In addition, added features included wireless connectivity and large storage capacity to enable the user to store more than 1,000 titles.

The Rise of E-books

Factors that contributed to the spread of e-books are the availability of many efficient models of readers on the market (Johnson et al., 2010). Beside Amazon Kindle there are other options such as the Sony Readers, the new Barnes & Noble Nook, and a number of reader applications for iPhones, Androidphones, and other smartphones. E-readers have become a competitor for the printed book due to its efficiency, the special features that are available, and designs that make them comfortable to hold for long periods of time. These devices enhance reading because of the ability to customize paper and ink color, font, type, and size. Moreover, some of them offer extra features; features related to text that help to make reading easier such as the clarity and lucidity of the text with contrast.

Electronic books initially faced many obstacles, especially in the academic sector (Johnson et al., 2010). Terrell (2000) discussed the weaknesses of these early e-books. The first obstacle centered on availability; there was a lack of e-textbooks or academic works because most consumer titles available electronically were recreational, not academic. The second drawback was the limited availability of efficient electronic readers, which were used to display electronic book clearly. Third, originally e-books, and the hardware necessary to access these books, were prohibitively expensive. Another reason relates to practices from publishers. Initial versions of e- textbooks were not

formatted to fit and be consistent with the majority of e-readers. Terrell concluded when e-book readers were just emerging, that the future of e-books would rely more and more upon multifunction devices.

Over time these barriers began to fade gradually (Johnson et al., 2010). A lot of academic subjects are now available electronically. For example, Amazon has been able to provide 30.000 academic titles for the major textbook publishers. Modern electronic readers are now more competitive with the printed book. The newest readers have helpful features such as different kind of graphics, note taking, bookmark, dictionary, annotations (with ability to exported, viewed online, shared, and archived), and wireless Internet. With all these changes, the use of e-books has increased among numbers of colleges and universities. Encouraging initiatives have been undertaken by some universities and colleges in running pilot programs with electronic books using different e-readers.

During the period of development of e-books, e-readers, increased availability of electronic devices, and technological advances, a new phenomenon began to appear where children from very early ages grew up with these devices and technologies. This generation is referred to as "digital natives," and their expectations, experience, and preferences are already changing the face of technology in education. Houston (2011) defined these digital natives as persons "born after 1980 who from birth have experienced the digital world as a natural part of their daily lives and regularly access rich resources in digital format for information and entertainment" (Houston, 2011, p. 39). This generation has grown up with technology, relies on this technology for many areas of life, and uses the social network websites such as Facebook or MySpace as a main way to communicate with their friends.

Accessing the Internet and owning computers are main factors that have changed their way to find the information. They search through the Internet to find information and answers to their questions rather than books such as Delicious and Wikipedia. In addition, instead of using a dictionary to look a word up, they use Google. Internet is very important in their daily lives, as they read material on the Internet for school and for leisure more than reading from traditional printed books and reference materials.

As these digital natives enter employment, several changes can be anticipated (Dingli & Seychell, 2015). First, gradually the problem of resistance to technology will decline, eventually to the point of being non-existent. Second, as more and more of these digital natives take leadership positions, advanced technologies will increasingly be incorporated into workplaces, including education. Significantly, digital natives actually perceive the world differently, and over time, as these digital natives replace those who did not grow up with technology, the disparity between these two groups will disappear (Houston, 2011). This new perception of the world includes reading habits that, rather than reading from left to right, and from front to back, now read non-sequentially, where they navigate from page to page or topic to topic via hyperlinks. Instead of reading long passages, these digital natives look for brief summaries, bulleted or bracketed information, embedded objectives, activities, and evaluation tools. Thomas (2011), and Dingli and Seychell (2015) have claimed these digital natives have enhanced capabilities to cope with different streams of multimedia information, and to incorporate what in the past were seen as distractions, such as music and watching television, into a part of their learning environment. This claim came despite cognitive research which has suggested

that we as humans are not good at multitasking on cognitively demanding tasks (Chen, &Yan, 2016; Junco, 2012; Junco, & Cotton, 2012; Judd, 2013; Zhang, 2015).

Emerging Definition of E-books

In spite of changing definitions of e-books over time and throughout evolving technology, one definition has recently emerged that is gaining more acceptance (Sieche et al., 2013), first formulated by Armstrong (2008). Under Armstrong's definition, electronic books are "any content that is recognizably 'book-like,' regardless of size, origin or composition, but excluding journal publications, made available electronically for reference or reading on any device (handheld or desk-bound) that includes a screen" (p. 199). This definition reflects one line of thinking that hardware, software, and content need to be separated from one another, and that e-books refer only to the content.

Davidson and Cariliner (2014) describes e-book technology as consisting of e-book hardware, e-book software, and e-book content. E-book hardware are the devices that enable users to read the digital publication such as computers, mobile devices (smart phones, ipod), tablets (iPad, and Samsung Galaxy), and e-book readers (Kindle, and Nook). E-book software displays content on screens such as iBooks from the Apple, Kindle from Amazon, Nook from Barnes & Noble, and Acrobat, but problematically, different software displays the content in different file formats; several types of file formats are PDF, ePub, MOBI, AZW. TXT, HTML, and DOC. E-book content is the collection of text, graphic, audio, and video material that is being displayed. Currently, two types of e-book contents have been identified; basic e-books are those that include texts, images, and a table of contents, but that have no added functions, whereas enhanced e-books have added internal and external links that provide an interactive

experience (Davidson & Cariliner, 2014). What we now need is more research into how best to use these interactive features to promote greater learning.

Activity Theory

A good theoretical framework for understanding e-textbooks is Activity Theory, considered as a conceptual approach, which emerged from Russian psychology in the 1920s and 1930s (Kaptelinin & Nardia, 2012). Activity theory helps researchers and practitioners in the sense of "orientate themselves" in complex real-life problem, classify key issues in order to deal with it, provide directions for the search that lead to relevant evidence and suitable solutions. In general, activity theory is considered to be a conceptual tool to support researchers and practitioners to ask the right questions rather than providing answers, thus help in interpreting the questions and organize the data.

This theory implies that an understanding of the human uses of technology can only be through the context of purposeful, mediated development that results from interaction between subjects and objects (Kaptelinin & Nardia, 2012). Activity theory has used "subject-object" interactions as a unit of analysis. The relationship between the subject and object is distinguished by three special components. The first component is the subject, who are people with needs that are met when subjects carry out activities through interacting with the objects of the world. The second component is objects, which can be physical objects but also can be intangible such as meaningful goals and accomplishments. The third component is artifacts, which are the tools or instruments used, either concrete or abstract, in carrying out the activities, and which in the process of being used mediate and changes mental process and behavior.

In activity theory, subjects refer to the persons involved in the activity, which is educational settings are the teachers and learners. These persons in educational settings interact with the world around them by carrying out activities, which in education relate to educational goals and objectives.

Objects are entities that objectively exist in the world, and have been described as "facts of life" (Kaptelinin & Nardia, 2012). Objects thus are not only just physical objects which have properties that can be measured by physical instruments, but also can be socially, culturally, cognitively or linguistically defined properties.

Artifacts are the physical tools or instruments or the procedures, methods, laws, and forms of organization that subjects utilize in interacting with the external environment (Kuutti, 1996). Artifacts have a mediating function in which they change human behavior and mental processing. This mediating function has a transformative characteristic, whereby humans not only express themselves as they use artifacts in activities but are also a product of these activities, illustrating the reciprocal nature of the relationship between objects and subjects.

Objects and their subjects are in a mutual relationship (Kaptelinin & Nardia, 2012). The attributes of subjects and objects influences the activity. For example, solving a math problem depends on two features: the nature of the problems in term of easiness and difficulty, and the abilities and skill of the subject, who is the person. The carrying out of the activity (solving the math problem) of the subject (learner) utilizing tools (books, pencils, etc.) to interact with the object (math problem) transforms the learner to reach a new skill level or the outcome. This changes the skill level and the subject's understanding of math, enabling the learner to advance to higher level math activities.

For teachers, what the focus of their learning may be to become acquainted with e-

textbooks and engage in activities to help them in their teaching with this e-text.

An activity is a form of an action by a subject and guided to an object, and these

activities can be differentiated from each other according to their object (Kuutti, 1996).

An object could refer to a material thing, a plan, or a common idea. In activity theory, an

activity consists of three main components a subject, an object, and mediated by a tool,

into which the relationship between the subject and object of activity is historically

formed, and it is open to more development. The tool itself serves as a means to enable

the subject to do many things or interact in different way.

> The tool is at the same time both enabling and limiting: it empowers the subject in
> the transformation process with the historically collected experience and skill
> 'crystallized ' to it, but it also restricts the interaction to be from the perspective of
> that particular tool or instrument; other potential features of an object remain
> invisible to the subject . . . (see Figure 1; Kuutti, 1996, p. 27).
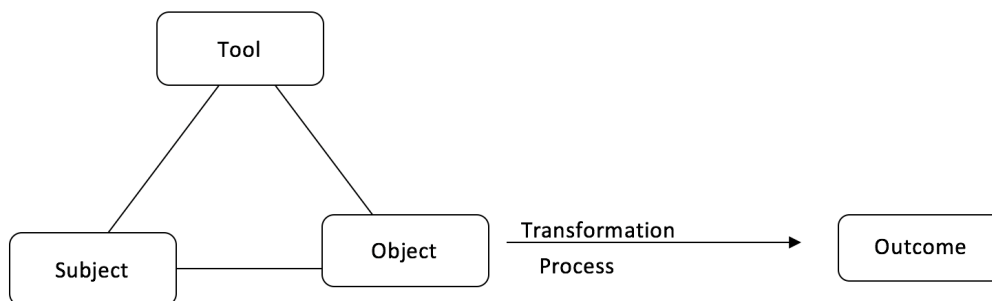
Figure 1. Mediated relationship at the individual level.

Activities are described as long term formations because the transformations of the activity's object into outcomes occur through processes and these processes consist of several steps or phases (Kuutti, 1996). Also, the transformation process into outcomes passes through shorter-term processes: activities include action or chains of actions lead to operations. Activities are also known as individual and cooperative actions, and the relationships among chains and network of these actions are linked to each other through the same overall object and motive. In general, participating in these activities are classified as performance of conscious actions that have an immediate and specific goal. These activities may be simple or complex; some of them requires several different actions based on the situation.

This concept is similar to the traditional interaction of Human-Computer Interaction (HCI) that emphasizes "human-computer" interaction (Kaptelinin & Nardia, 2012). Adapting an activity theoretical perspective is very helpful in that it has led to an increase and improvement in understanding how people use interactive technologies. One of the important contributions of activity theory to HCI is the assertion that the computer is not the object of activity, but it is a mediating artifact. This theory described the interaction as occurring between people and the world around them through a computer, not the interaction between people and computer. Another general theoretical contribution of activity theory to HCI focuses on involving goals and motives as part of any human activity. The operational (low-level) aspects of interaction with technology are connected with a specific goal, and are oriented to the needs and motives of technology users.

Preferences in Students Regarding
Printed Versus Digital Texts

User preferences of e-textbook is one of the most frequently investigated topics of empirical studies related to the growing popularity of e-textbooks (Hartel & Cheek, 2011; Parsons, 2014; Spencer, 2006; Vandenhoek, 2013; Woody et al., 2010). Often, these studies compare preferences of traditional printed textbooks to e-textbooks. Vandenhoek (2013) examined the general preferences of university students in Ireland in an on-line survey of 630 students who read academic literature electronically and how they interacted with these digital texts. He found that students generally preferred reading printed texts over the digital texts. In spite of this preference, the majority of students did not print the digital articles. They identified two specific reasons for not printing: cost (82%) and environmental concern (33%). Clearly, for most students, cost is a strong factor in not printing digital articles, which supports the findings of Murray and Pérez (2011). The majority of students (77%) also expressed that they would print articles if it were important for an assignment or an exam.

In terms of interacting with texts, Vandenhoek (2013) found that techniques such as highlighting or underlining on a printed text is widely accepted by most students (87%). Taking notes on the printed article itself was the next highest way of interaction at 65% followed by 55% of students taking notes on a separate piece of paper. In contrast, interacting with digital texts found much different results, with 70% of students reporting that they took notes on a separate sheet of paper for these digital texts, with digital highlighting was used only by 29%. This discrepancy pointed to another important finding of this study. Students still know little about these functions when reading pdf files from a screen (Vandenhoek, 2013). Fewer than 50% of students are familiar with

highlighting, underlining or electronic comment functions. Since users are unfamiliar and have lack of knowledge with annotation tools, most did not use them, underscoring the need for training for students in utilizing the functions available on e-textbooks for highlighting, taking notes, etc.

Vandenhoek (2013) surveyed a cross-section of all university students, whereas other researchers examined preferences of students in specific fields. E-book use in an academic medical center to identify and discover when and why medical students, faculty, and clinical staff use e-books was examined by Hartel and Cheek (2011), as they noted an increasingly heavy use of electronic textbooks in campus collections. However, the Hartel and Cheek also noted that many questions remained unanswered about preferences, usability, and differing formats. Their study focused on the book format preferences, and factors that influence users' format choice. In order to identify the book format preferences of customers in education, research, and patient care settings and determine factors that influence customer format selections, Hartel and Cheek (2011) conducted a baseline survey and introductory interview. For the intervention, participants completed a question and answer exercise using three book formats: print, web-based, and handheld formats, followed by a post-study survey. Results from their baseline survey found that 89% of participants own a handheld device and 87.5% of them have an awareness of the e-books offered by the library. In addition, in terms of previous experience using e-books, 52.2% of the participants reported that they used e-books, and the web based format was the most frequent e-book format used by participants. The lack of awareness and a preference for using journals were the reasons for not using e-book.

The results from the intervention exercise showed that the printed book is still at the forefront among students, faculty, and clinical staff in term of being intuitive, easy to navigate, and satisfying (Hartel & Cheek, 2011). Participants preferred printed books to the handheld format and the web-based format regardless to their ability to find answers. Students also valued the printed book for reading large amounts of text but carrying large books was considered annoying. The handheld format was the least popular in term of being intuitive, easy to navigate, and satisfying. Factors influencing preference for the handheld format include navigation complexity especially searching for specific information and price. Furthermore, participants noted they became frustrated by different provider platforms and expressed a desire to have both formats available: print and web-based.

In the exit survey, all participants indicated that the intervention exercise provided them with a chance to increase their knowledge about e-books including discovery of their personal and professional format preference (Hartel & Cheek, 2011). This knowledge and experience lead to changed participants' responses regarding e-texts between baseline and exit surveys. For example, at the baseline 43.8% of the participants were using e-books for clinical care, 37.5% for course reading, and 12.5% for hospital settings. At the exit survey, these percentages increased to 93.8% for clinical care, 68.8% for academic setting, and 93.8% for hospital setting.

Parsons (2014) noted that in spite of research around increased electronic textbook usage, there appears to remain a gap both in adoption of electronic textbooks and in knowledge of student preferences in dental assisting programs. Other studies that Parsons examined found both favorable and unfavorable perceptions of using electronic

textbooks. Favorable perceptions involved the cost and portability of electronic textbooks, availability on multiple devices, and eliminating the need to carry numerous large books around. Electronic textbooks also have features such as search, underlining, highlighting, and taking/sharing notes, along with interactive features such as videos, games, quizzes, and discussion questions. Unfavorable perceptions found in these other studies that Parsons examined included eye fatigue, problems with interfaces between electronic book format and their own devices, and large differences in viewing formats.

Rather than extrapolating findings from studies of preferences in other academic areas, Parsons (2014) sought to corroborate these findings by examining preferences in dental assisting students as they utilize electronic textbooks. In order to examine preferences of dental assistant students in using electronic textbooks while completing their professional education, he administered two electronic questionnaires. One of the questionnaires was given at the beginning of the academic year during the program orientation, which probed students' previous experience with, and attitudes and perceptions toward electronic books. The second questionnaire was given after completing the nine-month dental assistant curriculum, and asked specific questions about student usage of electronic textbooks over the past year. During the time between the first questionnaire and the second questionnaire students used e-textbooks for half of their 11 required courses.

The results from the first questionnaire indicated that the students were very excited about the idea of using e-books during the orientation of the program and its requirements, even though the majority of them were not familiar with electronic textbooks. Moreover, most students initially indicated that they would not completely

abandon traditional texts, but would prefer to have access to both formats. However, by the end of the program, their preferences had changed, primarily as a function of why they did not like the electronic text. The vast majority indicated they prefer to use traditional print textbooks. This change is a result of several reasons related to the design of the e-textbooks and other aspects. For example, the page look on their electronic device did not allow students to read the whole page on their screen at one time. Sometimes, the entire page looks like it would in print versions, but at other times the page is presented in a different manner from what it would normally look like in a regular textbook. Eye strain or difficulty in reading was also a common complaint. Navigation through the chapters or jumping to different or specific areas in the chapters was also reported to be difficult compared with paper textbooks (Parsons, 2014).

Other issues were related to the time it took to open the e-textbook, to turn the pages, or to find new/specific information or areas. Distractions were a factor while using the e-books, resulting in frequently checking e-mail, accessing social media sites or searching through the Internet. This change of e-books preference may be due to the need for students to learn and feel comfortable with e-books features and accessing them. The favorable attitudes at the beginning indicate a willingness to try, but their experiences led them to change their opinions, underlining a need for better training for students regarding electronic textbooks, their features, uses, and strategies for accessing different textbook materials. As humans, we prefer to deal with familiar things. One possible explanation is that students are familiar and more comfortable with traditional textbooks (Sieche et al., 2013). In order to help students gain familiarity and comfort in using electronic textbooks, teachers need to build in more frequent training and use of these

electronic texts within the classroom rather than expecting students to figure it out on their own.

Spencer (2006) confirmed that students (undergraduate and graduate business majors) preferred printed texts to digital texts, and found that additional reasons for this preference included portability, dependability, flexibility, annotation, highlighting, and ergonomics. Having the print options available in all online courses was very important for all learners, even those learners who reported they were comfortable and familiar with technologies and seldom printed their text material. Students attributed this preference to factors such as traveling and busy schedules, which may require them to be present in places where connectivity is unavailable or may have limited time to access materials, and locating specific things is faster and easier in print than scrolling and reading from a screen.

Performance and Learning with
Digital Textbooks

The use of e-textbooks among university students has become common, particularly because most of the students already have mobile devices that enable them to purchase these digital texts (Rockinson-Szapkiw, Courdff, & Carter & Bennett, 2013). These researchers have studied the efficiency of using the e-textbooks as an educational tool through focusing on the learning aspect and grades of using the electronic versus traditional print textbooks. Learning is measured in three dimensions, cognitive, affective, and psychomotor. Results show the efficiency of e-textbooks in cognitive learning has the same efficiency as traditional printed textbooks. Rockinson, Courduff, et al. (2013) also found there was no difference in students' grades. Students' affective and psychomotor experiences from using e-textbook formats are greater than these

experiences in students that used print textbooks. For example, the use of electronic textbooks increases affective and psychomotor learning due to features included in e-textbooks such as highlighting and note taking and other accessibility features that enable users to learn actively and interact with the text, forming more positive attitudes toward the content.

This result was obtained by comparing two groups of university students, both undergraduate and graduate, enrolled in the education courses that provided two types of textbooks (Rockinson- Szapkiw, Courdff, et al., 2013). The first group had chosen to use e-textbooks and a second group had chosen to use printed textbooks. Based on participants' self-reported behaviors in regard to the text there was no difference in terms of reading manner (read word for word, skim, do not read), and the number of hours per week that students used their text to study. However, some students pointed that they wanted to try to use e-books, but noted dissatisfaction with the format of e-textbooks. The perception of these students that the current format is too restrictive may be due to the fact that e-textbook development is still in its infancy.

Academic value in terms of effect on learning of these e-textbooks has yet to be definitively established, purports Murray and Pérez (2011). In view of the rapidly expanding usage of these books, evaluation of these books as educational tools is an important focus of research in order to learn more about the instructional value and advantage of electronic textbook. In addition to conducting further studies for estimation, faculty members must be involved in the evaluation of these sources. Murray and Pérez (2011) found no difference in the performance of students who used printed textbooks in one section of an online course and students who used e-textbooks in the second section

of the same online course. Students' interaction with the content also did not vary according to the medium.

Levine-Clark (2006) used a survey of faculty, students, and community users to examine electronic book usage at a university library. Findings included the identification of most and least frequent users, with academic personnel at the highest level of usage, and community members at the lowest level. In addition, Levine-Clark identified types of reading of e-books, finding that more than half of readers read only a chapter or article within a book, slightly more than one-third read only a single entry or a few pages, and that less than 8% read an entire book.

There is a need to study how students interact effectively with e-textbooks that include rich media, hyperlinks, and feature such annotation, and note sharing because students' interactions with these format and features has still not been established (Murray & Pérez, 2011). It is difficult to evaluate how effective e-textbooks are in improving learning and performance if students do not yet understand how to use these e-textbooks efficiently. Murray and Pérez speculate that the value of e-textbooks will increase as designers become better at effective integration of digital and interactive features that support and enhance the teaching/ learning process.

With the increased use of digital tools, reading and learning on screen have become more commonplace as part of life activities (Chen, Cheng, Chang, Zeng, & Huang, 2014). In order to investigate the reading performance on different media platforms, Chen and his colleagues (2014) compared the performance of three groups, each using a different medium: paper group, tablet group, and computer group, by using two questions types of reading comprehension. These questions included multiple-choice

questions at a shallow level comprehension, and summarizations as deep level comprehension. Chen and his associates found that students on the paper group performed better on multiple-choice questions than the computer based reading. The scrolling necessary on the computer screen may lead to this result, they postulated, while the paper group read page by page without scrolling. An additional finding was that the students' scores who were using tablets for both level of questions were higher than the computer group and lower than paper group.

In terms of tablet familiarity, Chen and his fellow researchers (2014) found that level of knowledge and awareness of mobile devices influenced students' performance on the deep level comprehension questions. The group of students who had high tablet familiarity earned higher scores on the summarization questions than low tablet familiarity group. The results suggest giving students training to increase their tablet familiarity, a finding that is common among other researchers (Hartel & Cheek, 2011; Hyman, Moser, & Segala, 2014; Vandenhoek, 2013). This training will enhance their knowledge about some of the benefits that the medium provides such as LCD screen, Internet connectivity, multi-touch screen, and easy to use user interface. With appropriate training, the tablet tends to be valuable learning device in education.

Based on online questionnaire self-reported of data, Johnson (2015) reported that the purchase of paper books and eBooks for university study and personal interest by first year university students was associated with students learning characteristics such as reading strategies, self regulations, learning control beliefs, and achievement motivation. For example, student extrinsic motivation is defined as focus on achieving good grades and the approval of others increased, the purchase of paper books for university study

also increased. The number of e-books purchased for leisure and personal interest was associated with the extent of the learner's ability to learn individually without relying on peer support, while the number of paper books purchased for leisure and personal interest was associated with student intrinsic motivation that focused on a preference for challenging learning content.

Furthermore, Johnson (2015) noted that student competency tended to be associated with reading for leisure as well as academic purposes, whereas less competent students tended to read only for academic purposes. The more competent students were also more likely to be familiar with emerging technologies than less competent students, and scored higher on measures of cognitive ability. Finally, Johnson noted that although learning characteristics and learning outcomes were related, in the end, learning outcomes are more important, but differences in academic achievement were not able to be addressed in her research. She also noted that student habits, attitudes and preferences with respect to e-textbooks is changing rapidly, but that with today's diversity in experience and expertise with electronic media, higher education needs to continue to provide a variety of formats for retrieving information.

Acceptance and Expectations of Learners Regarding Electronic Devices

The majority of learners value the electronic reading platform if it is easy to use based on the assigned requirement by instructor or institution (Hyman et al., 2014). Learners prefer tablet computers over the e-reader devices for electronic reading. The lack of multi-modal functionality and interactivity of e-reader devices was a leading cause of lack of preferring these devices (Hyman et al, 2014). Providing reasonable

interaction model for reading and task-oriented through electronic reading platforms and the content delivery mechanism are necessary to met the demand for ease of use and usefulness of mobile devices. Results have shown that students do extremely well when information is presented in a linear form. This is due to the nature of the class activities that support linear learning, stand-alone reading of static text, perusing a textbook in PDF or digital distribution format, and working through a task-oriented video/presentation based lecture activity. While tasks have changed to multi-task on the electronic reader or tablet, students facing very difficult problems because these platforms portray information in a linear format and do not allow for multiple simultaneous interactions.

Hyman et al. (2014) pointed out that the understanding of the mechanism of the printed text in the delivery of information enables us to accommodate the concept of ease of use for mobile learning, where the concept of ease of use in mobile learning is synonymous to the printed-text. Printed text delivers information in a clear, concise, and orderly format, and the learners' mental model tend to be focused on the learning objective instead of technical needs. In their study, learners identified some characteristics in terms of ease of use and usefulness of e-content when reading on mobile devices. Instructions must be understandable and presented without any difficulties and effort, or problems with technical issues. Moreover, the features of e-content can assist in a multi-modal learning activity. These characteristics can lead to an increase in the behavioral usage intention towered mobile devices and mobile learning. Learnability is a very important factor that may influence student adoption of mobile devices. Learners are more likely to become e-content users on mobile devices if the

formal instructions meet the learning objective by using the device wholly or concomitantly with traditional Web systems, retention, reuse, and future adoption.

The creation of e-reader devices such as Amazon Kindle (more specifically called "Kindle Keyboard"), the larger Kindle DX, touch version called "Kindle" and lately, the Kindle Fire and Kindle Paperwhite, and other devices that support the e-reader apps (iPad, Smart Phones, PCs, etc.) has increased the use of e-books for leisure reading, and this in turn has led to the development of e-textbooks for use in higher education (Brown, 2012). This transition from textbook to e-textbook is still in the early stages and has not yet become universal. The research on e-textbooks has shown some desirable and undesirable e-textbook characteristics. Users appreciated less weight to carry, fewer books to carry, and lower costs. The undesirable characteristics include inability to sell back or single users, lack of electronic text format to all texts, lighting issue for some devices, and running out of battery capacity for devices. These results may help explain why students tend to be not satisfied with the current format of e-textbooks. Brown also proposed that an additional factor may be related to how good of a fit the technology is to a task--that not all technology may be a good fit for all learning tasks and to recommend that publishers and educators consider what format and functions will make e-textbooks more acceptable to students.

Students and Teachers Attitudes and
Behavior Toward Digital Textbooks

When McLure and Hoseth (2012) investigated student and staff attitudes toward e-books at Colorado State University (CSU) Library through a web-based survey, they found that students' and employees' interest and motivation to read e-books are influenced by "subject matter/ topic" type of search. This was a common response among

students, staff, faculty, and other employees, regardless of college/department affiliation. They also indicated that e-book characteristics such as convenience was regarded positively by users. The convenience of e-book includes easy reviewing book content, skim for information, and searching within the text. Moreover, distance users might prefer an electronic option for the following reasons: 24/7 access, the lack of due dates and missing books, no need for physical storage, and simultaneous users access. Nevertheless, there remains a strong preference by some users for print formats. Shortcomings of electronic formats included restrictions on printing and downloading, poor quality of various functions, poor interface designs, eye fatigue, single-user access, with eye strain being the single most common complaint. One final complaint was the difficulty of moving easily through electronic reading material.

Going beyond an examination of preferences, Weisberg (2011) studied the effectiveness of e-textbooks in terms of learning, to gain more knowledge about students' attitudes and behavior toward the adoptions of digital-textbooks. He conducted a two-year longitudinal study of college student attitudes and behavior toward their use of e-textbook. Results of the study showed that the student attitude and behavior is in a continuous and observable positive change toward e-textbook where students' acceptance for and interest in electronic books increased. The students experienced new features of these devices such as note taking, note sharing, highlighting, and search capabilities. Students became more aware of and willing to use e-textbooks due to these features and other factors such as portability, cost, and availability. In addition, the study indicated that there was no meaningful difference in terms of learning performance between those

who used different e-text devices such as Amazon, Kindle, Sony e-Readers touch, Apple iPad or between those who used paper textbooks and e-textbooks (Weisberg, 2011).

Use of e-textbooks is intimately linked with electronic reading strategies, according to ChanLin (2013). With the technological innovations in education, reading literacy has changed and the tendency is to move toward electronic reading in this current century. In order to provide the designers and developers of e-books service and system with helpful suggestions to improve and innovate reading support embedded in e-books systems, ChanLin explored college students' use of electronic reading strategies in reading e-books and the features provided by e-book systems. Findings from the qualitative part of ChanLin's study showed that students used various strategies in reading e-books. Students identified three strategies: use of prior experience, comprehension and decision-making, and self-regulation and self-monitoring.

In addition, ChanLin (2013) found that features provided by e-books system support electronic reading strategies and allowing for cognitive effort. This opportunity provided by e-book systems to use various features influences reading comprehension. From a quantitative assessment students have indicated a great need for the following functions: quick access to specific reading content, page search functions, off-line reading, history of prior reading, access to a specific page through table of content, enlarged and reduced font, search in full text, print-out, outline of chapter content, save copy of previous reading, underline and save underlined records, and notation function.

Expanding ChanLin's (2013) research into reading strategies and cognitive practice for improved understanding and navigation of e-books, Li, Chen, and Yang (2013) hypothesized that e-books often lack essential contextual information cues as well

as ineffective navigational mechanisms. In their experiment, they found that when undergraduate students were presented with visual cues, training on constructing a cognitive map of the material presented to them, and using the strategies of surveying and questioning, student comprehension increased and time spent reading the text and completing navigational tasks was significantly decreased. These findings have important implications not just for the creators of e-texts in designing better navigational tools, but also for educators in training students to use these e-books more effectively.

This move to understand not just how often e-textbooks are used or preferences for them, but to gain more knowledge about how students use these e-textbooks was explored by Muir and Hawes (2013) in their examination into how undergraduate students utilized e-textbooks in order to complete a coursework assignment, how students obtained information, and used this information in their assignment. Students also evaluated the usability of the e-book platforms in relation to ease of discovery and reading and processing the information they found. Using an observational case study approach polling 63 students with a questionnaire and a follow-up interview, 98.3% of participants indicated they had used e-books prior to the study and 95.2% had used them for academic study (Muir & Hawes, 2013). More than 48% of the participants considered themselves as experienced users of the resource (defined as having used the resource more than ten times). However, in the observed task, some of these students in reality had not mastered all the features of e-books; they struggled even with basic navigations. In terms of perception of e-books, most students had a positive perception, and the convenience of 24/7 access was the main reason for using e-books.

Through the post-task interview, participants indicated that availability and convenience were their reasons for using e-book (Muir & Hawes, 2013). Other reasons that led them to use e-books were instructions from academic staff and the ability to search e-books (around 50% of the participants reported these reasons). In term of how they used e-book, 91% of the participants reported reading whole pages of e-books in sequence. This reading behavior also appeared during the observed task; one reason given by the students was their explanation that the subject matter, Quantum Mechanics, was difficult and required careful reading.

In terms of helpful features that could encourage students to use e-books for course work in the future, Muir and Hawes (2013) examined students' needs of e-book. In response to the post task-interview question that focus on suggestions for improving e-book, students emphasized improvement of interface and multimedia as features that could attract them to use e-book in the future. For instance, students indicated that hyperlinks is a valuable multimedia feature for them to quickly jump to the relevant sections. Interactivity such as animations, or links to visualizations in order to explain difficult concepts were another multimedia functions identified by students that will motivate them to use e-books. Additionally, Muir and Hawes identified search results (inclusion of section and chapter titles), more flexible page viewing (full screen view, view two pages at once), easier navigation (scroll through pages, faster loading of pages, using something like a Mac touchpad to navigate), mouse over functions to give the meaning of a particular term, and removal of the access problems as important features they wanted to see and can influence their use of academic e-book.

Cassidy, Martinez, and Shen (2012) explored issues of usage of electronic books for educational purposes. They specifically focused on graduate students and faculty as advanced academic researchers to demonstrate differences between users and non-users of e-books in behavior, perceptions, and attitude. E-book features and the convenience of the electronic format both emerged from this study as key factors that affected their perceptions and attitudes toward e-book, although several of the participants indicated that the electronic book is not necessarily preferable over the printed book for them. Findings also indicated that non-users did not dislike the e-book format; the main reason for non-use was due to the lack of awareness of and perception of not needing to use the library's e-book collections. Accessibility is another important point indicted by students and faculty non-users that encouraged them to become users of e-books over printed books.

There are a number of functions that have a positive influence on users and non-user behavior and perceptions toward the digital textbooks. Users and non-user groups identified the ability to search the whole text and printing functions, especially printing individual pages, as the most beneficial features of e-books. Both groups have also pointed out some additional important features such as ability to take note, highlight, copy and paste a snippet of text. In addition, a number of participants ranked the interactive elements such as embedded videos and hyperlinks as the least important features. Automatic citations and the ability to download and read e-books offline were other features that emerged in this study.

Embong, Noor, Ali, Bakar, and Amin (2012) and Embong, Noor, Hashim, et al. (2012) discussed the design issues of e-textbooks. The design framework is an important

aspect affecting the adoption of e-textbooks, and can be used as a reference to support students and teachers in the learning process. Embong, Noor, Hashim, et al. (2012) suggested a framework for using e-books as textbooks. The framework consisted of five principles: offering various presentations of information and activities, facilitating the evaluations of students' work, automating some feedbacks for students, providing scaffolds for the learning process, and ensuring sustainable resources of knowledge.

The advantages of using e-books in the classroom have also been explored in Embong, Noor, Ali, et al.'s (2012) and Embong, Noor, Hashim, et al. (2012) studies. With advanced technology and the availability of the Internet, the traditional classroom instructional materials and activities tend to be replaced with digital ones. This trend has led to the growth of the number of e-textbooks, which are especially designed for use as instructional materials in the classroom. E-textbooks provide valuable features for students and school administrators. For students, being lightweight, having a large capacity to store all the materials, having a sense of fun during the learning process due to attractive features such as attractive graphics, enlarged text size, plug-in speakers are popular features. Among teachers and school administrators, using e-textbooks can facilitate management processes such as monitoring classroom activities and student progress.

Folb, Wessel, and Czechowski (2011) conducted a web-based survey to assess use, and factors affecting use of e-book by health sciences library system (HSLS) users. Folb and his colleagues reported that the majority of library users used e-books (55.4%), but they used e-books for different purposes. For example, 86% of interns, residents, and fellow were using the e-books to support clinical care followed by 21.3% of faculty for

assigned class reading. Users found the ability to print and save e-book content more important than annotation, highlighting, and bookmarking features. The use of clinical and academic electronic and print books has been widely used among students, postdoctoral fellows, researchers, and clinical physicians. Web-based survey indicates that Health sciences library system users who are in information-intensive roles for clinical, research, or study oriented are the heaviest users of both electronic and print books. This acceptance and use of both formats is due to the flexibility of users. Electronic and print books are often used in terms of convenient or available at time of need. The authors suggested that as a result of willingness of users to use both format, libraries could reduce title duplication between print and e-books, especially if the publishers are able to provide features that serve the needs and desires of the user. Marketing and user education are two essential factors that may have an impact in increasing e-book collections.

The growth in technology has influenced the future of the format of study materials (Stoop, Kreutzer, & Kircz, 2013). Learning materials are moving from just written books as the main way to convey knowledge to using web sites, computer programs, and most recently, e-textbooks. Stoop et al. (2013) examined differences in learning and reading between screens and printed material, finding that printed formats appear to be superior formats for comprehension and understanding in comparison to screen formats. The results highlight the importance of using short and manageable texts to avoid scrolling, and the text should give an overview for the topic. Users also report feeling that the written text is better supported by video, audio, interactive tests, and games. In term of interactivity, users express that they want to be able to do something

with the material such as marking, making notes and making summaries. In addition, with the implementation of technologies, they thought doing something with the material could include other functions such as conducting tests, interactive games, rehearsal questions, and social media to facilitating the collaborative learning, etc.

Improving E-book Usage

In spite of the popularity and potential of e-textbooks, many of the above studies point to limitations of existing e-formats and the need to make significant improvements in order to enhance usage, preferences, attitudes, and particularly academic performance. Adapting e-textbooks is still considered as a challenge for most libraries. For example, health sciences librarians tried to provide ideal collections of e-textbooks that included most recent titles in the field, but they faced many problems with e-textbook purchases (Czechowski, 2011). Czechowski proposed suggestions for publishers and vendors to handle these problems. For each title, the releasing of both versions the print and electronic should occur at the same time. Usually the printed version is released first, and the users' urgent need for some titles forced librarians to purchase the printed book.

Offering the option to purchase titles either in packages or as single e-book was another suggestion to deal with the cost effective issue (Czechowski, 2011). For the same reason the publishers could provide options to license or subscribe to e-books or to purchase them. Moreover, the use of Counting Online Usage of Networked Electronic Resources (COUNTER) standard is very helpful to compare usage among e-books and platforms by providing statistical information. By using this standard, libraries could develop useful collections for their users. One important suggestion was making turnaway reports, which generate information on if an e-book is being used enough by

users, for each title not just for whole package by vendors in order to help librarians make more informed decisions.

Schomisch, Zens, and Mayr (2013) examined whether e-readers were really suitable tools for scholarly use. In light of the potential benefits of a variety of functionalities in e-books and e- readers that support different reading contexts, a direct linear format, as found in printed texts, was demonstrated to be very important for leisure reading such reading a novel. In contrast, presenting information in nonlinear format is very helpful for scholarly text work. Beyond the direct linear readability, scholars and students employed strategies that allowed them not only to read the text, but also to produce something new to improve their understanding. For example, they used selective reading, non-linear reception, quick relevance assessing, re-reading, annotating, extracting, archiving, and their own writing.

Functionalities of the e-reader and usability are affected by the e-reader-file format (EPUB or PDF; Schomisch et al., 2013). Participants faced complexity using the highlight and annotation functions with PDF format in Amazon Kindle 2. Lack of an annotation function was found with the EPUB format in Onyx Boox 60. E-readers' functions were assessed based on the usability of the technical implantation and also rated based on the importance of these functions for users while working with e-books. Participants considered font extensions, full-text search and zooming displayed as high positive functions in term of usability. They also identified full-text search and text marking as important functions. "Printing text" and "exporting text" features are also very important functions for electronic reading.

Functionalities related to Web 2.0 were also explored by Schomisch, Zens, and Mayr (2013). Several participants mentioned both sharing of annotations and e-mailing in order to recommend a book to friends. The study indicated that users see benefits and importance in the direct connection to hyperlink from the text. In terms of readability of textual information, several participants stated a preference for EPUB format. To the users, the default font size and utilizing the font extension and zoom function in EPUB format are very valuable during the text navigation. In addition, with the use of e-readers, color and display of figures and graphics provided by e-books platforms are generally wanted and appreciated among users for scientific texts.

In an investigation of other factors to increase use of and attitudes toward e-books, Browne and Coe (2012) pointed out that formatting e-books should not use the same format as printed books. The e-books offer different features not available in printed books but may also miss common features of printed books such as indexes and images. Navigation through e-books could be based on searching, browsing, and using indexes. For example, e-books could include a linked index feature that allows users to move directly to the content of interest within the book or to content outside the book (Browne & Coe, 2012). These navigational features are useful features, but not all books and reading devices support these features. Problems with navigation may result in distracting the reader from the main goal. E-book navigation through browse, search, and indexes needs more attention because navigational functions should be effective and easy to use. The developments of e-books including the EPUB standard and e-reader hardware will help improve these navigation methods and provide an ideal e-book with navigation features that are available in print book and additional navigation tools.

Implications for Future Use of E-books

Ease of accessibility and searching capabilities are the most popular features that distinguish e-books (Lim & Hew, 2014). Educators and students benefit from these functions. However, the vast majority of e-books still are an electronic platform contains textual information only. There is a need to design and provide more features and learning tools that support student learning inside and outside the classes. Lack of interactive features is the dominant attribute of the existing e-books in the marketplaces. E-books with annotative and sharing capabilities features are the next-generations e-book (NG-eBook). Lim and Hew have explored the usefulness of (NG-eBook) by conducting a case study approach. The interface of NG-eBook consists of navigations, content management and collaboration. The features of traditional e-book that include on-screen reading and browsing are also incorporated. The new features of NG-eBook allow students to reflect and share resources and ideas with peer learners. Students can post sticky notes to add annotations (textual comments) through pages and sections. Friends and classmates can receive these comments when students requesting for Invitation to Collaborate (Lim & Hew, 2014). Subscribing to annotations is another effective feature that enables students to receive automatic updates on new annotative contents. Results show most students have positive experience with the new form of e-books. Features of NG-eBook support students' learning through enhancing engagement and interaction.

However, results of content analysis and sample comments indicted that some students reported negative experiences toward NG-eBook as a learning tools (Lim & Hew, 2014). A number of features and functions of NG-eBook confused students and distracted them. Using NG-eBook as a learning tool is more appropriate for students who

like to learn through active learning style rather than passive learning. Furthermore, students faced other problems such as lack of response or etiquette of online communication as well as technical and accessibility issues especially with students who are less comfortable with technology. Students through this study have suggested some ideas to improve the NG-eBook. They mentioned that the NG-eBook was too structured and had a linear design. As part of the digital generation, students are familiar with social networking platform such as Facebook and Twitter. They recommended following the design of social media platform and interface. Integrating a 'text-to-speech ability for read-aloud' that may reduce eye fatigue, and live chat features to increase communication are other future designs of e-books. Another suggestion is to support the text-based annotations with rich media annotations such as audio and video.

There are important barriers that impede many students from using e-books and prevent their access to and understanding of electronic features embedded in them (Chong et al., 2009). They found there was little satisfaction and acceptance of e-books because of poor design in terms of navigations design, page layout, and content design. Good design is fundamental to usability of an e-book, which in turn influence students' preferences and acceptance of e-book. In terms of navigations design, Chong et al.'s findings pointed out to the value of the links from table of contents to chapters and subchapters of the e-book, orientation clue to inform readers where they are in the chapter, insert page number, provide bookmarking, highlighting, and annotating functions, and using short pages to avoid scrolling. The suggestions for the page layout include interspersing text with images and figures, providing clean, tidy, and consistent page layout, and taking into account using plenty of white space to avoid cluttered pages.

Furthermore, the features appealing to them in term of content design are the use of consistent and readable font, ease of skimming or scanning by using short paragraphs, bulleted lists, headings, different font style and color for headings, and the use of high contrast between background and text color. Many current e-textbooks are lacking in these appealing and useful features.

Summary

Although there has been a significant increase in the number of e-books used in education recently, significant problems still remain to combat documented student preferences for printed textbooks. Reasons for these preferences include student lack of knowledge about functions of e-books and the need for further training in using e-books. Other problems include different platforms used by providers, difficulty with interfaces between formats, eye fatigue, navigation within and through chapters, and inability to view a whole page at once. The primary reason for purchasing an e-book was cost savings rather than preference, but the inability to sell back the text, or only allowing a single use of an e-text were undesirable characteristics leading to dissatisfaction with these e-texts.

Suggestions for improving e-book usage include quick access to specific reading content, improved page search functions, outlines of chapter contents, and access to specific pages through the table of contents. Other suggestions include the incorporation of more visual cues, better navigation tools, additions of hyperlinks, and interactive tasks such as sample tests, interactive games, rehearsal questions, and using social media to facilitate collaborative learning.

Most importantly is the need to recognize that e-textbooks are not just merely electronic versions of printed texts, but that e-textbooks are a new format in which to present and access information, with multi-media and social media tools to create interactive activities and environments in order to capitalize on emerging and new technologies that continue to change the landscape of learning and tools to enhance learning. Chapter III details the methodology will implement in this study.

CHAPTER III

METHODOLOGY

This chapter discusses the research methodology that guided this study. First, I discuss the research design, theoretical framework, and my stance as a researcher. Next, I discuss the research design overview including the analysis of e-textbooks, recruitment of participants, types of data to be collected, data collection procedures and analysis, and methods for increasing the validity and reliability in qualitative research. Finally, I outline the ethical considerations and present procedures for insuring that ethics are adhered to throughout the study.

Purpose of the Study

The purpose of this research was to understand the perspectives of teachers and students regarding their use of specific e-textbooks in a higher education learning environment. The e-textbooks used by the teachers and students were examined in order to determine functions and features to focus on during the inquiry. This study was particularly interested in the design of e-textbooks and how they are used by both teachers and students in the teaching/learning process. The teacher and student participants in the research were also prompted to suggest improvements to e-textbooks.

Research Questions

The current study examined the following questions:

RQ1. How do faculty members perceive the overall utility and specific functions of e-textbooks towards their teaching and their students' learning?

RQ2   How do college students perceive the overall utility and specific functions of e-textbooks towards their learning?

RQ3   What functionality do faculty members and college students wish to see in e-textbooks in the future?

RQ4   What instructional, navigational, and other functions in the examined e-textbooks were utilized in the recalled activities of teachers and students and which were not?

Rationale for a Qualitative Design

The criteria for selecting an appropriate design require choosing a best fit based on which methodology better addresses and answers the research questions (Creswell, 2007). I chose a qualitative approach for my study in that it will take place in a natural setting, the researcher serves as the key instrument, and multiple forms of data will be gathered and analyzed through complex reasoning. The focus was to obtain a holistic picture of the meaning perceived by the participants through an emergent design, and the reflexivity of the researcher informs interpretation of results. According to Merriam (2009), "Qualitative researchers are interested in understanding how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences" (p. 5). An important distinction in qualitative research is that the persons being studied are considered as participants, taking an active role in the research, rather than being seen as subjects, which are passive recipients of the intervention (Creswell, 2012). As the researcher, I was interested in understanding the research problem from the views of participants and to learn how they constructed their view of this experience.

These characteristics of qualitative research that underlie the rationale for researchers to adopt a qualitative method design were further explored. For example, a desire to understand the problems at issue in details and complexity is best met through

direct interaction with people. This enables them to tell their stories in their own words and at their own pace, allowing the researcher to obtain rich and thick descriptions and perspectives that are far more extensive than is obtained in quantitative surveys or questionnaires. The use of multiple methods or data sources consists of four main types, and can include interviews, observations, document reviews, and audio-visual recordings that enable the researchers to review all data and make sense of it, organizing them into categories or themes (Creswell, 2007). In qualitative research, there is a sense of uniqueness that findings relate to a specific time, place, and individuals. There is not so much an attempt to generalize to other populations, but rather to explore other populations.

The role of the researcher is also different in qualitative approaches: the researcher does not try to achieve objectivity, as this is perceived as an impossible goal. Rather, the researcher attempts to minimize subjectivity by discussing and disclosing possible ways that he/she might inadvertently inject subjectivity. This is called the researcher's perspective, which acknowledges the perspective of the researcher but tries to minimize subjectivity. Furthermore, the researcher is also considered a participant in the study, and this participation results in shared constructions. Qualitative research enables the researcher to gather, describe, and convey stories and obtained meanings of these stories using flexible, emerging, and reflexive structures.

Selection of a Case Study Design

This study used a qualitative bounded case study approach. According to Merriam (2009), "Qualitative researchers are interested in understanding how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their

experiences" (p. 5). The focus of the study, effective *e-textbook functions*, is within a bounded context--the context of the teaching and learning processes within a particular institution hereafter referred to as Rocky Mountain University. According to Creswell (2007), "Case study research involves the study of an issue explored through one or more cases within a bounded system" (p. 73). Merriam (2009) discussed the term 'bounded system' as "a single entity, a unit around which there are boundaries" (p. 40). She emphasizes that I can "fence in" what I am going to study.

The study described three e-textbooks, a limited number of participants, data collection, and time of interview. Therefore, this study was bounded by three e-textbooks, three teachers, three one-hour teacher interviews, seven students, seven one-hour student interviews, and specific data collection procedures. As an instrumental case study, I chose to explore individual cases that provide insight into effective features related to the instructional and technological design of e–textbooks, as described by Merriam (2009). My study is considered to be a descriptive case study because the end product was rich, thick descriptions of the phenomenon of functions and features contained within e-textbooks that may support and enhance the teaching and learning process including illustrations of the perspectives of teachers and a sample of their students regarding these functions and their suggestions for improving e-textbooks.

This study followed an exploratory case study approach in the field of education that was used during documents review and interviews, which occurred at a university in the Rocky Mountain region (Merriam, 2009; Yin, 2014). This case study allowed me to explore the three selected e-textbooks for functions that could enhance learning and support teaching as perceived by faculty and college students, and their reported

experiences regarding the overall utility, instructional, navigational, and other functions of electronic textbooks as instructional tools as well as suggestions for improving these e-texts.

Yin (2014) has indicated the development of a "how" or "why" questions that would be the rationale for a case study, and he provided more explanations for this point by defining case study with focusing on the type of the questions. "A case study is when a 'how' and 'why' question is being asked about a contemporary set of events, over which a researcher has little or no control" (Yin, 2014, p.14). As can been seen from the research questions above, the central issues that guided this study are "how" questions.

The design of this research is a single case study that will focus on exploring participants' e-textbook experiences. It is exploratory in that the goal is to develop salient hypotheses and propositions that can serve as a springboard for future inquiry (Yin, 2014). The first exploration was to conduct an analysis of the functionality to ascertain specific instructional functions in the presentation and practice of new information from three e-textbooks. In addition, the analysis included specific navigational, and other functions utilized in this presentation and practice such as, hyperlinks, links to additional information, multimedia resources, visualizations of difficult concepts, note sharing, dictionary, and thesaurus for term definition. This analysis was used to inform the creation and development of the semi-structured interview protocol, which guided interviews. Qualitative data from multiple sources such as in depth interviews and document reviews was used to analyze and examine the overall utility of e-textbooks toward learning/teaching, and functions related to the instructional and navigational design of e-textbooks.

Theoretical Framework

Merriam (2009) described a theoretical framework as an underlying a constructivist theoretical framework are philosophical issues that shape, or "frame" the constructivist orientation. To understand these philosophical issues, it is important to clarify and define the terminology commonly used in discussing these philosophical issues. The foundation of this constructivist framework requires an examination of both ontological and epistemological positions on which this framework rests. Both Merriam (2009) and Creswell (2013) portray ontology as assumptions and beliefs about the nature of reality; that is, what is reality and how is it established. Epistemology is distinct from ontology, and refers to assumptions and beliefs about the nature of knowledge; that is, what knowledge is, how it is gained, and its accuracy in reflecting reality. Importantly, assumptions about knowledge, or epistemology, rest on the assumptions about reality. Knowledge is gained about a subject or phenomenon, and whether a piece of information is truly knowledge depends on what constitutes reality (Creswell, 2013; Merriam, 2009). A common illustration of this is the comparison of a positivist orientation with an interpretive orientation. Merriam depicted a positivist orientation as one that separates a singular reality from the human perception of that reality, that this reality is "out there" and is available for discovery through objective observation, careful and accurate measurement, and that the data thus obtained are stable. This has commonly been characterized as the scientific method, dependent on experimental research in order to determine lawful cause and effect relationships. Only data obtained through rigorous experimentation are deemed as true knowledge, reflecting real reality.

In contrast, an interpretive orientation maintains that humans cannot completely separate themselves from the reality they are perceiving and attempting to uncover, that because of the human translation of that reality, there is no "single, observable reality" (Merriam, 2009, p. 8) but rather that there are actually multiple realities as reflections of different perceptions of that reality. Interpretive orientations seek to understand how humans construct, or create their realities based on their individual and shared experiences rather than find knowledge that exists separate from themselves. Interpretive orientation seeks to understand how individuals construct meaning rather than determine facts. It makes no attempt to establish laws, causal relationships, or replication but rather searches for patterns in how various people perceive their world, their interactions with that world, and the meanings they attribute to their experiences with that world. Creswell (2013) characterized interpretive research as occurring in natural settings, using multiple methods, where the researcher is a key but reflective instrument. An interpretive research requires researchers to exercise complex reasoning involving both inductive and deductive logic, maintaining a focus on their participants' meanings, reflecting emergent designs in order to construct a holistic depiction of the phenomenon being examined in all of its complexities and interactions.

One source of confusion in interpretive research is the lack of consensus in the meaning of terminology, noted by Merriam (2009). Although there is general agreement on the meaning and use of the verb "to construct" in interpretive research, it is in deriving the noun from this verb that variations occur, with both constructivism and constructionism occurring, sometimes interchangeably as in Merriam (2009) and Creswell (2013), but sometimes as having different meanings, as when Crotty (1998)

uses constructionism to refer only to socially constructed meaning. Crotty's position reflects an unresolved dilemma in interpretive research: can individuals construct meaning independent of social factors. Crotty purported that individuals construct meaning only through social mediation, whereas Creswell (2007) postulated that individuals develop subjective meanings but that these subjective meanings are often influenced by social and historical factors, which he distinguished as "social constructivism." My position is to use the term "constructivism" to refer both to individually and socially constructed meaning as reflected in the usage of this term by Creswell (2013) and Merriam (2009).

Constructivism acknowledges the roles of both the individual and the social group of which this individual is a part in the creation of meaning (Creswell, 2013). Since this study focused on e-textbooks that are used by many individuals coming from different majors and backgrounds, a constructivist approach is justified in examining how these individuals create meaning. In this study, it was assumed that participants co-created their own reality about e-textbooks within their social and cultural context, from their own perspectives, and suggestions will be influenced by their dominant belief systems. Another assumption was that the experience and perspective of each participant, as told to and interpreted by me as a researcher, reflected our shared construction of reality, acknowledging social and cultural contexts.

The participants through the interview questions provided their views based on the interactions with e-textbooks, and expressed their opinions about the functions of e-textbooks that may support and enhance the teaching and learning process. This study

provided a deeper understanding of how students and teachers interact with and use e-textbooks as an instructional tool and their suggestions for improving e-textbooks.

My Stance as Researcher

The development of the Internet has contributed to the spread of the online culture, and social networking. I own an iPhone and have experience with some applications available especially for this device. Many of these applications are available for free. E-book Reader application is very helpful and easy to use, which enable users to get great benefit from this application such as marking pages, writing and saving notes, sharing in social media, searching through the bookshelf by titles and authors, and the ability to control the brightness and the size, rotations, and showing items in columns or list. Personally, I use this application for leisure reading. I think that the quality has contributed to the spread of these applications among people.

In the 21st century, technology, teaching and learning methods have evolved and improved dramatically. Mobile learning is a new trend in education and learning. I have taken courses in Mobile Learning: Design and Development. I decided to register because mobile learning (m-learning) in education attracts my attention and I do not know much about it. During the class, I realized that m-learning in the current time is an extension of what has been developed in technology from the past eras. With the rapid progress of technology, m-learning will evolve because technology is changing every day. As a result, I have gained knowledge and specific experience in designing and developing standard and interactive e-books and interactive by using Indesign (Adobe Software). Two years ago I bought a package of Adobe Software including Indesign CS5 but I did not know the use of this software, I did not even have the curiosity to explore it.

Then, I learned that it is a very helpful software for us as instructional designers. This course led me to think of how to make full use of this new technology to design efficient and appealing e-textbook that helps instructors and learners to achieve educational goal. Also, I wondered what functions and features provided within current e-textbook and how these features might support and enhance the teaching and learning process.

I have experience with electronic books through the university's website and using an e-book to conduct research through the academic libraries. Also, Amazon$^@$ provides an option for their customers either to buy the printed book or to purchase and download the electronic version of the book. Electronic versions usually have a cheaper price than the printed books. This is one of the benefits of technological progress in the present day. E-books have become very popular among people. People enjoy downloading various types of e-books on their tablets and smart phones, which they use for different goals such as entertainment, business, education, or travel.

My perspective about e-textbooks is that these books can be successful tools for improving learning and support teaching but often fall short of utilizing effective features. I have noticed a growing use of and interest in e-books with our digital age. Most of the research indicates that e-textbooks could be powerful tools in education and learning when educators, trainers, and designers take advantages of current technological capabilities; however, there is increased awareness of the failures and inadequacies of e-books to incorporate effectively these powerful capabilities. I wondered how e-textbook formats could capitalize on the advantages available in the digital age and how e-textbook features might support and enhance the teaching and learning process. I think technology can make learning much easier and give students many incentives to explore

and gain knowledge and experience. Also, it allows teachers and learners to teach and learn through different teaching and learning modes using computers, video games, videos, audio presentation, and the Internet.

My master's degree in educational technology and my courses in my Ph.D. program have also strengthened my skills in instructional design and using technology to improve teaching and learning. Designing efficient learning environments is considered an important element in supporting learners, and to facilitate their understanding of what leads to the solution of problems and mastering the skills required. The ways of using media to design curriculum or teaching materials has an influence on the learners' performance. I think the purpose of using any media or software is to design effective instruction, and facilitate learning and teaching. Also, I have gained knowledge in the use of multimedia technologies in education, and on e-learning strategies and technological features contained within e-courses. The knowledge and skills I have gained through my use of media` encouraged me to do my research about e-textbooks because I would like to know more about multimedia technologies, e-learning strategies, and technological features embedded within e-textbooks and how they support and enhance the teaching and learning process.

I approached this research from a participant's perspective. This means I interacted with the participants as I sought to gain a better understanding of their perspectives. I see a large number of people using e-books for leisure reading or for academic use around me, and this includes friends (students and teachers), family, classmates, and groups on Facebook. I have noticed that people hold mixed positions in their attitude toward e-books. The use of e-books in terms of acceptance and perceptions

of users, and the comparison of this format with printed book are the most frequently discussed; however, as the literature review stated, there is a lack of research that has been conducted on e-textbook functions and their effectiveness.

In the long term, I am seeking to develop textbooks and curricula in Saudi Arabia, although academic books have not yet been converted to electronic books. E-books at this time are limited to recreational, leisure, or self-help purposes. Most of these books just convert written information into digital information without taking advantage of the application features available in the mobile phone, laptops, and other device. The educational sector in my country is constantly evolving and seeking to take advantage of the technology. This study will enable me to identify and understand e-textbook functions from learners', teachers', and researchers' perspectives. The suggestions for improvements discovered will help me design and develop future e-textbooks as well as create and organize training and workshops to optimize e-textbook use in academics. Participating in the study will help me in the development and design of e-textbooks to serve teachers and learners. Furthermore, as an expert in this topic, I will be in a better position to create and organize training and workshops for teachers and learners of how to use these functions and using them to enhance learning and support teaching.

Thus, my own viewpoints reflect a belief in the positive potential available by effectively incorporating successful formats, technologies, strategies, and features into e-books, distinguishing them from printed textbooks. I also believe that technology has become an integral part of people's daily lives, and that effective education needs to capitalize on and incorporate the advantages of advanced technology, not only to keep pace with the rapid changes but also to stay relevant and abreast of technology in all areas

of life. It seems to me that there are limitations with today's e-textbooks, and while there is quite a lot of research regarding the use of e-textbooks, as the literature review suggests, there does not yet seem to be much information on specific features, formats, and strategies, and how these can be best applied to enhance learning and teaching.

Research Design Overview

This section describes the components of the research design, including the selection and analysis of e-textbooks, recruitment of participants, types of data to be collected, development of the interview questions, and the collection and analysis of data. Included is a discussion of procedures, establishing trustworthiness, and ethical considerations. This section concludes with a summary.

Selection of E-book Materials

To locate possible teacher participants, I went to the bookstore associated with a Rocky Mountain University and asked a staff member to give me a list of course numbers that require or use an e-textbook. Based on the list, I chose three colleges in different domains (business, natural and health science, and education and behavioral sciences). From each college, I picked one major, then one class from each major (General Business major, Biology major, and Psychology major). Finally, I selected a faculty member from each of these classes.

Participants

Teacher-participants. I purposely selected three faculty members who were currently using e-textbook as teaching tools for their undergraduate classes (see Figure 2). Because e-textbooks are not commonly used among teachers, teacher-participants were sought out intentionally. Participating teachers represented three majors in three

different colleges. The teacher-participants are 26 years or older and are familiar with

mobile technologies and reading digital content for school, work, or daily reading

through using e-book readers, or tablet PCs/ Mac.

Three E-Books
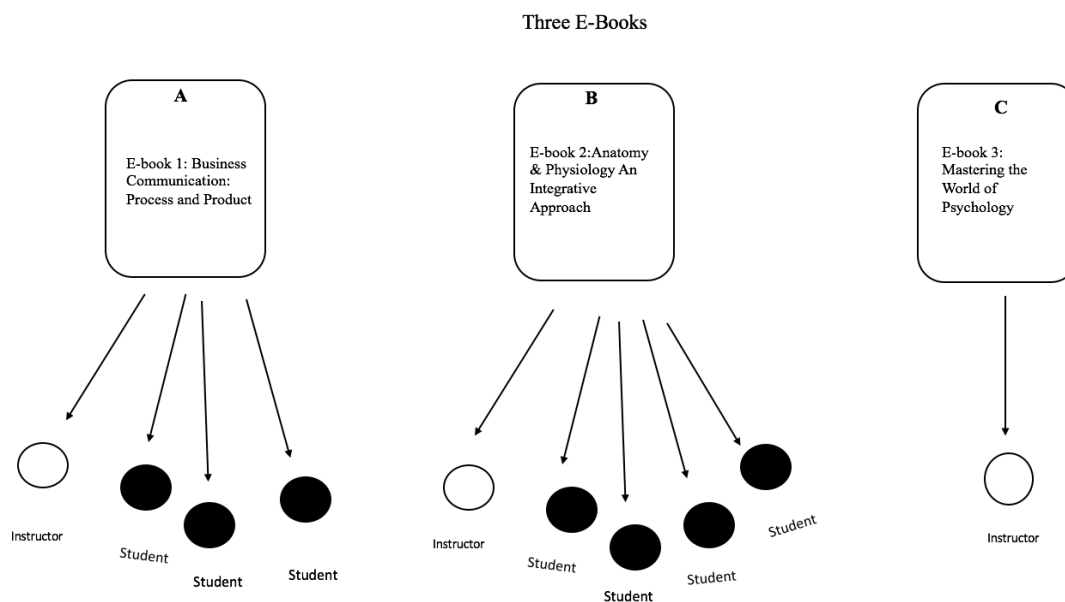
Figure 2. E-book materials and participants.

Student-participants. Although it was anticipated that I would interview four

students from each of three classes, in reality I was only able to interview four students

from Biology and three students from Business. No students from Psychology were

available inasmuch as the psychology professor decided not to make the e-book for his

class required, and the psychology students who volunteered were all using the printed

text. I purposely selected seven students from two class who were using an e-textbook for

their classes; a volunteer sample of students served as the student participants (see Figure

2). The sample included both male and female undergraduate students with different

majors from different colleges. The student-participants were all at least 18 years old and

familiar with mobile technologies and reading digital content for school, work, or daily reading through using e-book readers, or tablet PCs/ Mac.

Types of Data to be Collected

For this study, several types of data were collected: (a) functionality analysis of e-textbooks, (b) transcripts of audio/video recordings of participant interviews, and (c) reflexive journaling. The purpose of collecting several different types of data was to improve and increase the accuracy and trustworthiness of the study. The rationale for using multiple sources of evidence was to ensure the *triangulations* that provide high quality case study allowing the research to address a broader range of behavioral issues (Yin, 2014). The findings and conclusions of a case study are likely to be more convincing and accurate when applying triangulation to the research through corroborating multiple source of evidence (Yin, 2014).

Analysis of the E-textbooks

The first source of data was based on the analysis of the e-textbooks (see Table 1). These data then formed the basis for the development of my interview questions. Merriam (2009) has described the term document as sources of data include written, visual, digital, and physical material. To find and interpret data in the e-textbook analysis, I created a table based on the literature review evidence about functions of e-books, my experience with electronic books, and my knowledge in e-learning and multimedia (see Appendix G). Three e-textbooks were analyzed for instructional, navigational, and other functions of these books.

Table 1

Data Sources for the Research Questions

Research Questions	Data Sources
1. How do faculty members perceive the overall utility and specific functions of e-textbooks towards their teaching and their students' learning?	• Teacher- Participant Interview: Questions one to three of the interview address the first part of this research question (the overall utility of e-textbook), and questions four to ten address the second part (specific functions of e-textbooks). • Journaling
2. How do college students perceive the overall utility and specific functions of e-textbooks towards their learning?	• Student-Participant Interview: Questions one to three of the interview address the first part of this research question (the overall utility of e-textbook), and questions four to nine address the second part (specific functions of e-textbooks). • Journaling
3. What functionality do faculty members and college students wish to see in e-textbooks in the future?	• Teacher- Participant Interview: Questions eleven to thirteen of the interview address this research question. • Student-Participant Interview: Questions ten and eleven of the interview address this research question. • Journaling
4. What instructional, navigational, and other functions in the examined e-textbooks were utilized in the recalled activities of teachers and students and which were not	• Analysis of three e-textbooks • Results from the interview

Data Obtained in Interviews

A second source of data was gathered in the interviews, including observations, and interview questions. Human affairs or actions are the main focus of case study, so the interview is considered as essential source of case study evidence (Yin, 2014). A digital recording (video and audio) of interviews was made to avoid many problems such as bias, poor recall, and poor or inaccurate articulation that may occur without a recorded document. The electronically recorded interview enabled the researcher to view and listen to the interviews several times, which ensured more accurate information and facilitates the transcribing process. In addition, having these verbatim transcripts assisted the researcher in corroborating interview data with information from other sources. The interview questions followed a semi-structured format. According to Merriam (2009), "In this type of interview either all of the questions are more flexibly worded or the interview is a mix of more and less structured questions" (p. 90).

Teacher-Participants Interview

The teacher-participant interview consisted of three parts: first, a 10-minute personal demonstration of use of e-text by the participant, secondly, conducting the interview, and thirdly, answering demographic questionnaire on paper. The teacher interview questions contained 13 structured questions. For teachers, sample questions such as "Show me how you use your e-textbook?," "What functions have you used that have helped you in your teaching?," and "What advice would you give creators of this book for future changes?" were asked (see Table 1).

Student-Participants Interview

The student-participant interview consisted of three parts: first, a 10-minute personal demonstration of use of e-text by the participant, secondly, conducting the interview, and thirdly, answering demographic questionnaire on paper. The student interview questions contained 11 structured questions. Sample questions were asked such as "What functions did you find most and least helpful?" and "How would you compare your e-textbook with traditional printed textbooks?" (see Table 1).

Journaling

I wrote notes in a journal after each interview to record expressions, sketch ideas, reflections, and comment on the context and my observations of the participants or my reactions to something my participants say (see Table 1). These journals became part of the case study database. In addition, anytime I had an idea or thought regarding my research, I jotted these down by hand or in a computer file on my cell phone, as an additional way of documenting self-reflexivity through journaling (Creswell, 2012). The journals were organized and categorized according to the major topics in the case study protocol.

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Procedures

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Teacher Introductions and Approval

After I selected the teacher participants, I searched through the university's academic database to find information about the instructors, such as their names, offices, offices hours, and email. Once identified, I went to the instructors' offices to introduce myself and my research (see Appendix A) in order to get preliminary approval to participate in my study. This approval gave me access to their e-textbooks, which enabled

me determine functions and features to focus on during the inquiry. After I received the preliminary approval, I sent an email to each instructor include my content information and a brief description of the study (see Appendix B).

Functional Analysis

A qualitative analysis of the functionality of the three e-textbooks used by these participants was conducted to ascertain what instructional, navigational, and other functions are embedded in these textbooks in Fall 2015. First, I examined the literature and made a list of commonly researched functions of e-textbooks. From this list, I created a table which named the function and then described how each function operates in e-textbooks. These functions were divided into three categories: Instructional Functions, Navigational Functions, and Other Functions. Using this table, I analyzed each e-textbook separately, including all of the functions embedded within that textbook. Three tables were thus created, one for each e-textbook. Results of this analysis are used to inform the creation and development of the semi-structured interview protocol, which will guide interviews. During the interview process it will be important to compare descriptions of the participants' activities with the specific functions available in the e-textbooks.

Teacher Recruitment, Consent
Interview and Schedule

In March 2016, I contacted teacher participants by email to schedule an interview (see Appendix C). A signed letter of consent was obtained from each teacher-participant, with a copy given to each for her/his records (see Appendix D). I retained the original letter of consent with other documents the study generated. The original letter of consent forms with participant signatures was kept in a folder, separate from all other data, in a

locked cabinet in the office of my research advisor at McKee 225. In appreciation for my participants' time, I provided each teacher-participant with a $10 (Amazon, Target or Starbucks) gift card upon completion of data gathering.

Student Recruitment, Consent and Interview Schedule

I asked each teacher to give me a permission to attend their class to introduce myself and my research in order to get student- participants (see Appendix E). For students who agreed to participate in the research study, a copy of the consent form was given to each student-participant to sign in class (see Appendix F). Students also were asked to provide their email on the consent form. Once signed, each participant was provided a copy for his/her records. The original letter of consent forms with participant signatures were kept in a folder, separate from all other data, in a locked filing cabinet in the office of my research advisor McKee 225. Then, I sent an email including my contact information and a brief description of the study (Appendix B) to each student using an e-textbook and who agreed to participate in my study. Students were also contacted by email to schedule an interview (Appendix C). In appreciation for my participants' time, I provided each student-participant with a $10 (Amazon, Target or Starbucks) gift card upon completion of data gathering.

Teacher and Student Interview Procedure

All interviews were scheduled at a time and place convenient for participants. At the beginning of the interview, both teachers and students were asked to demonstrate how they use the e-textbook to the researcher. This demonstration was followed by interview questions related to the research questions (Appendix H and I). For both the

demonstration and interview, a key focus was the activities in which the participant engaged while using the e-textbook. Semi-structured design was used during the interview, which focused on the participants' responses and was based on their perspective of e-textbook as an educational tool as well as their suggestions to improve e-textbooks to enhance their teaching and learning. The questions were developed in a way that allowed participants to elaborate upon their answers and introduce a wide range of their activities while interacting with and using e-textbooks and their suggestions for improving e-textbooks. At the end of the interview, both teachers and students answered demographic information in a piece of paper. In addition, I wrote notes in a journal after each interview to record expressions, sketch ideas, reflections, and comment on the context and my observations of the participants or my reactions to something my participants say.

The interviews were conducted face-to-face. Participants were asked to bring their own device that they use to access their e-textbook. Each interview was electronically recorded using a digital recording device for the entire interview, video was used only for the initial part of the interview where the participants' hands and actions were recorded to accurately depict how they use their e-textbook. The interviews took approximately an hour for each participant to complete. In the beginning of the interview, participants were given an opportunity to learn more about the research by having a simplified description of the purpose and design available. I explained that interviews will not be shared with their teachers, other participants, and the voice and video recordings would be kept in a locked cabinet in my personal home office until the completion of the study and then destroyed.

Basically, I wanted to record their use of the e-textbook on the device with which they were most comfortable in order to gain insight on their actions. I used the video to explore how they used the e-textbook on their personal device. This allowed me to identify the functions that they used and the steps that they took. Also, using some sort of screen capture would be impractical with the variety of devices. Many of the devices used touchscreens, and screen capture software does not adequately record this behavior on many of these devices. The intent of the video was to record interaction with the device that is synchronized with them talking through their actions and motivations as part of the interview process. The video focused on the device, their hands, and actions.

Participant Confidentiality

To protect my participants from being identified, the participants' identity was not disclosed. They were referred to by pseudonym, through asking them if they wanted a particular pseudonym or one assigned randomly. Audio recordings were made in interviews, but the video recording only focused on the e-textbook and how participants demonstrated their use of these e-textbooks. No video showed their faces or other identifying information. No personal information was shared with others. After each interview, the recordings and researcher journal were stored in a locked cabinet until completion of the study. Once the study was completed, all recordings of the interview will be destroyed.

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Analysis of Data

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To answer Research Questions 1, 2, and 3, data were analyzed using a qualitative thematic methodology to provide evidence for the research questions. Qualitative methodology allowed me to learn more from participants through their views and

exploration. Analyzing qualitative data enabled me to shape answers to my research questions (Creswell, 2012). This type of analysis needs deep and thorough understanding of the data in order to provide meaning and to make sense of text and images. Creswell (2012) indicated three steps necessary in the analysis and reporting of qualitative data: (a) prepare and organize the data, (b) explore and code the database, (c) describe findings and form themes.

Prepare and Organize the Data

I handled a large amount of video and audio information gathered during my study from both the textbook analysis and data relating to the interviews, including reflexive journaling. Organizing and transcribing this sizable amount of data needed a system of organization. I transcribed all the journaling and interviews, including providing a written summary of what occurred in the video. Then, once the data were prepared for analysis, I used NVivo 11 software program (Yin, 2014). The video portion of the transcript was also organized and coded along with audio according to the following steps.

First, I viewed, read and reread the data many times carefully in order to ensure that I gleaned major ideas guided by activity theory and was familiar with information supplied by my participants. The main focus was to obtain an overall sense of the data. Next, I organized data by type, participant, site, location, and/or some combination of these topics (Creswell, 2012). Finally, I sorted and separated different forms of data; all the information relating to transcripts of interviews was stored together and initially kept separate from information gained from journaling (Schuh, 2009). In addition, each interview transcript was stored in separate folders along with my written interpretation of

what occurred in each video in light of activity theory, but all interview folders were stored together. I kept and stored a multiple printed hard copy as a backup. Because I have had limited experience in data analysis, this process provided focus and direction to help me understand and remember the information.

Explore and Code the Database

I began my analysis of transcriptions following an inductive approach, which enabled me to move from detailed data to the general codes and themes (Creswell, 2012). Coding provides a systematic process and framework to organize, categorize, and link the data (Schuh, 2009). I selected a transcript to code, then viewed the video and read through the document to identify key words and phrases, repeated ideas and words, and comments related to individual research questions. I focused primarily on the participants' descriptions of their personal activity with the e-textbook and how it functioned as a tool for them. I also wrote memos in the software as ideas occurred to me. This enabled me to begin understanding the whole meaning (macro sense) and the underlying meanings.

Upon completion of initial coding of an interview, I made notations about main ideas presented throughout that transcript. I repeated this for all the transcripts. I then went back through the data and identified these codes in the video and text by identifying segments, highlighting them in the software, and assigning a code word or phrase that describes the meaning of the segment. After coding an entire video/audio transcript for macro topics, I read through the transcript again to see whether new codes emerge, determined if there are similar codes, looked for redundant codes, and circled specific

quotes from participants that supported the codes in order to insure that there were no repetitions or omissions.

Describing and Developing Themes

After completing the coding, I then reflected on thematic categories and started developing a thematic framework consisting of preliminary categories and sub-categories. I used this preliminary framework to go back to each transcript to determine its accuracy and to understand the relationships between categories and subcategories using diagrams or tables. Upon reaching a final decision about themes, categories, and sub-categories, I developed a thematic framework in graphic form to reflect these classifications.

To answer Research Question 4, a qualitative analysis of the functionality of the three e-textbooks used by these participants was conducted to ascertain what instructional, navigational, and other functions are embedded in these textbooks. First, I examined the literature and made a list of commonly researched functions of e-textbooks. From this list, I created a table which named the function and then described how each function operates in e-textbooks. These functions were divided into three categories: Instructional Functions, Navigational Functions, and Other Functions. Using this table, I analyzed each e-textbook separately, including all of the functions embedded within that textbook. Three tables were thus created, one for each e-textbook. The intent of this exercise was not to compare the functionality of the three e-textbooks arbitrarily selected for this study. Rather, it enabled me as a researcher to compare participants' descriptions of e-textbook use with the specific functions available in the book that they used. A copy of these tables can be found in Appendix K.

Trustworthiness

It is important to determine the accuracy or credibility of my findings because qualitative research is interpretive dependent on my self-reflections, and my personal experience and background can shape my interpretations (Creswell, 2012). I needed to make sure that my findings and interpretations accurately reflect reality, which Merriam (2009) terms trustworthiness. I validated my findings through the use of trustworthiness strategies such as triangulation, member checking, peer examination, engaging in data collection, and my researcher's position.

Triangulation

There are many ways for strengthening the trustworthiness of the data; Merriam (2009) discussed five such strategies. One is to employ triangulation, a strategy used to address internal validity by using multiple sources to examine a focus point from a wider perspective than one source can provide. I used multiple data sources and multiple methods in collecting and analyzing data from e-textbooks, audio/video recordings of teacher interviews, and reflexive journaling, and audio/video recordings of students' interviews. This enabled me to compare and crosscheck data collected through these sources. Triangulating from multiple source of evidence allow a researcher to construct explanations and meaningful suggestions of the social world or phenomena from which they arise (Mathison, 1988). Triangulation strategies enable the researcher to provide evidence for different purpose whether convergent, inconsistent, or contradictory. These sources of evidence help the researcher to make sense and construct good explanations of the social phenomenon. The outcomes are convergent when the case study findings from different sources or methods corroborate the same findings. Inconsistency of multiple

source or evidence is another useful purpose of triangulation when the case study findings or conclusion do not confirm each other (but are not contradictory) because a more comprehensive picture can be drawn from the inconsistencies. Moreover, triangulating from multiple sources of evidence may develop contradictory evidence that address different findings, which helps the researcher to understand how and why the evidence differs to gain understanding and to revise or refine the framework of the research findings (Ely, Anzul, Friedman, Garner, & Steinmetz, 1991).

Member Checking

The second strategy for ensuring internal validity or credibility was by using member checks, whereby I double-checked my findings with some of my participants. Doing so strengthened my confidence in my interpretation as accurately representing the participants' perspectives (Merriam, 2009). Participants should be able to recognize and validate their experience and perspectives from my interpretations. To achieve internal validity and credibility in my data, I sent the findings via email to some teacher/student participants to provide feedback about these findings.

Peer Examination

Another way to achieve trustworthiness in my study was to use peer examination. As a graduate student, I sent my results to my advisor and one committee member to provide an expert's examination on my topic and provide feedback on the emerging findings.

Engagement in Data Collection

Adequate engagement in data collection was a fourth strategy. My findings and analysis need to be based on substantial immersion with the data in order to be

completely familiar with the findings, reaching the point of saturation, achieved by multiple re-readings of the data until I obtained no more new insights or ideas.

Researcher's Position

A fifth strategy was termed the researcher's position or reflexivity, whereby I presented my research stance and clarified to my readers my assumptions, experiences, worldview, and theoretical orientation. This helps my readers to better understand how I arrived at my interpretations of data. I kept track of my own particular viewpoints and biases in order to become better aware of these, and to take care that I do not let my personal opinions influence or shape the perspectives of my participants. I accomplished this by writing my own perspectives in my journal so I could be aware of these, which helped me avoid or reduce this bias.

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Reliability or Consistency

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From a qualitative perspective, as described by Merriam (2009), reliability, known as trustworthiness, refers to whether the results are consistent and dependable with the data collected rather than the quantitative technique of replications of research yielding the same results. Merriam noted that "Reliability is problematic in the social sciences simply because human behavior is never static" (p. 220); therefore, reliable replication is often difficult to obtain. There are several strategies to ensure the reliability or consistency and dependability of the study such as triangulation, peer examination, investigator's position, and the audit trail (Creswell, 2013; Merriam, 2009). In addition to the first three strategies discussed above, an audit trail shows in detail how the researcher collected the data, and how the findings were established through describing how categories were derived and how decisions were arrived at. To maintain an audit trail, I

recorded and checked transcripts for accuracy. I used reflexive journaling to write my reflections, my questions, decisions, issues, and ideas as they occur in collecting and analyzing the data.

External Validity or Transferability

Merriam (2009) presented generalizability in qualitative research in terms of whether the findings can apply to other researchers' particular situations. Every study, every case, every situation is potentially useful in a particular settings or similar situations. As a researcher, I have the obligation to provide enough detailed description of the study's context to enable readers/other researchers to decide for themselves if the study fits with their situations. For example, analysis of e-textbooks described in this study might be applied to other settings such as graduate level or K-12, different schools, or schools in other countries. Other populations may also be examined such as instructors' and students' perspective across year level, subjects, and world populations. The context of the study could be altered by using online classes.

Ethics

As a researcher conducting a qualitative case study with the primary source of data collection being personal interviews, I took into consideration ethical issues described by Creswell (2012) and Merriam (2009). Key issues likely to arise during the study that required attention included "informing participants of the purpose of the study, refraining from deceptive practices, sharing information with participants (including your role as a researcher), being respectful of the research site, reciprocity, using ethical interview practices, maintaining confidentiality, and collaborating with participants" (Creswell, 2012, p. 230). Merriam (2009) asserted, "Ethical dilemmas are likely to

emerge with regard to the collection of data and in the dissemination of findings" (p. 230). These ethical considerations are designed to protect participants from harm, ensure their privacy, obtain informed consents before data is collected, and provide guidelines when deception is part of the research (Merriam, 2009). To address these issues, the participants' individual identities were not disclosed. They were referred to by pseudonyms, through asking them if they wanted a particular pseudonym or one assigned randomly.

In general, there were no foreseeable risks because participation was voluntary and the data were kept secure. Any risk that may have occurred was not greater than those normally encountered during regular classroom participation or what participants would experience in activities of everyday life. I contacted participants by going to the instructors' offices/attending classes and by email to explain my study and the extent of their involvement. Once the participant agreed to participate, a letter of consent was delivered for signature to each participant. Consent forms provided information about the purpose of the study, the procedures for the study, the type of data collected, and the time of the study. In addition, all interviews were scheduled at a time and place convenient for participants. At the beginning of the interviews, participants were given an opportunity to learn more about the research by having a simplified description of the purpose and design available to them, along with a statement about the need for electronic recording. I explained that interviews would not be shared with teachers, other participants, and the recordings would be kept in a locked cabinet until the completion of the study and then destroyed.

Summary

The aim of this research was to understand the perspectives of teachers and students from interviews and observations regarding their use of specific e-textbooks in a higher education learning environment by using a qualitative method research design. In addition, their feedback was solicited regarding preferred and suggested functions that they think are appealing and useful in e-textbooks. The dominant qualitative framework of interpretative theory was used to collect, describe, analyze, and interpret the data obtained through semi-structured interviews. In this chapter, I summarized my stance as a research and discussed how my stance might influence my research. I also described the participants, type of date collected, procedures, and steps of data analysis in detail in this chapter. In Chapter IV, I describe my findings, and in Chapter V, I summarize my study and discuss it.

CHAPTER IV

RESULTS

Teacher-Participants

Although all teacher-participants came from the same university, there were some differences among them with respect to experience, years teaching, major subject taught, and college within the university. Three teachers participated in the study. Table 2 provides a summary of the differentiating details regarding teacher-participants.

Findings in Relation to Research Question 1

To answer the first research question, "How do faculty members perceive the overall utility and specific functions of e-textbooks towards their teaching and their students' learning?," the researcher developed initial themes and sub-themes based upon data gathered from interviews, recorded video of the interview, and the researcher's reflexive journaling. The researcher used NVivo11 to categorize and organize the data into themes and sub-themes. Four themes were identified with regard to the first research question: The four main themes were named: Navigation Through the E-book/Platform, Learning Related to E-book/Platform, Evaluation of E-books, and Faculty Choices (see Table 3). In the following section, each of these four themes will be reported in detail.

Table 2

Overview of Teacher-Participant Information

Teacher-Participants	Colleges	Majors/classes	Teaching Positions	Teaching Experience	Year of Teaching this Class	Age	Gender	Device Used to Read the E-textbook
Alex	Natural and Health Science	Biology/ Undergraduate	Adjunct professor	6 years	1 year	26-29	Male	iPad and laptop computer
Rob	Business	General Business/ Undergraduate	Lecturer	25 years	Six years	Over 40	Male	Cell phone, laptop computer, or desktop computer
Keith	Education and Behavioral Sciences	Psychology/ Undergraduate	Graduate teaching assistant (GTA)	Five semesters	Two semesters	26-29	Male	laptop computer, or desktop computer

Note. The teacher-participant names are pseudonyms created by the researcher

Table 3

Illustration of Themes and Sub-themes for Research Question 1

RQ1	How do faculty members perceive the overall utility and specific functions of e-textbooks towards their teaching and their students' learning?

Navigation Through the E-book/Platform

- Access

- Hyperlinks (Jump, External Links)

- Search

- Scrolling

Learning Related to E-book/Platform

- Assignments

- Embedded Material

- Course –Specific Content

Evaluation of E-books

- Ease of Use/Familiarity/Cost Effectiveness

- Preference

- Relevance/Incorporating Current Technology

- Time Savings

Faculty Choices

- Selection of E-textbook

- Using E-textbook in course/teaching

- Switching Views

Navigation Through the E-book/Platform

Navigation in general is moving from one part of the e-book to another. The

teacher-participants navigate through the publisher website to buy an access code,

register, and log in to their course. They then sign in to the publisher platform home page,

enabling them to navigate through the e-book and other online recourses related to their

course. Navigation through e-books can be accomplished through actions such as searching, browsing, scrolling, using hyperlinks, etc. For example, e-books commonly include linked elements such as a table of contents, chapters, specific pages, videos, images, and glossary. Navigation is the mechanism that allows users to move directly to the content of interest within the book or to content outside the book (Browne & Coe, 2012). The faculty comments regarding navigation included both their own experiences in navigating, and comments regarding their students' navigation.

 Access. The participants described how they gained their individual access to the online e-textbook. This process involves purchasing the rights for access, setting up an account with a user name and password, and any other steps required by the publisher in order to complete their registration process. After the initial registration process, an icon then appears on the user's electronic computing device, which then, when clicked, takes the user to the opening page of the book. Access thus has two meanings: the one-time registration process to allow access to the publisher platform to get to the e-book, and from that point on, just clicking the provided icon obtained by the registration process to access different materials embedded in the e-book. The registration process differed slightly for each faculty member depending on the book's publisher. Alex reported,

> Okay, first of all, what we would do is just go to the Bio-### or to the McGraw Hill Connect Plus and you can do this through Google, you can just google McGraw Hill Connect Plus and I have it as a bookmark, so I click that. Part of the registration for this class is buying Connect Plus . . . if you're a new student, you have to go to this bookstore, either buy it there, buy the textbook there . . . or buy online through McGraw Hill. It will come in plastic shrink wrap and it will come with the access card for this.

Keith responded,

> Okay. Basically, with this course, I mean you would have access to an online textbook if you so choose to use it. There are some different functions that we can use so after you've registered for your account, you would gain access to the account.

Rob did not actually use the words "access," "registration," or "buying," but he did mention how the publisher platform includes varied information, and users can look at the course materials provided for each week. He stated, "Cengage Learning sets up your entire course, so you can look week by week and see what the readings are, and also see what the graded problem sets are for."

Hyperlinks. The hyperlink function is a valuable multimedia feature to quickly jump to the relevant sections (Muir & Hawes, 2013). Hyperlinks provide users immediate access to different resources in different parts of the book by clicking on these linked resources such as a linked table of content, text, audio, video, images, figure, glossary, pages, search, etc. Hyperlinks greatly facilitate access to these elements directly without the need to refer to other sources, having to perform several steps to arrive at the desired content, or turning pages (Dobler, 2015). The teacher-participants used hyperlinks to jump instantly from one part of the book to another, whether internal or external.

Participants pointed out the value of the hyperlinks for quickly jumping to the relevant sections from table of contents to chapters and sub-chapters of the book, or jumping to different or specific areas in the chapter. Other features that were mentioned as valuable were glossary terms, reading, audio, video, figures, enlarge figure, table, images, dictionary, notes, flashcards, pages, links to additional information/external resources, and switch view. Alex and Keith used the table of contents to navigate through

e-book following hyperlinks to the chapters, specific chapters or sections, and other features embedded in the chapter. Alex stated,

> I'm in chapter 21 right now . . ., the good thing is the book breaks it right up into sections so if I wanted to talk just about the vessels, I could click here. If I wanted to overview all the tissues and organs, click there, but let's say I forgot that the secondary lymphatic organs are. I can click that heading there, 21.4 and it'll take me there and if you have a real textbook, this looks the same as a real textbook, it has same words and everything.

In addition to the hyperlinked chapters and chapter sections, Alex appreciated that other elements embedded within each chapter such as text, video, images, figures are linked which enable him to access and navigate through them. Alex stated

> There will be a figure, there will often be graphics associated with the text and so you can click on those graphics and it'll pull them up. . . . I can click on to make them zoom up." "Also sometimes there will be a video associated so I haven't checked to see if we have a video for this, yeah here we go.

Keith also discussed how hyperlinks are important for his students to enable them to get information quickly based on their needs:

> One of the most useful tips that I give my students is for knowing how to look at the book, how to quickly walk through a section that you need to look at, say you had a quick review on a particular section of the chapter, you can click on the page range and will take you directly to that section. . . . You can look at the entire glossary here.

Rob used the chapter reading link available with each problem set to navigates through online chapter following hyperlinks to some features embedded in the chapter. He said, "This online text is setup . . . here, I'll just open up chapter 1. It's set up so that you can read on the screen using rich media, like you're used to seeing on the Internet."

Some publishers provide links to external sites, either within the text itself or as part of web-based materials associated with the text. These materials can be supplementary such as the dissection tools for the biology class or the media video for the

psychology class. In addition, external links can allow the individual to go to other web sites, such as opening an original research article that was briefly described or summarized in the textbook. For example, Alex found that accessing these links are important and he considered them as beneficial resources. He liked to use the cadaver dissection tools: "What I really like is, let's see, get back to home. Because this class is not only the physiology it's also anatomy, so another really great resource that they have, that's an online resource, is the cadaver dissection tool." Although there was an internal link in the e-text, he used the link available on the home page of the publisher platform.

Alex talked about another important link to the external resources via the publisher platform: "Then of course we have homework too which is, allows a professor to quiz you as a student." He also mentioned other less utilized links to the external resources LearnSmart and LearnSmart Prep, "I actually don't really use these resources LearnSmart and LearnSmart Prep."

For the psychology class, the video itself is not embedded directly in the e-book, but rather there are links embedded in the e-textbook to watch the video in Mypsychlab, and links available on the publisher platform. Keith stated, "Some of them are embedded directly in. There's extra ones that are in the media like extra media folder, some of the ones that they don't directly talk about but they say there's further information." Also, he uses the option Assignment Calendar available on the publisher platform to show one assigned video for his students. "A lot of times, I would assign videos for them to watch and they do have some good videos from the textbook website about some topics." "Let's see which one that I viewed. It opens up the link. You just watch the video and you'd answer the questions." On the other hand, Rob linked to external recourses via the

problem sets: "So here, I'm starting to look at the problem sets and then in the next window I'm reading the text that leads to the problem sets."

The video recordings of the interview and the notes in reflexive journaling indicate that faculty participants most often started their navigation with the assignment link through the publisher platform home page. These platforms are interactive learning platforms that provide easy access to the hyperlinked assignments or problem set, assignment calendar, reports, e-book, and other online recourses from the home page.

Search. The search function of e-books and e-resources enables users to access information based on provided criteria (Hoseth & McLure, 2012). Searching could be for a specific page number, exercise, word, concept, or idea by typing that word or concept, the page or exercise number in the text box. The participants described the search function as a helpful feature for quick access to exactly what the individual needs or wants. Alex pointed out, "The most helpful features are probably, this top bar up here which allows me to jump to a page, allows me to pull up and go to any chapter or to even search it. That's probably the most helpful." Keith agreed,

> The most helpful part is the search feature I would say. Sometimes getting down to or using the table of contents is helpful to get me to section, but sometimes I want to find something quicker so using search feature is much quicker for me if I know specifically what topic I'm looking for.

Rob used an example to explain the search function:

> Well, for example, let's say later in the semester you come to class and we're working on persuasion and you realize that persuasive techniques have appeared in several chapters . . . you can't remember where it was . . . I just put in persuasion. Your online text will show you all the references to that word in the chapters.

Scrolling. An important activity for the participants was scrolling with in the text. Scrolling refers to the physical actions taken by the reader in viewing a relatively large document partially displayed in a smaller window. When a text can be displayed fully within a window, no scrolling is enabled. Scrolling may be vertical, horizontal, or both. Also, moving through pages can be accomplished by using the next page and previous page buttons or a scrolling bar. Scrolling is a basic activity necessary for browsing, which involves the reader reading or skimming the content as he/she moves through the content including text, pictures, video, and other elements by using hyperlink to explore the content or get an overview. Because browsing describes a cognitive function in interacting with the content material, it is discussed later under the theme of Learning Related to E-book/Platform.

Teacher-participants did not actually use the word "scrolling" but described or most often demonstrated this action, evidenced by the video and the notes in reflexive journaling. Alex and Rob scrolled the pages in a similar way to each other. They scrolled through pages by moving the mouse up and down along the vertical scroll bar at the right side of the e-book. The vertical bar moved automatically when they moved the mouse (see Figures 3 and 4). Rob had an option to scroll page by using the horizontal bar at the bottom of page but he used only the vertical bar (see Figure 4). He also flipped to the next and previous pages by using the left and right arrow buttons at the middle of page.
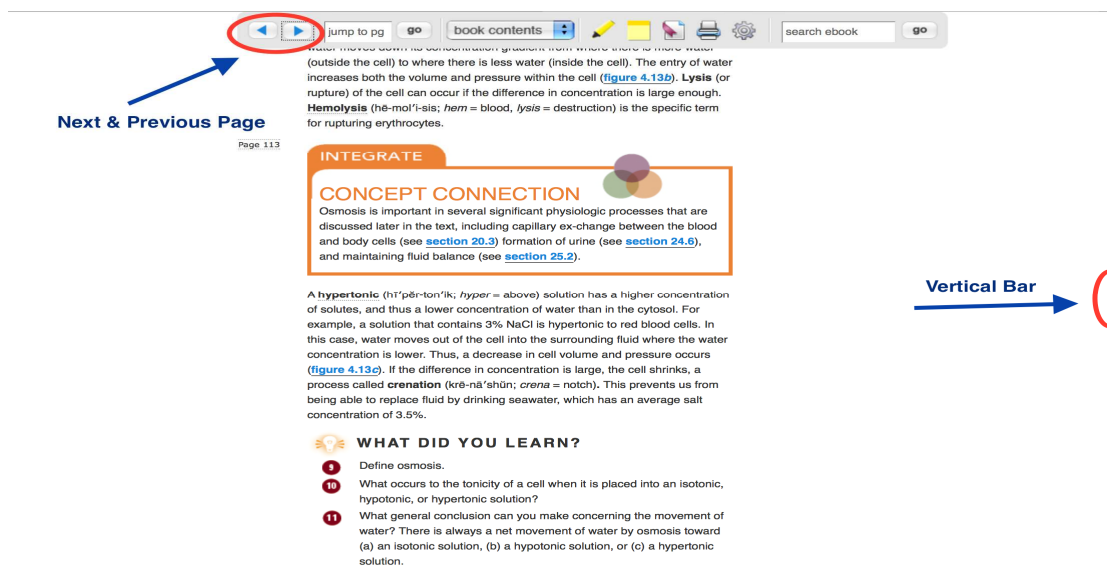
Figure 3. Illustration of scrolling options for the biology e-textbook.
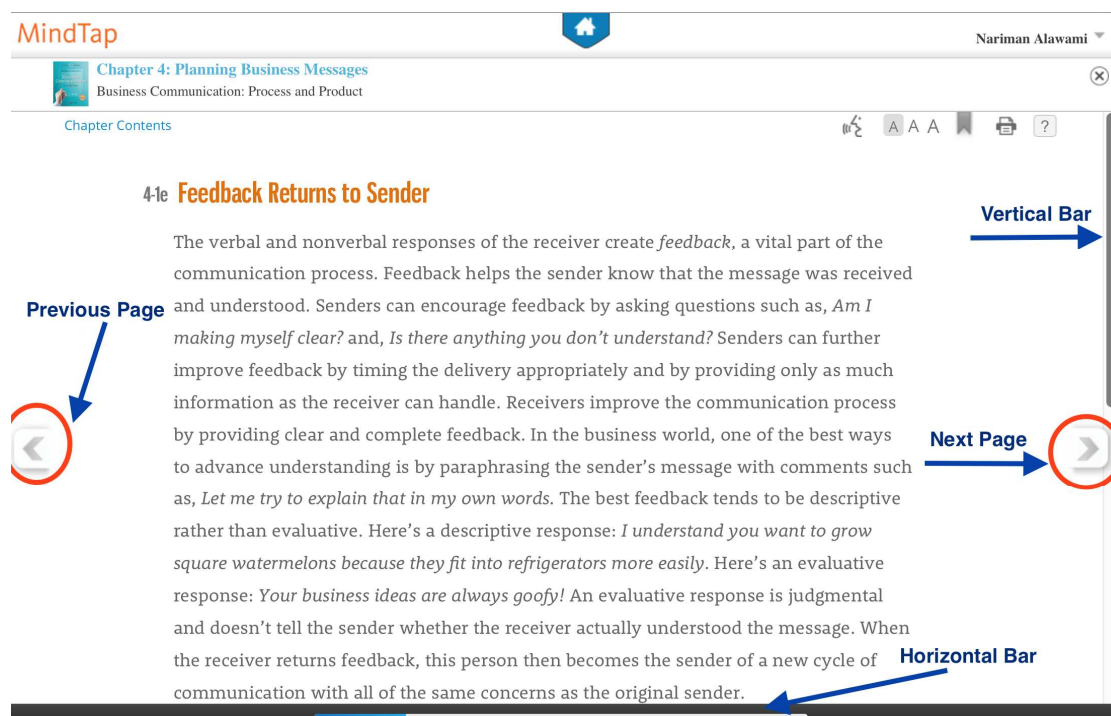
Figure 4. Illustration of scrolling options for the business e-textbook.

Keith scrolled through pages a little differently due to the function designed by the publisher (see Figure 5). He scrolled pages up and down by clicking and dragging the mouse over the vertical scroll bar at the right side of e-book. Moving is also accomplished through next and previous page by clicking on the top and bottom buttons or any place on the vertical bar to the right or left side. Keith used another vertical scroll bar to navigate and scroll through table of content and other elements such as glossary and video.
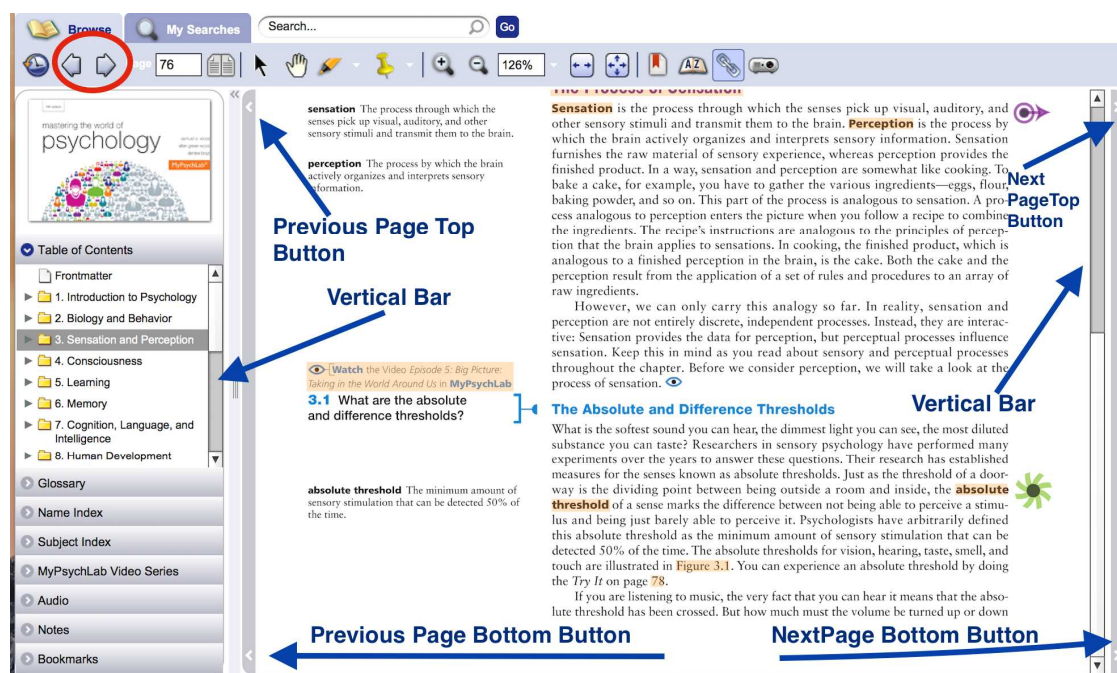
Figure 5. Illustration of scrolling options for the psychology e-textbook.

Learning Related to E-book/Platform

Although navigation is a necessary pre-requisite, actually learning with an e-book requires cognitive engagement with the accessed materials. Educators and students both wish for this engagement to be effective and efficient. That is, the students must

successfully integrate new information with their existing knowledge and be order to demonstrate that learning to the teacher. In addition, efficiency would infer that the materials do not require unnecessary time and effort to achieve a desired level of learning. Teachers evaluate the available learning materials provided in the e-book, selecting from these materials that they feel will benefit the students the most, and integrate them into their teaching. The e-book presents a wide range of activities, information, displays, and aids for enhancing learning, and the task for the teacher is the selection of the most appropriate embedded material in the e-book to facilitate learning by the student. In this section the focus on learning from e-book materials relates to the evaluation by the teacher of specific material to assign to students, and how these teachers integrate these selected materials.

Assignments. Assignments are learning tasks given to students to complete, allowing the instructors to assess student knowledge as part of the course or for practicing skills. These are provided by e-books' website publishers and might include homework assignments, problem sets, quizzes, or tests depending on the publisher or subject matter. Assignments linked with e-book chapters or the assignment questions might contain links to relevant sections of the e-book.

Alex and Rob both considered the assignments as helpful learning resources for their students and for them. They use the assignment feature as one way to evaluate students' knowledge of book reading. Alex stated,

> This will show all the homework because this Connect Plus is not just an e-book, it also has lots of other resources that we could use and one of the important ones I use it for is for the homework.

He added, "My favorite is, first of all homework. That's the supplementary material that comes with the software, it's important I use it every week, it's really important."

Rob noted that the advantages of using Cengage Learning assignments were the ability to navigate through questions and reading, having unlimited attempts, and receiving automatically-graded and detailed feedback. These features, he believes, reinforce knowledge. Throughout Rob's interview, several comments came up relating to these advantages: Rob stated,

> And the problem sets are there in order to help you reinforce what you've read . . . if I have a chance to exercise my knowledge by reading and then doing a problem set, or maybe even answering questions in the problem set while I'm reading, then it makes the information stick with me a lot better.

Rob also values the unlimited attempts and automatically-graded and detailed feedback functions, as can be seen from the following examples:

> Okay, the most helpful feature is the online problem sets. By virtue of them being online, the students are able to get immediate feedback about how well they read, and a feature of this Cengage Learning product is that they can take the problem sets more than once, so if they want to re-read, they can.

On the other hand, Keith designed his own assignments that he then integrated and managed in the publisher website, letting his students have access and do it on the publisher website. He used the test bank to help him write his questions: "I use the test bank that came with the test book or the textbook to think about how I was developing my questions but I didn't pull them directly."

Embedded material. Embedded materials are features provided by e-book systems to support the learning process and increase users' interaction with the textual information. The features of each e-textbook are dependent on the publisher and differ from publisher to publisher as well as differing from one subject matter to another. Some

of these features are similar to those in printed books such as vocabulary, glossary, table of contents, etc. Others are unique and not possible with printed books such as video, audio, and other interactive features. Also, interacting with these functionalities could be different from one user to another based on their needs, interests, and motivations.

Teacher-participants used and/or mentioned various features provided by e-book systems such as video, graphics, learning objectives, glossary, activities and end of chapter review, taking notes, highlight, dictionary, flashcards, and listening to the text function. Video is a function provided by some e-books to present, clarify, or support the textual information. The teacher-participants reported varied experiences in using and benefitting from the video function, both from the perspective of the students or themselves. For example, Alex, stated that video associated with text is useful in getting an overview of a physiological system: "Lymphatic system, I've got a video and I can come on here and I can watch this video, it'll give me an overview of the lymphatic system."

For Keith, the video function was the main reason for using the e-textbook: "To provide supplementary materials to the students to give further videos, demonstrations with the material to just give them extra examples to build on so they could get their ideas going for more application of the content." Throughout Keith's interview, several comments were made relating to the videos. He described the videos as tool to get additional clarification and information. "There are videos for you to watch to get further clarification on things." In addition to getting more information and explanation, Keith also used the videos in the assignments to enhance students' understanding, and as a way to strengthen the application of the content.

>The one that I used the most were the videos because I told my class that you need to see this in action to understand what's going on. Just reading about it is not enough. You need to be able to read it and see it.

Keith used an example to explain the importance of video function:

>As far as the videos go, I feel like they were important to show the students examples of what's going on like if someone's meeting criteria for a certain disorder or someone's engaging in certain parenting styles, just get to show them what this actually looks like. That information is important for the assessment because I'll give written scenarios of these things and if they've seen it in action, I've read about these things, they should start to be able to pick out the details of it.

On the other hand, Rob saw the video function as interactive and that distinguished the e-book from the regular textbook: "You have the ability to watch various videos that are presented in the online text." Rob preferred to use his own materials, stating,

>Yes, there are videos. Yes, there are hyperlinks to resources that can be used outside the chapter. I prefer to get people involved in-class using supplementary materials that I created based on my experience in the business world. And so I just didn't . . . I don't even know what some of the supplementary materials are. I had my own.

Graphics refer to photographs, images, diagrams, tables, figures, and charts integrated with the text. These elements could be linked and enlarged. It is a way to clarify and support the textual information and visualizations for concepts and data. Alex valued the images associated with the text, indicating that images improved his understanding. After describing how to navigate to a specific graphic, he then added,

>I can read about those things. I can also, when I click on a figure, see all the figures that are associated with this chapter which is a nice way to kind of make sure I'm understanding what I'm reading with the picture.

Alex and Rob described their experience in using the images for teaching. Alex reported:

Yeah, so when I prepare for the lectures, I use my actual textbook but if I were to use the e-textbook like I did with the textbook, let's see, it's loading. Okay, let's say I'm preparing a lecture for chapter 21, I would start at the beginning and usually, I don't read the chapters all the way through because I'm already familiar with it. So what I'll do, because I've taken upper level physiology and upper level anatomy, so what I'll do is I go through it. If there's is something that I need to review, let's say I need to review this part right here, I'll come spot-check it and I'll read this figure and maybe click on it and read the caption there then I'll go back. As I do this I can actually get these figures and put them into my PowerPoint.

Alex also incorporated certain images to present to students for learning:

I use PowerPoints that were passed on to me. The way that I would do it though if I were to make this myself. I can just do that, copy the image and then open my PowerPoint and paste it in there. Then I can make up my own caption for it or whatever, point out what I want to point out on the PowerPoint, but it makes it really easy to just be able to copy and paste pictures. When I do that, it comes with the McGraw-Hill. That's you know basically how I use the book, I essentially have the PowerPoints already made and then the the PowerPoints are made from the online e-book."

He added "I use the graphics of the figures on there and I use those in all my lectures, so those help."

In the classroom, Rob described the way he uses the figures:

Yeah, well . . . I don't . . . I don't lecture, but I do . . . I do have exercises for people and people come to class always ready to do work. They do work in teams, and sometimes I'll give them an exercise and ask them to examine one of the figures in one of the chapters.

Learning objectives are also embedded at the beginning of each chapter to inform learners what they are supposed to learn through their reading. Alex reported, "So we've got three options, you can just read all this stuff which you could read and there is learning objectives that'll tell you what you're basically going to be learning about as you read through this stuff."

Glossary is a function that provides quick access and clarifications to the keyword or key term relevant to the text. Rob and Keith considered the glossary function as a way

to get more explanations of the class vocabulary. Rob stated, "The A-Z is a glossary for all the keywords that come up in the class, for example, persuasion would be one of those." Keith reported, "You have bolded terms on the side you can click on for further information."

Embedded activities and end of chapter review are methods to review and guide students to promote their knowledge including embedded activities in the text or at the end of the chapter. Rob and Keith reported varied perspectives in using these functions for review and to guide students. Keith discussed how these activities are useful for getting an overview and for exam preparations:

> Let's see, we get to the end of the chapter . . . but if you need a quick review over everything that we've covered in the chapter, you can look at some other terms here, look at a quick summary. You would be able to match your notes back up to this information to prepare for an assessment. And then there are study guides here. Some of these questions will give you the factual knowledge to give you the first round of study and to prepare for an exam, then you take your notes, take your examples, match them up with these concepts, come up with new examples to move forward for preparing for an exam.

Rob used these activities to let students work in teams during the class. He also felt it was easier to display the exercises on the screen rather than with the paper text:

> Oh, yeah. I used a number of . . . I use a number of the activities at the ends of the chapters . . . almost every week I would use, from the ends of the chapters, activities, and use them in class and put people in teams and ask them to pursue the activity, then report the results of their work to the rest of the class.

Rob continued,

> Have them work in teams, have them put their answers on the marker board, or have them write the answers in their notes and then just report orally. And so I'll bring up on the screen an exercise just because it's a little simpler for me to do it this way than for me to grab my paper text and flip through and find the same exercise and put it on the document reader.

Notetaking functions allow users to add personal comments to any location on a page, and to save, edit, or delete the note. Rob and Keith relied on using digital notes while reading or when teaching in class. This can be seen in the following excerpts. Rob said,

> And if you're like me and you're used to paper text and you spend a lot of your life in paper text, you probably like to take notes. Well, this online text lets you do that. You can create notes, it tells you about it, it gives you the instructions, it lets you set bookmarks. Then you have a notebook that's free form that . . . once you log in and authenticate your account, you can save your notes in the cloud and they're associated with whatever page in the text you created the notes. So, it's a virtual version of writing in the margins. I like that aspect.

Keith mentioned that taking notes is a helpful way to remember and review important information or concepts that instructors emphasized in class.

> One of my favorite features that I use is taking notes right beside. If I'm in class or if you're in class and I say you're going to need to know an example of these different language processes, you can put a note in your book to go look up examples and it will be visible for you anytime you want to review it, you have the note available to you.

In addition, Keith also described how the digital sticky notes helped him prepare for his class.

> Sometimes I put notes like if I'm reading the book and I think of oh this would be a good time to talk about this example or this would be. . . . This is a good way to connect this with something else that I've already talk about.

Highlight is a function that allows users to mark important sections on a page within the e-text. Keith commented,

> You have options to highlight in the book as well . . . I don't really care for the highlighting function unless you're . . . . You have to be very specific to get it the way you want but it will give you a rough, rough form of your highlighting.

Dictionary is an interactive tool that allows users to search for word definitions directly from the text. Rob noted that integrating the dictionary within the e-text is easier

than accessing it through the Internet: "Here's a dictionary. You can get dictionaries all over the Internet, but this one is just easy there for you."

Flashcards is an interactive tool that allows users to see the chapters' glossary and their definitions on digital flashcards, with a word or term on one side and the meaning or explanation on the other side, so that students can flip back and forth. Rob described flashcards as a learning technique allowing students to test themselves. Rob said,

> You know, flashcards are kind of an old-fashioned way of looking at a summary of information, like . . . like here was "false necessity trap" and it defines it on the other side, and you're not sure what a vocabulary item is, you can test yourself and flip it over.

Finally, listen to the Text is a function that allows users to listen to the full text or simply a selection. Rob discussed how the listen function provides assistances to users if they feel bored or if they are unable to read the text online. He described this function: "You have the ability to listen to the text being read to you, and so if you get really bored while you're on a road trip, you can let the online text read itself to you." Keith mentioned, "You have the option to read the textbook or listen to the text."

Course-specific content. This refers to online external learning resources that differ from one subject matter to another. For example, certain specific resources in biology would not be typically used in a psychology or business class. The main purpose of these specific online resources is to help enhance and support the specific course content for that class.

A specific example is the software program Anatomy and Physiology Revealed (APR) used in the biology class. This software is an interactive cadaver dissection tool to support the biology lecture and lab. Alex finds the cadaver dissections as a useful feature for teaching labs and for his students, as it can be used in several ways. He reported "This

is also probably one of the more important features that I use and I encourage students to

use."

Alex described the functions available in this software and how these functions

help in studying and remembering the information:

> Let's say again I want to look at the lymphatic system, I'll click that module, if I
> want to dissect, I'll hit this tool here, it's got some animations, look at microscope
> slides for histology, look at imaging pictures and then I can quiz myself.

Alex continued,

> Let's say we're going to look at the spleen. We can look at from the interior view
> and there's the spleen there, okay. I can also, let's say want to look at, let's say, if
> I was studying the skeletal system. I can actually click on each of the bones and
> it'll highlight them and show me exactly where they are. I think this is probably,
> as in terms, as far as anatomy the course goes, this is the best kind of electronic
> resource that we have.

LearnSmart and LearnSmart Prep refer to other online resources for biology

available at the home page of the publisher platform. Alex reported not using these

resources "I just kind of didn't really have time to try and figure them out." but he views

them as as other good resources: "Let's see, like I said, the homework and the lab

dissection are extremely important, the LearnSmart and LearnSmart Prep are less

important to me but I think they're still good resources."

Keith saw limitations of the book regarding external resources that support the

specific course content. He described going outside the book to get more information

about specific information. For example, searching for the term "dissociative disorders"

shows that there is not enough information, and he stated

I didn't highlight this. This was just from the search engine anytime these words come up, it highlights them, but I find my definition of what I'm looking for, I have the information that the textbook presents. There's not much information about examples for it. They talked mostly about the statistics behind it so I know that all my students will be able to get from this is some background about the disorder, but I need to go and look for further examples of the content.

Rob, on the other hand, presented another perspective on using supplementary and external resources: "Other than the problem sets, I did not use any of the supplementary materials."

Evaluation of E-books

There were a variety of responses and concerns mentioned relating to what teacher-participants thought about their e-book and how they described the positive and negative aspects of e-textbook functions toward teaching and learning. These comments all fell into the category of evaluation of e-books.

Ease of use/familiarity/cost effectiveness. Alex repeatedly used the words "ease of use," "cheapness," and various terms suggesting portability. Alex noted that ease of use, cost saving, and portability are the most common mentioned advantages of using e-textbooks that might increase or promote students' learning. He said,

I like it for the ease of use and the cheapness and the ability of students to be able to use it whenever . . . I'm glad that the students have it as an option mostly just for money reasons. Because it's cheaper to just buy the Connect Access and you get access to the whole book, makes it nice and easy.

He added,

The primary goal using the e-textbook is just to make it easier than having to buy a book, I think. Using the e-textbook allows you to do it anywhere, you don't have to carry your book as long as you've got a computer.

In addition to stating specific reasons of using e-textbook, Alex also discussed how the e-textbook was a familiar technology.

Basically it's real self explanatory and it leads you right through all the steps so you just go . . . the e-textbook is really easy, it works, it's real self-explanatory and user-friendly. Like I was showing to you, you can click on the sections and it'll take you right to them and click on the pictures and it will bring you all the pictures and you can watch movies, it's all right there and pretty self-explanatory.

Preference. Alex and Rob described their e-textbook use in general as a good

experience, although they still had a preference for printed books. Alex stated,

I think it's been good, you know, I myself don't use the e-textbook very often, I use the real textbook because I get a free one as an instructor. It's just a preference thing, I'd rather turn the pages, I can write on it and stuff.

Rob reported,

E-text made a lot of sense to me. I was telling you earlier, when I first was reading this book and studying it for my own use, I used the paper version just because I was studying it over summer break and I was in places that I didn't have good Internet. I kind of prefer, still, paper text, particularly if it's for school because I make a lot of notes and I can make handwritten notes much more quickly than an online note through typing. Hence that paper version is what I used to first get prepared for this course.

Alex and Rob mentioned that preference and relevance as important points of

using an e-textbook or printed book. Alex said

It's different, it's not necessarily one being better than the other, I think it would compare, depends on someone's preference. It is a little bit easier to be able to take this with you, because a computer or a tablet is just smaller than a big textbook like that. It's also cheaper.

Rob advised his students to pay attention to their own personal style and

preference. He stated,

Just to decide what their personal style is and decide whether to purchase . . . decide whether to pay the extra $20 to get the paper version, because some students prefer the paper version. Just for them to decide what seems to make sense to them.

Relevance and incorporating current technology. Rob pointed out the e-textbook is an easy technology available today, and teaching with e-textbooks meet students' experiences with and expectations of technology. Rob said,

> No barriers. No. Not at all. If I were teaching an audience of students my age, most of whom are not as adept with technology as I am, then there might be a barrier. But for the typical college student, there's no barrier at all. . . . I have not had a student yet in my class who had not already used an online textbook. They're all familiar with online textbooks.

Rob also described how his early adoption of technology helped him avoid any barriers with e-book.

> I come . . . I come late to e-text just because of my age, and I've always been an early adopter of technology. I've always been on the front of technology, and so I started reading books for my own pleasure on my phone as soon as they were available. So I started doing that ten years ago.

Rob added, "so the rich . . . the richness of the online text with the hyperlinks and the videos are taken away, and it looks just like a textbook if you prefer that."

Time saving. Rob felt that using online problem sets did save his time compared with projector-presented quizzes where students use a clicker for answering. He reported,

> Well, I would not. . . . Does it save me time? Sure. In other courses that I teach, I like to give reading quizzes, and I'll give reading . . . in another course I taught recently, I'll give reading quizzes using clickers. The multiple choice questions appear on the screen and people use clickers to pick their answer. I like reading quizzes. It holds people accountable for their reading, and so the online problem sets . . . they did save me time.

In contrast, Keith explained that he really did not use the e-book extensively, especially for assigning students assignments because "it has created a lot more time for me" and because "people were saying they can't access it."

Faculty Choices

This section describes the extent to which faculty perceived or reported their own choice in the selection of course materials. These choices related both to the choice of the e-text itself and also to their choices in the incorporation of aspects of the e-text in their teaching and personal use.

Selection of e-textbook. Teacher-participants discussed how their selections were not a personal decision but based on varied reasons related to colleagues, publishers, or departments. For example, Alex followed the recommendations and advice of his colleague:

> I use this textbook because the person who taught this class before me used the textbook and she shared her resources, left me and told me, "this is a good book to use, this is the book that I used with the PowerPoint lecture."

For Rob, who is teaching a new course for the first time with little previous notification, he just used the existing textbook for the class. He reported,

> I was asked to teach this course for the first time at the last minute because the instructor who had been teaching it became very ill. And I was asked by the head of my department to teach it. And so, I didn't want to put a lot of thought. I wanted to just adopt the textbook that had previously been used, and that's what I did.

In addition, Rob discussed how it is important to know what books are currently on the market before choosing and using the textbook. He stated,

> However, once I got into the semester, I had the opportunity then to review various texts, including online text from other publishers. You can see some of the textbooks on my shelf there that I've looked through, and I just decided that the textbook that I inherited was actually the best choice. At the point that the new edition came out, I reviewed various texts that were available on the market and I continue to think that this choice was the best.

Keith pointed out that the selection of the e-textbook was the department's decision: "I didn't select it. I was given it, the department. . . . Yes, the department. This is a departmental policy. They give us this book and said we had to use it."

The quality of the book was another reason to adopt a particular e-textbook. Rob focused on quality, no matter what the format.

> Well, as I said, I didn't have a goal to start with. I just wanted to live through the first semester when I was asked to teach at the last minute, but I really didn't consider choosing a text that was paper-only when I had the chance later to kind of reconfirm the choice. The primary reason is that the paper-only texts that I reviewed were just not as good as Cengage Learning's Business Communications 7th Edition. If I had found a paper text that I thought was superior, I would probably choose it. The online text really doesn't mean much to me and I don't think it means much to students either. Some appreciate it, some don't. The students have the opportunity to buy the paper text, some do. Maybe 25% of the students use the paper textbook. So to me, that's . . . it's the quality of the text, not where we find it that matters to me. Whether it's paper or online. To me, that's ancillary to the quality of the text.

Using e-textbook in course/teaching. Rob and Keith considered e-textbooks as supportive and supplemental material for them and for their students, and both of them agree with Alex that their teaching has not been affected by the e-textbook. Alex said,

> I don't really think it's affected by the e-textbook, I think maybe. . . . I think the only thing that really would have been affected but with the e-textbook are just like the ease and the cost of the students getting that. But my teaching is not really affected by the e-textbook. . . . I because get a free textbook, I just use the textbook so my teaching I don't think is very affected, changed either way, but I think my students in their learning maybe increase their ability for them to learn, maybe made little easier with e-textbook which is why I like it.

Rob reflected,

> Not at all. Not in the slightest bit. I appreciate having it, but my teaching is . . . the textbook is ancillary. The textbook is subordinate to what they do in class. It's supportive of what they do in class, but the actual teaching experiences augment what the text is about, and so the text is more of a springboard for what the students do in class to take their knowledge a lot further.

He added,

> The text is supplemental, in some ways subordinate, to the larger lessons that I'm
> teaching them. It really hasn't affected my teaching. What they do in class comes
> first and the textbook is supplemental to that, so that's why it hasn't really
> affected the content of the teaching.

> Keith echoed this opinion:

> I don't feel like it really is affected by it that much. I use it as a supplement. It
> supplements me. It supplements other things that I bring into the course. I'm not
> teaching to the book. The book is just an extra resource for the students.

Keith saw the e-textbook as

> a quick reference and as a supplement to the content or other content I'm covering
> in class, it's okay. It has some decent functionality to it. I like that I could take
> notes and that if I need to highlight it if I want, but the highlighting features aren't
> the greatest but anything beyond just as a basic supplement.

> Keith advised his students by saying,

> Treat it as a supplement. Use it to read it for the first time, look over your notes,
> tie some information from your notes to the textbook. You can use those sticky
> note, the note feature to do that but that's about the extent. I would have them use
> it as tying the information from class back to the note so they have the
> information in multiple places.

For teachers he reported,

> My first one is saying that it's a supplement. . . . Unless they're just using the
> book for a supplement for something for them to read, for the students to take
> notes in, to show them some videos, show things of that nature.

> Teacher-participants are more willing to choose e-textbooks due to the

external/internal resources, and/or the quality. Alex and Keith talked about how using e-

textbook allows them to take advantage of the interactive functions and online resources

available in the e-textbook/publisher platform. Alex explained,

> I do that, primarily so that, number one so that I can have homework and number
> two so I can use that dissection tool. You can and I told them, all you have to do
> is buy the Connect Plus access so that way they don't have to buy a real textbook
> because of the e-textbook there. So that's why I selected it.

Keith added, "I looked at some of the extra features that they had online like the MyPsychLab components and thought, 'Oh, I can integrate all these things into my course.'" He later talked about embedding an e-textbook link in the Learning Management System (LMS) Blackboard. He mentioned, "I did have a link to it, yes. They were able just to click the link and go straight in to the textbook."

Switching views. This is an options available for faculty only. This feature provided by some e-book publishers enables faculty to navigate through the instructor view or switch to student view via hyperlinks, allowing faculty to see exactly what their students see as well as their own instructor view. For example, Alex explained, "Okay. I have two sections and I can just pretend that I am a student so this is my instructor view, but I can switch to the student view." Rob did not mention the switch views during the interview but the video recording of the interview shows that he uses the student view to navigate through the publisher platforms to access the assignments and readings on the online textbook. The switch view function was located along the top bar.

Not all the instructors had a switch view hyperlink. For Keith, this seems to be the case:

> Okay, so if they have access to the test or quizzes. . . . Let's see. I don't know where it would be under the student side. I'll just show it from the instructor side since I'm not as familiar with the student side of it.

Further investigation revealed that the only way faculty can see the student view is if the e-book publisher gives the instructor two accounts, one for students, and the other for the instructor.

Student-Participants

Although it was anticipated that I would interview four students from each of three classes, in reality I was only able to interview four students from Biology and three students from Business. No students from Psychology were available inasmuch as the psychology professor decided not to make the e-book for his class required, and the psychology students who volunteered were all using the printed text. The final selection of students revealed a variety of differences among these students with respect to term of year, major, living situation, age, national or international student, and device(s) used. The following demographic table summarizes these differences regarding participating students (see Table 4).

<p style="text-align:center;">**Findings in Relation to Research Question 2**</p>

To answer the second research question, "How do college students perceive the overall utility and specific functions of e-textbooks towards their learning?" the researcher developed initial themes and sub-themes based upon data gathered from interviews, recorded video of the interview, and the researcher's reflexive journaling. The researcher used NVivo11 to categorize and organize the data into themes and sub-themes. Three themes emerged when answering the second research question. The three main themes were: Navigation Through the E-book/Platform, Learning Related to E-book/Platform, and Evaluation of E-books (see Table 5). In the following section, each of these three themes are described in detail.

Table 4

Overview of Student-Participants Information

Student Participants	Classes/Term	Major	Student Level	Living Situation	Student Status	Age	Gender	Device Used to Read the E-textbook
Bio Adam	Biology/Spring 2016	Pre-nursing	Freshman	On campus	U.S.	18-21	Male	Laptop computer
Bio John	Biology/Spring 2016	Nutrition	Junior	In town	U.S.	22-25	Male	Cell phone, iPod touch, iPad, laptop computer, or desktop computer
Bio Karan	Biology/Spring 2016	Nursing	Freshman	On campus	U.S.	18-21	Female	Laptop computer
Bio Lindsey	Biology/Spring 2016	Nursing	Freshman	On campus	U.S.	18-21	Female	Laptop computer
Bus Fiona	General Business/Spring 2016	Business Management	Senior	In town	International	30-39	Female	Laptop computer
Bus Sara	General Business/Spring 2016	Finance	Senior	In town	International	22-25	Female	Cell phone, iPod touch, iPad, laptop computer, or desktop computer
Bus Melody	General Business/Summer 2016	Accounting (Business Administration)	Senior	In town	U.S.	22-25	Female	Cell phone, iPod touch, iPad, laptop computer, or desktop computer

Note. No student-participants was from the Psychology class. The psychology teacher switched to printed book in Spring 2016 and using e-textbook was optional. The student-participant names are pseudonyms created by the researcher.

Table 5

Illustration of Themes and Sub-themes for Research Question 2

RQ2   How do college students perceive the overall utility and specific functions of e-textbooks towards their learning?

Navigation Through the E-book/Platform

- Access
- Hyperlinks
- Search
- Scrolling

Learning Related to E-book/Platform

- Assignments
- Embedded Material
- Course-Specific Content

Evaluation of E-books

- Ease of Use/Cost Effectiveness
- Preference
- Convenience
- Relevance/Incorporating Current Technology
- Effect of E-textbook on Learning

Navigation Through the E-book/Platform

The student-participants navigate through the publisher website to buy an access code, register, and log in to their course. They then sign in to the publisher platform home page, enabling them to navigate through the e-book and other online recourses related to their course. Navigation through e-books can be accomplished through actions such as accessing, using hyperlinks, searching, browsing, and scrolling.

Access. Student-participants' responses show that accessing the e-textbook and other online recourses could be through Google, Blackboard, or signing directly into the publisher website. The participants described the process to access the online e-textbook and assignments. This process could involve purchasing the rights for access, setting up an account with a user name and password, or/and log in to their course, then sign in to the publisher platform home page. Bio John noted, "One of the things I would definitely recommend is when you go to access the actual e-book, go through blackboard, because it will bring you to the right section."

Bio Adam stated,

The first thing I would do is go ahead and tell you to log on to Blackboard. Then for this class, specifically, I would just click on Bio ###, go to course materials, and then you connect plus assignment, and then I would go to a homework assignment.

He added, "I would google McGraw Hill Connect. If I had to go log in through another way and then click the class, respective semester, and then. . . . Great here it is. Then to go to the book itself."

From the written summary description of what occurred in the video, Bio Lindsey signs in to the McGraw Hill Connect website and then clicks on the class. She said,

What you are going to do is find your class, click on the section. Then here once this page loads, any of the homework that your instructors might assign, will be posted on this page for you to see. You can see them just whenever they post them.

Bus Fiona reported, "So, first of all, you have to register with your email to create a username and password. You have to buy the access code for the online textbook and the problem sets."

Bus Sara responded,

> First of all, some of the courses we need an access for the E-textbook and what to do for assignments and homework. We first go to; we will see that link that the professor will provide us. We will enter it and google. For example, we have MindTap. We can write in Google that will show here. It will ask for the login, username, and password. We should put our username and password that will access us to the website.

From the written summary description of what occurred in the video, Bus Melody signs in to the publisher platform home page to access to the e-textbook and assignment. She said, "I go to the homepage here where it shows my e-textbook, and that's where I do all my reading. This part, it goes to the place where I do my assignments."

Hyperlinks. The student-participants use hyperlinks functions to do basic search functions to different material, and to jump instantly from one part to another, whether internal or external. Participants pointed out the value of the hyperlinks to quickly jump to the relevant sections from the table of contents to chapters and sub-chapters of the book, jumping to different or specific areas in the chapter, glossary terms, dictionary, reading, audio, video, figures, and links to additional information or to external resources.

Participants also used the table of contents to navigate through e-book following hyperlinks to the chapters, specific chapters or sections, and other features embedded in the chapter. Bio John stated,

> It has a whole chapter section, so you can look through all the book contents at once. You want to go to, like, Oh. I'm looking at the urinary system right now. . . . That gives you all sections. Right now, I'm doing, blood fluid. Yeah. Then it brings you right there. That's also pretty nice.

Bio Adam reported, "I would just click on e-book and then I would just read though the chapter through anything that was important for the lesson. . . . The most helpful were just the arrows. . . . Really the arrows to flip the pages." Bus Fiona indicated the table of

contents, noting "You can find the whole book here. All chapters are here." Bus Sara

illustrated using the table of contents:

> Let's go to the textbook. Here in the textbook, it shows what's the topics it will talk about. . . . It's a table of contents and then we can press that to see what's the next pages. We can go further or back to the chapter and read it. It's really easy. If I want the first topic for this specific chapter I just can go. Sometimes there's some things in the chapter I don't know. I can go to the chapter and go to a specific topic.
>
> Bio Karan illustrated,
>
> From here, you can go into the book contents and you can pick any chapter that you'd like. You can pick, Biology of the cells, and you are going to be here. . . . I would use book contents, then depending on what chapter we are in or what system we are on, then just using that. Then, if I know exactly what I am looking for, then I can click on the smaller unit of it, and then it will take me to where I need to go to read about it.

Bio Lindsey added,

> Go to library in the e-textbook. It will show you all of your chapters. You can obviously scroll through. Up at the top you can use this, up here, to navigate. Jump to any page if you have the specific page in mind.
>
> In addition to the hyperlinked chapters and chapter sections, participants

appreciated the other elements embedded within each chapter such as text, video, images,

figures which enable them to access and navigate through them: Bio Karan said,

> Right here we are in just the general e-book. Right now we are going to look at chapter 15 about the autonomic nervous system. You are able to scroll down and see the different charts and you can click on any figure and you will be able to see a list of all the rest of the figures, in case you just want to look at them specifically . . ., and there is even going to be different videos on whatever the chapter is going to be about. It's pretty nice.

Bio Lindsey agreed: "Images again setting up the videos they just have them all compiled

to each of the chapters. You can go through and look at them individually if you need a

closer look." Bus Melody mentioned the following hyperlinks: "You have a dictionary, a

glossary."

Getting to the assignments, or homework, required students to link to external resources via the publisher platform. They were not embedded within the e-textbook itself. This required students to navigate outside the e-textbook and to find the appropriate links on the publisher platform. Bio Karan said, "For me, just the assignments, and that I am able to go in and see how. . . . Be able to click on it." Bio Lindsey showed that

> You can just click on any of these and then it will take you into the homework, maybe. You just go through, select your answer. You can navigate through the questions up here. It has the drop down so you can skip around any of the questions that you want. You don't have to follow it from 1 to 19, so that's nice. You can go back and look.

> One student, Bio John, described in more detail some of the navigational steps

within assignment questions:

> Clicking and dragging is pretty easy. If you're like, "What is this?" The vagus nerve which is. . . . It's actually a little laggy. This one over. It's the medulla, but the medulla is not an option. It's good to know for if I have not studied enough. Going back to, suppose to the help button, which won't give you any questions. Another thing is you really want to make sure that before you start doing all of this stuff, the help button is good for questions and answers and stuff, and knowing how to work all of the things, if you're like, "I don't know what this drop box," or whatever, it gives you answers there. Most importantly though, before you begin using it, the thing that helps the most is to actually check to make sure you have all the right drivers for the connect a program.

In the business class, homework was called problem sets, which were accessed on the publisher platform, but which also provided links back to pertinent sections in the e-text. Bus Fiona stated, "Then, once you've created your account, you will to go to the problem sets, click in the view all assignments, you will find the assignments and chapters." Bus Sara added, "It's really easy for the textbook. Let's go back and see how the assignments, how we can use the assignments. Here we have, here's the question." Bus Melody said,

"Then, once you finish the reading, you go to the assignment, and it pertains to what you

just read."

LearnSmart is another external link that students could link to via the publisher

platform. Bio Lindsey indicated

> I think maybe this is LearnSmart. All of the resources would be over on this side
> here. Over here on the left you have your table of contents, so you can easily
> navigate to which chapter it is that you need to look at a little more closely. Say
> chapter nine and then you can go over here and click read after it downloads.
> There did appear to be some confusion in the use of the cadaver dissection tool

for Bio John as he misunderstood initially the click function in the dissection:

> This is the course content. You can find the muscles you use. Like, I put the
> gluteus minimus, medius maximus, the [cro-si-lus], the [hy-po-clo-sis], the [vi-li-
> abso-sis] muscles. It just has a list of all the muscles. I just went through and
> clicked all of the ones that we had to know. I could do like. . . . Unfortunately, I
> did it backwards, because apparently the ones that you click are the ones that
> you're supposed to be able to clear and be like, "I know this one." That's what
> that's supposed to be. I used it to keep track of which ones I had to know. I should
> do the opposite of that. You should click all the ones that you don't need, and then
> hit clear. We have a list of all the ones that you do know.

Bio Lindsey described her experiences in using the dissection tool:

> You can choose from your topics, the skeleton, head, neck, whatever it is that you
> are currently studying in the course. Then it will give you the option to. . . .
> Sometimes depending if it has multiple viewing options, there will be a little click
> down button here. You can choose to have a different angle. Then you can just
> click and it will show you on here. It highlights whatever you click and want to
> look at which is pretty cool. Then you can always just work your way through the
> system and choose another model.

Search. Most participants described the search function as a helpful feature for

quick access to exactly what the individual needs or wants. Bus Fiona pointed out,

> The search function is the most I found very helpful. . . . You can search whatever
> you want from here. . . . If you want to look up for specific things, specific
> subject, you just have to type few words, or just type the subject you are looking
> for. It will directly go to that section.

Bio John agreed,

> Thing that's nice was the search function, because you can say, "Where was I reading about the A and T bands in muscle fibers and how they contract, and how that works?" You could just google . . . hit the search button in the e-book to look T-band. It would go back and show you every time throughout the book where it mentions T-band so you could go and review that topic.

He continued,

> The most helpful was definitely search e-book, because I could be like, "A." Then, assuming it's spelled that way. Then, it would give me the chapters in which it's found. I could be like, [Miniscus] muscle. "That's exactly what I'm looking for." All of the sudden, you have the cross-section of the muscle fiber. Then, [paramecium].

Bus Melody reported,

> For navigational purposes I do like the spyglass the most. . . .Yeah, the search bar. . . . You can search through the book, put any keyword. . . . Sometimes if you're thinking of something really specific it usually can find it for you. The search has a really good way of defining it down and trying to direct you to the correct spot.

Bio Lindsey said, "Search bar up here too. If you are looking for something, then you can quickly type it in and it will help you navigate there." Bio Karan stated,

> If I needed to know specifically about net filtration, then I could search for net filtration and look it up within different aspects of the book. . . . I would say it is a lot more convenient. I can just search the two words that I need to find, and it gives them to me.

> In contrast, Bio Adam did not value the search function.

> If there was something specific that I wanted to find, I honestly, my homework would take me there. I never really had to do so much searching. It was a little frustrating when I couldn't find exactly what I needed to look for. I would just skim through because all of this is important information but I never used the search bar to be like cardiac. I never did that but yes. . . . I didn't spend too much time using the search bar or any kind of hyperlink.

Scrolling. Most participants used the word scrolling but also described or most often demonstrated this action, evidenced by the video and the notes in reflexive journaling. Both the biology and business students scroll the pages in a similar way to

each other. They scroll through pages by moving the mouse up and down along the vertical scroll bar at the right side of the e-book. The vertical bar moves automatically when they move the mouse. Business students have an option to scroll pages by using a horizontal bar at the bottom of page, and they used both vertical and horizontal bar. They also flip to the next and previous pages by using the left and right arrow buttons at the middle of page. A typical quote was the one from Bio John, who said "Is pretty easy, just scroll down for the most part." Bio Karan noted, "You are able to scroll down and see the different charts." Bio Adam reported,

> Okay. I am definitely not a pro at this but I would just read through and scroll down and then once I was done with that I would just go next section. That really is to the extent what I would do.

Bio Lindsey stated, "You can go to library in the e-textbook. It will show you all of your chapters. You can obviously scroll through."

Learning Related to E-book/Platform

  Assignments. One of the most common features that both the biology and business e-textbooks used in this study was the assignment feature. Students considered this resource as a helpful resource due to the flexibility and learner control offered by the e-book website such as assignment modes and assignment buttons.

  Noted advantages of accessing biology assignment were unlimited attempts, the ability to see all the assignments and the calendar showing assignments due dates, automatically graded and detailed feedback, check my work icon, e-book icon to see e-book content for this assignment or e-book links after each questions to see e-book resources related to this questions, submit assignments icon, save and exit icon, help icon and instruction button, and navigation icons through questions buttons. This sub-theme

occurs over and over in participants' responses, as can be seen from the following examples. Bio John proffered,

> I often use all my questions as like a quiz for myself, so I can practice for the exams. It's somewhat similar to how questions would go normally. Also, the way has set up of unlimited trials, quizzing yourself with it is really . . . it's not like a problem. It's not like you're going to lose points necessarily because you can always just take it again. Then, it gives you that repetition of information.

He added,

> Another thing is you really want to make sure that before you start doing all of this stuff, the help button is good for questions and answers and stuff, and knowing how to work all of the things, if you're like, "I don't know what this drop box is," or whatever it gives you answers there.
>
> Bio Karan explained,
>
> In the assignment list, when you can click on the e-book and resources, and it will give you what you need. So, that was nice being able to know what the problem is and then giving you where to read it, so you can figure it out on your own.

She added,

> You can also check your reports to see how you are doing on the different assignments. It will show you average score and how many attempts you've had until you got whatever you wanted. What we really use it for an outer course, it's just for the homework part of it. So, like seeing one of these. . . . This is not anything . . . The actual learning/not learning part comes in. So, on one of the questions, wants you to load, you can put the answers in and if you don't know the answer, you can go down here, and it will pull up the chapter, specifically on what the question is about, so that you can read about it and answer your questions. Then, when you put in all the answers, you can hit, "Check my work," then it will tell you which ones are correct or lack thereof. It's pretty nice and then you move on to the next question. That's the homework aspect of it.
>
> Bio Lindsey mentioned,
>
> You have unlimited attempts. . . . Down here there is a, nice check my work. As you are going through the homework, in the process, you can always click down here to see if you are on the right track or not or if you need to maybe think about the question a little bit more. With the check your work button, it helps you navigate through it. Then for certain questions if it has a description right here. Then you have hover the description, it will give you a little bit more information to help you try to figure it out.

Bio Lindsey continued, "Once you are done obviously you can submit or you can always save and exit to come back to it later. Then if you did or if you had a textbook with you that you could look through." Bio Adam talked about how homework

> Will tell me where I could find the answer for that question. . . . There are some things in the book, when I am doing my homework, that I will not find the answer in my PowerPoint. There are some answers that I will only be able to find in the book. . . . My assignment, they would give me an option to go ahead and read the book. Usually for this class, specifically, I will read the sections that pertain to the questions.

Bus Fiona, Bus Sara, and Bus Melody all noted that the advantages of using Cengage Learning assignment were the ability to navigate through questions and reading, the number or attempts, automatically graded, and the grading mode. These features provide an opportunity to understand the information and learn through practicing. Through participants' interview, several comments came up relating to these advantages:

Bus Fiona explained,

> Once you click in the problem sets, and view your assignments, just go to read the chapter from here. You will read the chapter, so you can get main idea or general idea, and then go to the assignment, see what's all about. Then, if you forget problems, you will go back to the chapter.

Bus Fiona continued,

> Before you start doing the assignments, go to the chapter, read the chapter very carefully. Then, go to the assignments to do your assignments, I mean the problems sets. You will have three attempts and the website will post only your highest grade, so don't worry.

Bus Sara said

> Assignments are very good. I think it's really good to have assignments that enable you to practice. It's really helpful, it's much easier for students to practice the assignments, especially that they have 3 attempts rather than only one. Students are able to practice it again and again, which help us as students to understand information and the question.

She added

> After we do the assignments, we can see the grades . . . the assignments are graded every week. . . . We have to answer these questions because there's a due date. . . . Also you can go to the grades and you can see all your grades for all the assignments.

Bus Sara also values the ability to save the work then come back to complete the work:

"if you go to the question you can save it and do it later, or you can press continue to go

to the next one."

> Bus Melody reported,

> For this e-textbook, when you're going through it they have a bar that says, "Grade it now." It gives you your grade, and then if you want to continue you go to the next objective and it asks you questions from what you learned from the e-textbook. That's basically it, pretty straightforward. You have three attempts to try it again. If I didn't like my score I would click, "Try another version," and they would give you similar questions and you would go through it again.

Bus Melody described the assignment parts and questions:

> There are several different parts, and each part goes to an objective that you learned in the e-textbook. I'll click the first objective, and it has these questions, situational type problems that came from the textbook that you would apply to these questions. Basically you have options of which one you think would be the correct answer. None of these assignments do you write essays, so you just have to pick the correct answer. Usually the directions are pretty straightforward, so you just follow them.

> Critical thinking, testing knowledge, and preparing for the exams were other

benefits pointed out by Bus Melody:

> Okay, there are two separate links here. One is for the assignments, this is for the e-reader [application]. This is really helpful because you really do have to critically think about the information you've read. It really tests your knowledge, and so I like it. It prepares me, definitely, for the exams.

> **Embedded material**. Student-participants reported their use of various learning

features that were embedded within the e-book systems and that were easily accessed by

clicking on icons throughout the text. These embedded learning features include video,

graphics, learning objectives, glossary, flashcards, dictionary, taking notes, highlight, bookmark, listening to the text function, and end of chapter review.

The student-participants reported varied experiences in using and benefitting from the video. For example, Bio Adam and Bio John described the videos as an assistance tool to get additional clarification. Bio Adam stated,

> I would use these ones chapter four for biology of the cell to like get some clarification and just to more visualize and see primary actor transport or membrane, transport diffusion, or osmosis, that was a lot more helpful seeing it visually. Getting that from my e-textbook was really good.

Bio John agreed:

> I do really like the videos so I can see each step of the processes, what's happening. Especially for really tiny stuff, like when it's going through the filtration system, that would be pretty good. For most parts, it's pretty good. I like it.

In addition, Bio John also values integrating audio with video:

> The videos help a lot, because also getting the audio of someone saying, "This is what this does, like the kidney fills with fluid, then the medulla causes . . ." It helps re-solidify it in different ways. You read about it. Then, you listen about it. It helps learn it better.

Bus Fiona re-affirmed this perspective:

> The PowerPoint videos were very helpful for me. I spend at least three hours doing the assignments, but watching videos facilitate doing the assignments because the videos have written information as a list. Breaking the information to small amount is more helpful for me from the long explanations. Providing information as a list is a good way to understand, remember, and review the information.

Bio Lindsey focused on the ability to access all video collection for each chapter in one place: "In video, it has a compilation of all the videos in each chapter which is really nice. That way you, you don't have to scroll through again." Bio Karan reported, "There is even going to be different videos on whatever the chapter is going to be about.

It's pretty nice." Bus Melody discussed how the watching video was another way to study:

> They also have PowerPoint videos that you could watch if you wanted to. . . . You can read through it, for e-textbooks I think they're starting this more, they'll add lecture videos. If you're getting bored of reading the textbook you could watch through the video.
>
> Students also described their experience in using graphics. For example, Bio

Adam reported that

> Images were really helpful as well. A lot of this stuff in the beginning was more review, but definitely when it came to the integumentary system to see like the different layers of skin that was really helpful and to see all the glands and the different layers that was great. Let's see what else. These pictures, too, are really helpful. The skeletal system ones. Then the muscle tissue really helped for like learning how muscle potential works.

Bio John agreed: "It obviously gives you good diagrams that can show you where stuff is. You have to zoom in a little bit. It's pretty easy, just scroll down for the most part."

> Bus Fiona finds the pictures as helpful functions to her learning:
>
> It's helpful, pictures and graphics include words. These pictures support my understanding and recalling to the information especially when the written information on/or with the pictures as list. . . . Yeah, because the assignment is asking you about this sometimes.

Bus Sara mentioned that written information includes graphs and charts: "I can read it like here for example. The best thing is that they show the graphs and charts."

Bio John and Bio Adam discussed how the learning objectives were useful in getting framework about chapter and focusing on important pointes. Bio John indicated that "The learning objectives are nice. I use them. . . . The line objectives are really important, because they basically outline what they want you to get for key points throughout the readings, so you can focus on those." Bio Adam described his reading experience:

This has a lot more detail than what I actually need to know for the class itself. If I want to know any clarification, I would read over here it says learning objectives. This is where I would pick up and try to better understand what I need to be learning in this class. I would just look through things that my professor went over and try to make the best sense of it as I can and then go ahead and answer the question that was given to me for the homework.

Bus Melody used the glossary "For studying purposes" and this glossary contains words from A-Z: "You can click it and it gives you a list. You can go to the different letters of the word you're trying to think of." She also described flashcards as a practicing technique. "If you're practicing for a text you have flash cards, so you can practice your knowledge." "I've used the flash cards a little bit in the past, that helped. I'm a very literal person, so when I study I just read the text and I write bullet points down. That's what helped me retain the information and make sure I remember what I'm learning." However, Bus Fiona disagreed: "I don't use them that much." Bus Sara noted that the dictionary allows users to look up words: "There's dictionary if there are words you don't understand"

Bus Sara and Bus Melody both mentioned that the listen function provides assistance to them in their study. Bus Sara explained,

> There's a read speaker that can read it out loud, that can speak and say what the textbook. . . . Because sometimes when we speak out loud, it's much easier. It helps us understand. Sometimes people don't like to read it out loud so, now there's a tool that someone can read it for us. Which makes it very easy.

Bus Melody agreed: "The nice thing about an e-textbook is it's audio, so if you might be doing something but you need this reading done, it will speak to you."

Other common functions used by students were highlight, notes, bookmarks, and notebook. Most students talked about these functions together. They rely on these

functions while reading as strategies to remember and organize. This can be seen in the

following excerpts. Bio Karan said,

> There is different strategies on how to remember different things. You can highlight different things or put notes on different things or put bookmarks on different things, you are able to comeback or print it, whatever you got to do.

She used an example to explain the importance of these functions:

> If I was to make sure that I understood blood colloid osmotic pressure, then I could highlight it so that when I go back in, that I can remember to study it, or interstitial fluid or whatever, but you are supposed to be able to highlight it. Then, if I wanted to add a note about it, then I should be able to highlight a note as well.

She continued,

> So, I could leave a note there saying not to forget it and then moving it around wherever I need. I want to make sure that I definitely don't forget it, then I can bookmark it and just go ahead and add it in here so that next time when I go back, I can find it right here and figure out exactly where I needed to go and what I needed to remember, or if I needed to print anything that I can print in it.
>
> Bio Lindsey had several responses relating to these functions:
>
> You can add sticky notes if you have a little quick note or a little something to jot down. . . . Highlighting is really nice because as you are going through the text, if you want to highlight something to come look back at, at a later time then you can do that. You can bookmark so if you need to pick up wherever you left off. If you need to stop and take a break, then that has a nice feature.

She added,

> If you do have important things highlighted or sticky notes that you jotted important information on. Then you can come back and look at your notebook and utilize it to pin point what you should focus on and really look at or take second looks at all of the important things rather than going through and having to re-read all of the chapters. It just compiles all of your important things.
>
> Bio Lindsey also values the notebook function that allows users to access to the

highlights, notes, and bookmarks. She mentioned

Then, if you do use the highlight option or the sticky notes or bookmarks or whatever this will be located in my notebook, because it's nice to keep it organized for you. . . . I used highlighting and sticky note and my notebook the most was probably the biggest. Just because it was nice to have everything in one spot that I couldn't lose or get disorganized.

Bus Sara mentioned that highlighting and taking notes are helpful ways to review important information for the exam:

There are sticky notes or highlights that you can use because sometimes when we read, we need to put some notes or highlight some of the important things in the e-textbook. . . . Every week I read the chapter that we cover. Then when we have the exam, when I go back I want to see what's the important things that might help me to memorize and what's the important things in this chapter.

Bus Melody also found highlight, notes, and bookmark as helpful functions:

These are highlighting tools and notes. As you're reading through it you can write notes within the section you're reading. I will use the highlighter every so often. . . . I also do bookmarks. You just press that, bookmark the page, and we can find it. I also find this kind of helpful . . . this little bar comes up and it says you can highlight it if you want with different colors, you can also add little note, which is really helpful.

She added, "I write it in my notebook. I don't necessarily use their note option." Bus Fiona stated, "Here you can make your notes, you can highlight here, like important parts."

On the other hand, Bio John did not use the highlighting tools due to lack of the familiarity with this tool. He stated,

Actually, I didn't even notice how it. Because, in lecture, he gives us the power points. I highlight stuff that's important. That is nice. I just didn't actually realize that the highlight thing was there. It's pretty cool. Pretty much, I just read the whole paragraphs.

Later in the interview Bio John advise students who will take this class to use "Highlighting, because highlighting helps. I can't believe I didn't realize there was a highlighter there all the time."

In addition, Bio John also descried how his tactile preference led him to not use the note. In the interview he indicated the notebook and said,

> I use this in lecture. I do it here. I have not tried the notes here. I mostly just read the book. I'm very, personally, very tactile for my learning process. I write everything that I want to remember with a pencil. I haven't really used the note thing.

Bus Fiona mentioned how the Grammar and Mechanics activities at the end of chapter are useful for practicing and for tests preparations:

> There are different activities at the end of each chapter, the most important activity for me is grammar and mechanics because I can check to see if my answers are correct or not. The professor gives us this activity as an individual assignment, he picks some of them and we have to do it. This activity gives me chance to practice because each assignment has grammar part at the end. Also the questions of tests are multiple choice and some of them contain grammar questions similar to this activity.

Print and text size were functions not often mentioned by most of the students. Bio Lindsey finds the print function useful to avoid scrolling: "Printing, you can print page sections in your chapter which is nice. That way you don't have to scroll through and can just quickly navigate to where you need to go." For Bio John, the print function is not important, "I don't really need to print off the pages. I mean, I could, but it's just a lot of paper and ink. I don't have money for that." Notes in reflexive journaling for Biology class indicated that students referred to the print function through their use to the notebook.

The text size was not a problem for Bio John and Bio Karan. Bio John said,

> The font size is fine, because you can zoom in, just control and scroll. You can change the font size. It's not really a problem for me. It's pretty. . . .You can't, of course, actually change the font size, because the book's just zooming.

Bio Karan reported, "The different settings, I can change text size or I can turn off the pictures that are going to be along with it."

Course-specific content. Certain specific recourses in biology were mentioned by students. An important resource was the Anatomy and Physiology Revealed (APR) software, which consisted of the dissection tools. Bio John and Bio Lindsey find cadaver dissections as helpful tools for practicing labs. Bio John reported, "I use largely the dissection tool because the lab is really difficult for me. Because, in lecture, it's mostly conceptual, it's like what does this do, what does this do? In the lab, it's just identify what this is." He added,

> When you do the labs, you only have an hour and a half to two hours to learn all the muscles and stuff. Like, getting to see an organ really helps remember which muscles are which, and what they did. I think it helped a lot for my most practical.

Bio Lindsey agreed:

> The cadaver dissection tool was definitely my most used out of everything . . . to help me study for the lab portion of this course . . . because that's where I felt I needed the extra help. In lab, I always cadaver the models. If we ran out of time and I just didn't happen to get to see one. Even if I did, it wasn't enough time to really get comfortable and familiar with it.

The dissection tool was perceived as valuable because of the extra exposure it gave students to the material covered in a limited time in the labs. Bio Lindsey said, "It's pretty cool because it gives you a little more one on one time that you might not get in the lab or if you need a little more review."

Bio John and Bio Lindsey describe the tools available in this software and how these tools help them in studying and reviewing the information. The cadaver dissections tools include dissection, animations, histology, imaging pictures, and quizzes, any or all of which can be accessed by students as they wish or feel they need. Students described the particular tools they used, which were sometimes different for each student. Bio John stated,

It shows you videos and stuff. It gives you good portions of where it is, as well as for studying, you can click stuff. You'll mark that stuff as like. . . . It should be get a quizzes, because I do this for muscular largely. You can do a muscular quiz. That will let you choose. That drop-down box let's you choose which chapter, or which system to study. Then, you get a check off. You can either see the animation of where it's attached, or you can dissect to see different layers.

Bio Lindsey had several responses relating to cadaver dissections tools. First she reported an overview about these tools:

What this course is, is it basically just gives you different body orientations or parts of the body to look at a little bit closer. You can come up here and select if you want body orientations. It's basically anything that you would cover in the anatomy course. . . . It will just highlight it on the model for you which is nice. It also gives a little description down below for what it is, what it does or where it is, and just a little more information that you might not have gotten or heard from the instructor in class.

Then she discussed how this software presents the e-book information and visual materials with

Histology, same thing, you can just select a topic. Select your view. . . . I mean it just helps you really learn it, especially with the tissues when it's not something you can learn in one class. Again, it gives the location and description and the function.

In addition, Bio Lindsey indicated the imaging pictures, noting "This is pretty cool because it just shows you how to navigate like X-rays, what you're really looking at on the X-ray. What portion of whatever model you are looking at." She added,

The animation, I never really use the animation just because the dissection was enough for my needs in the course. I expect that it could be helpful to others if they want a little more video to help them walk through that learning all the structures.

Bio John and Bio Lindsey both explained in detail how they benefitted from the quiz features. For example, Bio John said,

I mess around with the muscles the most when I use the e-book, because I just really need it more, like have an idea of where they were, specially because they're very close to each other. If you don't know where they are. . . . The quiz

portion is really nice because it would. . . . See, quiz, muscular quiz. Then, you choose structures. You choose like a region, so like the head and neck. Then, you can choose types of questions, like where it attaches, the actions, which is important, because we need to know one muscle function of each. . . . You could do it multiple choice and like 10 questions. This is all on the head and neck. This is hugely what I use to study for my practical, because it just shows you on a cadaver what all the muscles are. It's quite nice.

Bio Lindsey agreed:

All of these tools have been really pretty cool and helpful in the course. It's pretty cool because then you can quiz yourself on this button. After you've gone through and learned, and used some of these other tools to help you study. Then you can put into a quiz and chose how many questions you want. What part of the body you want to be quizzed on. Whatever you are having a little struggle with. It's pretty cool. Then you can just obviously choose from one of these answers. That's about it for this tool.

On the other hand, Bio Adam discussed how the lab hours was enough for him

and there was no need to use the cadaver dissections tools:

Oh, for anatomy. I never used those, actually. I never used those. It would be very helpful but for my anatomy lab itself, I always just went to my open lab hours. I never used the dissection tools . . . and yes, I had the cadaver section tool but I did not use that because all the learning I needed to do in Anatomy I went to the open lab hours instead.

Then later in the interview, he explained in more details why he did not use the cadaver

dissections tools:

There is no physical person right next to me that I can get clarification from. That's why I didn't use the cadaver and dissection tool just because I would rather go to an open lab hour to where I can see all that more visually, I can touch it. I am sure if I tried to use it more it would help a lot. I was already doing really well with coming into open office hours.

In addition, he advised students to explore it: "I would say explore more because I didn't

explore it that much because I am sure the cadaver and dissection tool is really cool and

very helpful."

LearnSmart and LearnSmart Prep were other online recourses discussed by some students, Bio Lindsey described LearnSmart buttons and options by saying:

> Once you are in your chapter that you are going to be looking at, you have the option to practice down here. This will just walk you through the eBook and you answer these questions as you read the text. You can go back and forth between reading and practicing. It's basically you do it as you go which is nice, because then you don't have to look back or try to remember what you'd already read.

> She contained,

> You choose an answer. Then you can either answer with one of these options of, you don't know, if you are unsure, if you think you are positive about it. The nice thing about these is that depending on how you answer it will kind of adapt to what you need more practice on. If you know something really well it will ask you less questions about that. When this is flashing, it means that you need to read a little bit more before you can answer this because you are not to that section yet.

Bio Lindsey added,

> Then essentially you flip back and forth between reading the text the book, practicing the problems. Another last aspect that's really nice is it will highlight parts of the text where it's focusing on what the question is asking you.

> LearnSmartPrep was mentioned by Bio Karan; she actually did not use this

recourse but she knows about it:

> One of the nice things is that you have the prep, you are taught about this, but I don't think anyone really uses it. I don't. It helps to prep you for the material that is coming up. So, from what I understand, it will give you different questions, and if you get it right, then you will move on, and if you get it wrong, then it will remember that you got it wrong and then go back and remember it later.

> She also advises students who will take this class to use it.

> I would truly recommend to use the prep, because having something that understands the material, and it can tell you specifically which topics you don't understand or which concepts you don't understand that it can then help to teach you what it is. I think that would be super beneficial, and to really put effort forward into understanding the e-textbook, or into understanding the side aspects of the e-textbook. I think that would be my biggest advice.

For Bio Adam, these online recourses were not helpful: "I guess I just didn't think they were helpful because or I didn't attempt to use them because I wanted to talk to someone there."

Bus students, on the other hand, presented another perspective on using supplementary and external resources, Bus Fiona stated, "There is a link to the website related to the e-book, I didn't have to use it. I didn't find it very helpful. I didn't need it." She contained,

> We have a group project. We have individual project, we have exams, we have activities we do in e-class, so we not only have the book to use, we have many things to do during the semester. We have some presentations, too.

Bus Melody agreed,

> I don't really use any supplementary materials. The only thing I can really think of is blackboard. What our professor does is we do about three to four discussion boards a week, and it pertains to the text that we've read. This morning I had a discussion board about a certain problem, but that's basically it.

Evaluation of E-books

There were a variety of responses and concerns mentioned relating to what student-participants thought about their e-book and how they described the positive and negative aspects of e-textbook functions toward utility and learning. All of these comments comprised the category of evaluation of e-books.

Ease of use, cost effectiveness. Many of the student-participants discussed how their e-textbooks were easy to use. For example, Bio Karan focused on the ease of getting information in both positive and negative ways:

> I would say it is really nice that it is easy to attain the information that I need at the time that I need it. I don't think that it is very good about making me read everything, it is just kind of, "Oh, here is what you need," so, then I only know that.

She added, "Also just having more online things, I think it is easier to have to flip

through pages and physically know where it is."

Bus Fiona stated, "It was good and enjoyable, very helpful. It's easy to find what

you are looking for." She also described her experience with e-textbook features by

saying, "I didn't find any barriers. All of them is easy to use." In addition, Bus Fiona

discussed how using the e-textbook as an international student facilitated her learning:

> Since I'm an international student, I cannot catch everything in the class, so the e-textbook has really helped me copy, paste, and translate and easy to get screenshot for important things. it was really clear, and really effective and helpful.

 Bus Sara pointed out some additional important features such as the ability to take notes

and highlight for free:

> There are so many functions and tools that can help us to use it but they are not in the regular book. Because in regular book you have to put the notes. You have to have the highlight but for here it's much easier. You can use a lot of things for free.

Bus Sara also described more freedom in using it,

> Some of the functions, people don't use it. Some of the functions, people like to use it. Giving the students more functions that they can use it's really helpful and it makes it easy. I think in the MindTap website it's really easy to find these functions.

> Bus Melody pointed out,

> For this class, it was technically part of the homework, but if you went to the home page, my professor took it down but one of the assignments was teaching you and helping to orient yourself to the e-textbook and how things are graded.

She continued, "For professors, on their end, that's really good, to have those review

questions because it helped me in my understanding of how they grade things. It's not as

difficult as maybe other e-textbooks would do." Bus Sara reported,

The people who do not use this E-textbook before, they might have some difficulty of how to access the website. For me personally, I use it a lot of times with many courses. I used to use it so now it's really easy. Which makes it easy, I think first advice is that to know how to use it very well. Any problem you can just click to ask professor.

She added,

Sometimes, people have some questions that they want to ask or know. We can go to the customer support and we can ask. There's the videos that shows how to use this website or what to do if we faced access issues. We also can ask the customer support and they will help us.

Bio Lindsey was asked what was her primary goal while using the e-textbook.

She answered,

To be able to answer the questions the first time around and answer with the, I know it button just because if I don't, then I'll take my time a little bit initially. Then it will just ask me kind of the same question, but reword it a little differently. My main goal is to find the answer the first time by reading it and really trying to find and understand what its saying.

Portability is another mentioned advantage of using e-textbook. Bio John reflected, "The digital format, the portability, mostly, the fact that I can have all of my textbooks just on my laptop as opposed to carrying a huge bag." Bus Fiona echoed this opinion: "Well, my primary goal is to having thousands of textbook pages compressed in a very small laptops or any other device."

Moreover, participants might also prefer an electronic option for the monetary reasons. Bus Sara stated, "The goal of using the E-textbook, well the difference between using the E-textbook and the regular textbook it's the price difference. Sometimes my goal is to have the E-textbook because it's much cheaper than the textbook." Bus Fiona reported, "It could be sometimes cheaper than the hard copy."

Preference. Bio John and Bio Lindsey both show a preference for electronic book, and they described their using the e-textbook as beneficial. Bio John reflected, "I

thought it was quite helpful, I really like e-text. I personally am a fan of having e-textbooks over regular textbooks." Bio Lindsey showed her preference through her comparison between electronic books and printed books in term of reading technique,

> I would say it's pretty effective in helping me learn. The online actually kind of makes you read the important sections just because it will be highlighted. You can really focus on what's important in that section. Whereas with just the regular textbook, you kind of don't know, like what to read or where to start or you are searching through more and so you don't . . . I scan more when I read the actual textbook. Whereas with the online textbook, I actually read the sections that's highlighted for me and try to understand it a little bit more. Because it's easier to kind pinpoint my focus with the e-textbook.

> In contrast, Bio Karan, Bio Adam, and Bus Sara show a preference for printed

books**,** and they find are printed books more effective for their learning. Bio Karan stated,

> I think it is more beneficial to my learning in a written textbook, being able to go to an actual chapter and having to look through the different aspects of it, and how the different pieces would fit together, all together.

 Bio Adam reported, "I preferred using the regular textbook because it was more hands on, I could highlight, I could write little notes inside." Bus Sara noted,

> As I said I prefer the real one. For the e-textbook I don't think that I've learned that much especially the purpose of this access is to do the assignments. They provide the e-textbook that makes us much easier, here's the textbook, you can read. Makes it very easy, just go to the e-textbook if you don't know anything and just look up for the information. For the learning, the assignments is really helpful but for me e-textbook it's not.

> **Convenience**. The convenience of the electronic format was regarded positively

and negatively by students. The convenience of e-books includes accessibility, easily getting specific information, skimming for information, and searching within the text. Accessibility was indicated by Bio John:

The e-text is nice because I can access it from anywhere. I can get to the e-text with any computer. Because, when you have like a regular textbook, you have to have it in your backpack, and I'll grab at home, or something. If you have a laptop or a computer, you can access it on other people's devices. It's definitely more convenient.

In term of easy getting specific information based on the needs, Bio Karan said, "I would say, for the most helpful, probably during homework when it will pull up directly what you need." Bio Lindsey added,

With e-textbook, the convenience of it can enable students I think to not put in as much work as they would have to with a regular textbook. I mean it's not necessary a bad thing. Because of the convenience has been really nice and helpful in more positive ways.

Relevance and incorporating current technology. Bus Melody pointed out the e-textbook is an easy technology available today, and that learning with e-textbooks matches students' experiences with and expectations of technology. "I really don't think there's many barriers. For students my age, in this day and age, I think e-textbooks are really relevant and really helpful."

In addition, Bus Melody expanded,

The funny thing is, since we're in such a digital age, I find myself, when I'm looking at a regular textbook like, "If I could just do a search term I could jump to the page I want." I can't do that. Sometimes I do like a regular textbook a little bit more because it's tangible and I can write on it if I want to. I might pay attention to it a little better because it's not on the computer screen and I won't get distracted by other things.

Using e-textbook also was seen as saving student time. Bus Fiona felt that using e-textbook did save her time compared with written textbook:

Well, I think e-textbook will save your time and get organized. For example, you don't have to take too much time looking for any subject on e-textbook. On the other hand, it will take forever to look up for something on your written textbook.

Effect of e-textbook on learning. Bio Karan critiqued the e-text as a tool for learning. When talking about finding specific information, she added:

> I also think it also is the most problematic, because then, I am not putting any effort forward to finding it or finding how it fits in with the categories or fitting in with the chapter, it just pulls it up for me, and all I need . . . Then, what I have is that small amount of information which is convenient, but I don't think it benefits my learning very much.

In addition, she discussed that skimming for information could be a barrier toward learning:

> I think it can be a barrier in the sense that you don't have to look through everything, it just kind of whatever blurb you mean. So, I think that can be a huge barrier about learning how the rest of everything fits in the puzzle.
>
> Bio Lindsey explained that convenience
>
> Could create a barrier in learning just because the student isn't putting forth as much effort as they would if they had to like really search for it on their own or like put the time in. Just because the convenience, is so convenient.

Bus Melody, when asked how her learning was affected by e-textbooks, replied. "I think it's probably a little better because it's a bit more interactive, there's more things that you can utilize to test your knowledge, help retain what you've learned. That's what I've liked about it."

Bio Adam considers the e-textbook as supplemental material and his learning has not been affected by the e-textbook that much: "As for my overall learning for this class, it didn't really help that much. It didn't detract from my learning, it supplemented it but not by that much." He added,

> I would say that it was overall a positive experience. I didn't use it that much only when it came to my homework because I thought my professor gave me slides that gave me the necessary information for what I need to know from the course. . . . Yes. My primary goal is to get more clarification on a subject or topic that my professor went over during class

Bio Karan views the e-textbook as busywork and she feels her learning has not

been affected by the e-textbook at all. She reflected,

> We only really used the e-book for homework. . . . I don't think it is
> supplementary for me, because I have used an e-textbook in this class and then in
> intro to Biology last semester. I don't think it really helps me learn and I don't
> think it necessarily negates my learning in any way, but I just think it's busywork
> more than anything.

One student pointed out some obstacles while using e-textbooks such as a

connection to the Internet in order to use them, Bio John stated

> I guess one of the barriers is that if you don't have wifi, you're screwed, because
> if you don't have wifi . . . Because if you have connection issues, you can't access
> the e-text. That's the biggest problem. That's why some e-text you can download.
> Then, you have a bunch of stuff downloaded on your device. You don't
> necessarily have room for that. I would say that's the biggest barrier. It's just you
> have to have wifi in order to use the e-text.

Bio Lindsey values the ability to turn e-textbook to her needs,

> I would say it's pretty effective in helping me learn. It's nice that it's adaptable to
> your own needs. It's not just like . . . It's nice because it helps you focus on what
> you might be struggling with. I think it has been a good tool to use outside of the
> classroom that is best for my learning style.

Findings in Relation to Research
Question 3

Research Question 3 asks "What functionality do faculty members and college

students wish to see in e-textbooks in the future? In examining the responses to this

question, responses from faculty were first presented, followed by examining the

responses from students. Essentially, Question 3 was broken down into two sub-

questions: "What functionality do faculty wish to see in e-textbooks in the future" and

"What functionality do students wish to see in e-textbooks in the future." This was done

because the answers from faculty were sometimes substantially different from the

answers that students gave.

Teacher-Participants

When answering the third research question: "What functionality do faculty wish to see in e-textbooks in the future?" three main themes emerged: Quality of E-textbook, Quality of Navigation, Recommendations for Improving E-textbook (see Table 6). The researcher used NVivo11 to categorize and organize the data into themes. In the following section, each of these three themes will be reported in detail.

Table 6

Illustration of Themes for Research Question 3 by Teacher-Participants

RQ3: What functionality do faculty wish to see in e-textbooks in the future?

- Quality of E-textbook
- Quality of Navigation0
- Recommendations for Improving E-textbook

Quality of e-textbook. An important feature of using any teaching and learning resources is the quality that provides acceptable confidence toward the materials through meeting users' needs. Quality of materials for this study means the standards of the academic contents, in terms of accuracy, completeness, and aligned with current thinking on the topic, whether internal or in external resources. Alex and Rob described how they viewed the quality of materials as important features for any teachers wanting to teach the course with exciting e-textbook. A typical quote was one from Alex,

> I would definitely recommend them using Connect Plus for all the different access or resources that you can access, particularly the homework, the anatomy thing. I would tell them that e-book, it makes it really nice and easy to pull figures from the book for your PowerPoints.

Rob noted,

> To say . . . the fact that the textbook is available online is a non-issue. Instead, they should choose a text based on the quality of the text. If it happens to have an online version, that's good. So in this case, if another teacher was taking over this course, I would say that the real advantage is the problem sets.

Keith in particular faced many problems with the quality of his e-textbook content and its internal/external materials, ultimately forcing him to stop using this e-textbook. One important caveat about e-textbook content resources relates to their accuracy and keeping up-to-date, according to Keith. For example, the e-book information for the Diagnostic and Statistical Manual (DSM) was outdated, and therefore he never used this information:

> I see some of the aspects of the book being dated because you're talking about an outdated DSM. I know that this is the time I need to go pull information from the latest version of the DSM and talk about in class that what they have here in the book is not accurate, it's not up to date and I present the information that is up-to-date and show them the differences.

Keith along with his other departmental colleagues felt that most of the problems were related to the supplementary materials, and these materials did not help them with their teaching. Keith said,

> Most of the interaction with my colleagues about the online version of the book was more complaints when it comes to the supplementary materials. We had to do a departmental survey last semester. That's when everybody, they had to have some trial version or full version of the e-textbook for them to access that departmental survey, and it was a nightmare. That was our only really talk about the online capabilities was it was a nightmare for us.

Keith noted other problems:

> The PowerPoints I did download, the PowerPoints from the website. I use them as a rough starting point for the class. I do use those regularly. I do modify them heavily before they get to class. They have way too much. It's like reading a textbook all over again. . . . There were so many problems with the grade book, that's when I decided to switch away from acquiring it.

Keith added,

> There's some information that's available that will help the students out like the videos, the test bank questions are a good starting point. There are a lot of them that are poorly written. They're with multiple correct answers that they don't point out so you're going to have to do a lot of revising of the questions to get them to where students won't complain about, oh but my answer's partially right. Just going to be a lot more time . . .

Quality of navigation. There were both positive and negative responses regarding the quality of navigation. On the positive side, the teacher-participants believed that navigating and finding information in the e-textbooks is easy in general. For example, Alex discussed how people may prefer to navigate through traditional textbooks due to the familiarity but navigating through electronic texts is not an issue for current students who are familiar with online skills:

> But in terms of navigating and finding information, I would say maybe if you just took a random person it might even be easier to navigate in a textbook because people are used to that. But if you took a young person who's likely to be a student, I think they would have no problem navigating in the e-book. I think the e-book would be just as easy to navigate as a textbook for most students.

Rob agreed, "The navigation is pretty easy. I've never had any problem myself with the navigation, and I've used technology for as long as these students have. So I don't think they would find any problems. They never talk about them."

Keith stated that some aspects of navigation were helpful for him as a teacher. He stated,

> During the . . . With the navigation features like go through quickly to prepare for class, it's more of helping me prep for class, finding inconsistencies in the book versus what I need to talk about in class. That's the main thing that I use it for.

On the negative side, only Keith expressed dissatisfaction with issues relating to moving to the specific areas, and the time it took to find specific information or areas.

Let's see, we get to the end of the chapter. That is one of the complaints that I have about the book is it doesn't take you directly to the end of the chapter. It takes you to the last section.

Keith explained this issue in more detail,

One of the more problematic things with trying to find something in here is like if I'm looking for something near the end of the chapter or near the end of a section, I have to basically go straight through the entire section unless I know exactly what word I'm looking for. . . . Most problematic, if I'm not sure of what exactly I'm looking for, the search feature or not the search feature, the table of contents is problematic because like I was saying earlier, I would have to search through the entire section costing time to find.

Keith also pointed out another problem with navigation, both for him and for his students.

One of the hardest problems for . . . It wasn't necessarily with the e-book itself, it was some of the other capabilities like having access to particular assignments that I designed the first semester, people were saying oh they can't access it. They can't or they take it, the grade doesn't appear for them. I don't see that they've taken the assignment yet they show me that they did. My grade book looks completely or the online gradebook in here looks empty but it shows they completed it. I had to spend a lot of time going through sometimes calling people to office hours for them to show me that they've completed something so I can mark it as completed. The grading aspect was one of the biggest barriers, I would say, like any kind of online assessment directly link to the book was a nightmare.

In addition, Keith reported that students often had technical issues,

I had to go through almost I would say several times people didn't listen. I would have to go through the idea you need to install like Firefox or Chrome or something, work them through. That's not what I should be doing as the instructor. I should be giving them content questions, not technical questions.

Recommendations for improving e-textbooks. The teacher–participants reported varied recommendations for educational publishers. Suggestions for improving e-book usage and functions include increasing the size of text, improving page layout, keeping up with technology, and providing subject matter expertise. For example, Alex said,

I might make the text a little bit bigger instead of having this kind of narrow window here. I would make this bigger, so that you don't have this wasted space here, there's not a reason for this to be blank. I think this could spread out and maybe even be two pages so it would look more like a book. I would do that because this seems a lot longer than it is because it's so skinny.

For Rob, it is most important to keep up with technology:

Just do like they already have. Keep up with technology. Business communications is very technology-dependent and the subject matter of the texts have to keep up. But this is advice that relates to the text as a whole, whether it's on paper or online.

Rob continued,

Well, the subject matter, they . . . the author of this text, Mary Ellen Guffey, has done a very good job of understanding the communication challenges in modern business. So far as the subject matter . . . I think it's perfect. The relevance just has to be kept up because of technology.

In addition, Keith expressed concern about providing a subject matter expert. He

mentioned,

Let's see, as far as test bank and PowerPoint selection, they need to have psychometricians go through those and really evaluate them further because some of the questions, they say they're easy. They say they're difficult. They say they're applied but their classifications might be off. Further revision of their test bank questions, their PowerPoint slides, I mean they give us a good starting point so I'll give them that. They should reconsider how much they're actually putting into it at the beginning.

Other suggestions include advanced functionality. For example, adding or

integrating artificial intelligence evaluation was Rob's next most important suggestion for

improving e-textbooks. He reported,

Well, yes. Cengage Learning is experimenting with evaluation of essays and . . . not essays, because there are no essays in business communication, but evaluation of business writing and the quality of business writing through computers. So it's artificial intelligence evaluation. They're experimenting with that and I think that that is very promising. I believe that they should go forward with developing computer evaluation of what students write. So paragraphs of longer compositions. Yeah. It's important.

Keith was concerned about the grade center:

The grade center needs to be redesigned. . . . I would make all the assignments you're thinking about based on the book. I would create links and other software and just have them do the assignments like in blackboard instead of on the publisher website because the grade book is a nightmare.

He also suggested include the incorporation of more supplementary resources,

Maybe create more of the links to the outside materials in the textbook saying for further information about this, you can look at these, these and these instead of giving just one example video and making us have to dig through the rest for other supplements.

Student-Participants

When answering the third research question: "What functionality do students wish to see in e-textbooks in the future?" three main themes emerged: Quality of E-textbook, Quality of Navigation, and Recommendations (see Table 7). The researcher used NVivo11 to categorize and organize the data into themes. In the following section, each of these three themes will be reported in detail.

Table 7

Illustration of Themes for the Research Question 3 by Student-Participants

RQ3	What functionality do college students wish to see in e-textbooks in the future?
	• Quality of E-textbook
	• Quality of Navigation
	• Recommendations

Quality of e-textbook. Bio John valued the quality of e-textbook content and its/internal/external materials. Bio John

I thought it was quite helpful. It really, especially with the dissection tool, along with the . . . because this was part of the e-textbook, was the whole dissection process. . . . It just gives me more options to study, whereas, if I didn't have the e-text, I'd pretty much be limited to, using the example, the section tool again.

Bio Lindsey agreed:

> The material was usually pretty on topic and like what we were talking about in class with our instructors. I mean I'm sure there can always be improvements to that as new topics and subjects are being taught, but not a whole lot.

Bio Karan discussed how the assignments on the e-textbook were the most useful part for her learning:

> I would definitely say assignments just because the initial grasp, you would always get in lecture. Then we never had tests or projects or papers from our e-textbook. It was just lecture and then assignments on the e-book. So, I would say definitely assignments and stuff, the best part to learn from.

She also indicated LearnSmart prep as an important external resource that promotes her learning:

> I would say prep is really nice, just because it can show you what you missed and what you specifically need to study because you don't understand it yet. It would be like taking a test and saying which ones you got wrong. Going and studying the wrong ones and then being able to actually take your testing class and understanding everything.

Bus Melody and Bus Sara appreciate the quality of e-textbooks in general. Bus Melody noted, "I really like all the features of an e-textbook and what you can do with it. I don't think there's really any negative qualities or barriers." Bus Sara discussed the role of the publisher in improving the e-textbook,

> I think there's a lot of things that they have it. I don't think that there's a thing that they have to add. . . . I don't have anything that they can change because actually they're changing it very often. They see what's the problems they face and they can change it every time.

She also noted that the quality of e-textbooks varies:

> I think now it got improved because in the math classes there is some of the problems. When we put the number, it shows wrong like for the decimals or something like that. For now, they improved some of the website, they improved that. For this one I think it's good. For this one I think there's no problem with this.

In terms of technical issues, Bus Fiona pointed out:

> Problems is technical issue. Sometimes, maybe it shut down by itself, or getting hard to post your grade, because that's happened to my friend. When she tried to do the assignment, and when she was done, the website showed her grade is zero, but she'd already done the assignment. She tried to contact the professor, but he has nothing to do with it, so she had to contact the technical support.

Quality of navigation. There were both positive and negative responses. On the positive side, some student-participants believed that navigating and finding information in the e-textbooks is easy in general. For example, Bio Lindsey said, "I think the e-textbook is a lot easier to navigate just because it gives you all these tools that you wouldn't normally have with a regular textbook such as highlighting important things." Bus Melody stated, "Navigating, finding information, it's just easier to find certain things on an e-textbook." Bio John reported, "It's pretty easy to navigate, just like the little aesthetic things, I guess. They don't really matter in the end."

Bio Lindsey and Bus Melody both stated that some aspects of navigation were problematic for them. Bio Lindsey stated,

> Only maybe problematic thing I noticed a few times was kind of with navigating and usually it was . . . Like when it would highlight things or whatever. It would be the wrong section. It wouldn't always bring me to the right section, which might just be like a tech error either at my end or their end.

Bus Melody added, "Sometimes when you're first navigating the e-textbook for certain platforms it might be a little hard for them to figure out how it works, so that's a barrier, and really orienting yourself around the e-textbook."

Bio John explained how navigating through electronic texts and finding specific information is easier than navigation through traditional textbooks:

> I think it's a lot easier to find information in the e-text, because sometimes you get the regular text . . . I mean, you have to use the index. Then, you use the index, to try and find . . . You find the index at the back. You use the index to try and find the page that you're looking at, and trying to find the term that you're trying to use. In this, it's just like it removes both of those steps. You can just type in like, "Oh." I was just trying to figure out what ABN does, or the paramecium. Is it the paramecium. Then, it can bring you right there. Then, you can also go through . . . Like, "I forgot. I didn't really understand chapter 9 very well." You can just go straight to chapter 9 and re-read it. I find the navigation is a lot easier so you don't have to find page numbers and stuff. You just go to the content that you're looking for.

On the negative side, other students expressed dissatisfaction with navigation in general or with specific issues. For example, Bio Karan stated, "It is hard to navigate in general, but for what we need it for, you don't really navigate out of it." In addition, she also reported "it is difficult to navigate this website, at least I think so, trying to find it in itself is too much effort for me." Bus Sara discussed issues relating to finding a specific page:

> I think the printed textbook much easier to find information because I can put sticky notes that I can easily go to the page that I want. For the e-textbook I think it's really much harder because if there's a specific page that I really wanted to get I can't get it.

Bus Sara explained this issue in more detail, "For example, if I highlight something. Later when I want to go to this page, I don't remember the number of the page. I don't know how to go to this number, the one that I highlighted."

Finally, Bio Adam pointed out another problem with navigation relating to the Internet speed:

> Well, compared to other books that I have used, I feel like, especially when I don't have access to good Internet, I thought navigating was easier for me in a regular textbook, just because I could flip through quite fast.

Recommendations. The student-participants reported various recommendations for educational publishers. Suggestions for improving e-book usage and functions include improving page layout, increasing the windows size, improving the interface, providing more complex tasks, providing quiz/tests, offering spelling options, reviewing questions, and adding more interactive features. For example, Bio John said,

> Those extra wide space. Make sure it fits the screen. That'd be biggest, thing because even if I zoom in though, like, it looks like, "Okay. Well, I kind of fixed it." Then, when you get to images, it goes over the space. Just try and get rid of the wide space on the sides.

He added, "Mostly, this is the part that bothers me, though, is that it doesn't scroll correctly. . . . The page is in long, which is kind of . . . I don't know. It could be worse."

Bus Melody expressed concern about the windows size. She mentioned

> The windows are a little small for my taste, but you just read through it. . . . The most problematic, I don't think there's a huge problematic one that I found. What I would do for display purposes is making this window a little bigger, because I would like it to fit in the screen more than it is now because then I could read more. That's what I found a little more annoying about it.

> Bio Karan suggested designing easier interface:

> I feel like it has a very confusing interface. . . . I would probably recommend that they make it an easier interface, just so, like at the top, there is a button for everything you need rather than having to find backwards, pathways into getting back to the book, or prep, or assignment or whatever it may be. I think it would be nice for those in easier interface.

Furthermore, Bio Karan noted that it was too easy to just get little bit of information, but not good at providing more complex tasks, integrating knowledge, in depth learning, and critical thinking:

> I would say it was just too easy to give the small amount of information I needed. I wish personally that it was a little bit more difficult, that I had to look through the chapters, and I had to figure out which section it would be in. Then I actually had to read about it instead of just having small amount of information, because

then, I just don't understand how it fits in with everything else. I think that would be more beneficial to me at least.

Students also indicated their current e-textbook is lacking appealing and useful features. Bio Lindsey reported

Maybe the option to put in your own prep questions would be cool. Because obviously you know best what you might be struggling in. The option to create your own little quizzes would be nice. For anatomy, I know we have to also know spelling for certain things. Like a spelling option where you could put in some flashcards would be pretty cool.

Bio Adam added,

Maybe they could have. . . . Like if our teacher could talk to the creator and work out some sort of quiz for practice, I think that would be helpful. As for any other features, I can't think of anything else.

Bus Melody reported,

Just thinking out loud, what I found lacking in this is, towards the end of the chapter you can do review questions, which helps, but it's kind of hard to find or navigate to the answers. Having a straightforward way of finding the test questions that you can practice, and the answers to them.

For Bus Fiona and Bio Adam, it is important to provide interactive features. Bus Fiona was concerned about the grade center and offering live chat was an important function to facilitating interaction with technical support. She stated, "I will say just like have live chat for technical support. As I mentioned before, my friend, she had faced a problem when posting her grade because of technical issue, so that will be great for many students." Bio Adam discussed the importance of providing a subject matter expert through the e-textbook publisher:

I think that someone said that there is a live chat that you can do but I wouldn't be able to do that. What would be really helpful if there is someone who is very knowledgeable with this anatomy and physiology that I could talk to and ask for clarification. I honestly think it was a little bit, it's not that easy to understand. In my opinion. If it could be more clear as to how to navigate around that would be great.

In term of improving usages of e-textbook in classroom, students discussed the importance of practicing and the instructor's role in providing help of using e-textbook which make it easy to use. Bus Melody advises students:

> I would encourage them to start familiarizing yourself with the e-textbook before you really dive into the course. That's what I did. They do add so many features that you need to understand this is what they do, this is how you navigate, that type of thing.

Bus Sara added, "My advice for the students is that they see the instructions and sometimes professors, in the first class they give these students some tips how they can use it." Bio Adam stated,

> I would say explore more because I didn't explore it that much because I am sure the cadaver and dissection tool is really cool and very helpful. I would also, honestly say, for the sake of the class itself that only use the textbook if you need clarification because your teacher should go over everything already in class that you need to know.

Bio John also added "Definitely use the dissection tool. I've said it a lot, but it really helped a lot."

Bio Lindsey advises students to develop good habits by starting to use e-textbook and its resources early:

> Start to utilize it as soon as class starts. Don't just wait until you are like halfway through the semester. Utilize it immediately because even though . . . If you just get in the groove of using it, it's a lot better. It helps you a lot more if you have the habits with it.

She continued,

> Whereas if you don't, it's kind of helpful, but it's easy to fall back with it and not really utilize all of its resources that it's giving to you and the tools. If you fall into the habit and use the tools and actually use all of the tools and it's really a good.

Bus Fiona expressed, "Enjoy it. Don't use it just as a college textbook. . . . It's college e-textbook, but think about that as a good source for your business life."

Findings in Relation to Research Question 4

To answer the forth research question, "What instructional, navigational, and other functions in the examined e-textbooks were utilized in the recalled activities of teachers and students and which were not?" The researcher used Excel and NVivo11 to obtain numerical data. Both teacher and student participants discussed certain features that were presented in my functional analysis of the e-textbooks, which included four sections: navigational functions, instructional functions, other functions, and supplementary materials (see Appendix K), but did not discuss other features that were in the functional analysis. Sometimes, only one or two participants described a particular function or feature; other times, it was frequently mentioned by most of the participants. The following discussion will first examine features that were detailed in my analysis of the e-texts and that were also mentioned by the participants, both teachers and students. In addition, frequency data will be illustrated to indicate which features were most frequently and least frequently mentioned.

Participants' perceptions that related to my analysis were Research Question 1 and Research Question 2, since the third research question asked about recommendations for future e-textbooks. The current study found four themes were related to Research

Question 1 and three themes were related to Research Question 2 (see Figures 6 and 7).

In terms of percentage of thematic responses for both Research Question 1 and Research

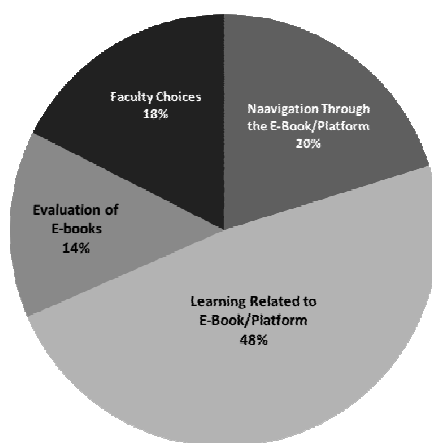Question 2, the following pie graphs illustrate these percentages:

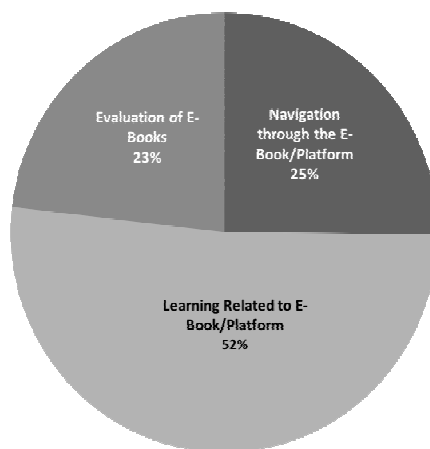Figure 6. Illustration of themes for Research Question1.

Figure 7. Illustration of themes for Research Question 2.

Navigation through the e-book/platform, and learning related to e-book/platform were the most frequent categories that also were related to my analysis. I classified 20% ($n = 23$) of the teachers' comments into navigation through the e-book/platform theme, and 25% ($n = 38$) of the students' comments into this theme. For example, Alex pointed out, "The most helpful features are probably, this top bar up here which allows me to jump to a page, allows me to pull up and go to any chapter or to even search it. That's probably the most helpful" (see Figure 8).

Figure 8. Illustration of navigation bar for the biology e-textbook.

Bus Melody also reported,

> For navigational purposes I do like the spyglass the most . . . the search bar… you can search through the book, put any keyword. . . . Sometimes if you're thinking of something really specific it usually can find it for you. The search has a really good way of defining it down and trying to direct you to the correct spot. (see Figure 9).

Learning related to e-book/platform contained 48% ($n = 55$) of teachers' comments, and 52% ($n = 78$) of the students' comments. Examples of this kind of comments were as follows: Rob stated,

> The most helpful feature is the online problem sets. By virtue of them being online, the students are able to get immediate feedback about how well they read, and a feature of this Cengage Learning product is they can take the problem sets more than once, so if they want to re-read, they can.

The figures below illustrate this feature of immediate feedback (see Figures 10 and 11).

Figure 9. Illustration of search function for the business
e-textbook.

Figure 10. Illustration of immediate feedback feature for the business e-textbook (Image
1).

Figure 11. Illustration of immediate feedback feature for the business e-textbook (Image 2).

Bio Karan reported, "There is even going to be different videos on whatever the chapter is going to be about. It's pretty nice" (see Figure 12).

Figure 12. Illustration of video function for the biology e-textbook.

Navigation through the e-book/platform referred to navigational functions (hyperlinks, search, interactive table of content, basic pages navigation options, and full book navigation options) in my functional analysis of the e-textbooks. Navigation through the e-book/Platform included four sub themes (see Figures 13 and 14). Hyperlinks was the most frequent sub-theme and include the hyperlinks, interactive table of content, basic pages navigation options, and full book navigation options as mentioned in my analysis. It represented 57 % (n = 13) of the teachers' comments, and 47 % (n = 18) of the students' comments. For example, Bio Karan illustrated,

> From here, you can go into the book contents and you can pick any chapter that you'd like. You can pick, Biology of the cells, and you are going to be here. . . . I would use book contents, then depending on what chapter we are in or what system we are on, then just using that. Then, if I know exactly what I am looking for, then I can click on the smaller unit of it, and then it will take me to where I need to go to read about it.

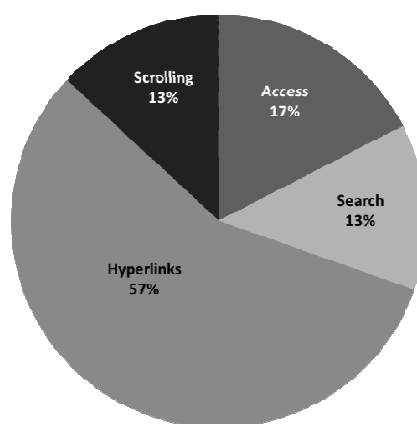Participants also navigated through external links which were not included in my analysis.

Figure 13. Illustration of sub-themes of navigation through the e-book/platform for teacher-participants.
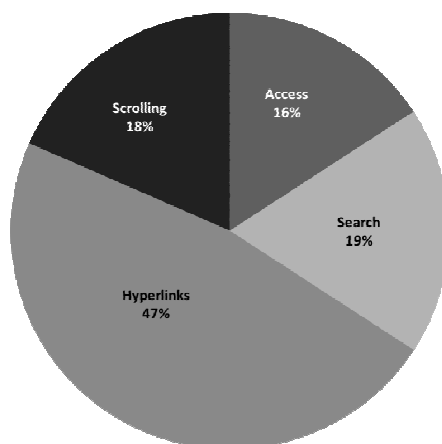
Figure 14. Illustration of sub-themes of navigation through the e-book/platform for student-participants.

Scrolling activity was part of the basic pages navigation options in my analysis. It appeared as a moderate subtheme with 13% ($n = 3$) of teacher actions and 18% ($n = 7$) of students' comments and actions constituting this subtheme. Searching activity represented 13% ($n = 3$) of the teachers' comments, and 19 % ($n = 7$) of of the students' comments. Moreover, both teachers and students discussed the access functions, which also were not in my analysis of the e-textbooks. I found 17% ($n = 4$) of the teachers' comments, and 16 % ($n = 6$) of the students' comments fell into this subtheme.

Learning related to e-book/platform referred to instructional functions, other functions, and supplementary material in my functional analysis of the e-textbooks. Learning related to e-book/platform included three sub-themes: the assignments, embedded materiel, and course-specific content (see Figures 15 and 16). Assignments and course-specific content appeared as a clear sub-themes and both of them were in the supplementary material in my functional analysis. I classified 25% ($n = 14$) of the

teachers' comments into assignment sub-theme, and 19% (n = 15) of the students'

comments into this sub-theme. An example was the one from Alex, "My favorite is, first

of all homework. That's the supplementary material that comes with the software, it's

important I use it every week, it's really important." I found 22% (n = 12) of the teachers'

comments, and 30% (n = 23) of the students' comments referred to course-specific-

content. An example of this kind of comments is seen in the following, Bio John

reported, "I use largely the dissection tool because the lab is really difficult for me."
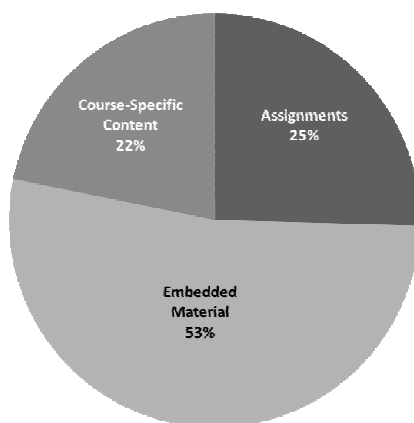
Figure 15. Illustration of sub-themes of learning related to e-book/platform for teacher-participants.
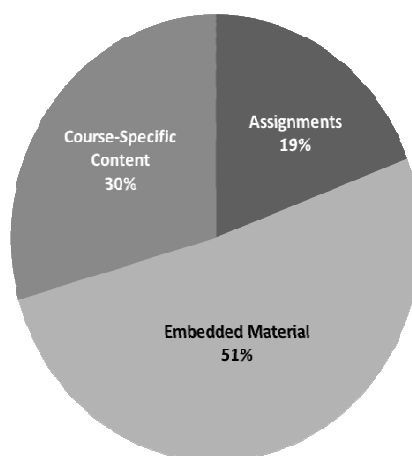
Figure 16. Illustration of sub-themes of learning related to e-book/platform for student-participants.

Embedded materiel was the most frequent subtheme at 53% (*n* = 29) of the teachers' comments, and at 51% (*n* = 40) of the students' comments. In these comments, the participants were describing a personal activity or perspective of using these tools or features: video, graphics, highlight, notes, bookmark, and notebook, listen to the text, embedded activities, learning objectives, dictionary, glossary, flashcards, print and text size that mentioned just by student- participants (see Figures 17 and 18). For example, the following two comments reflect this subtheme: Keith reported,

> The one that I used the most were the videos because I told my class that you need to see this in action to understand what's going on. Just reading about it is not enough. You need to be able to read it and see it.

and Bio Karan said,

> There is different strategies on how to remember different things. You can highlight different things or put notes on different things or put bookmarks on different things, you are able to comeback or print it, whatever you got to do.

In my functional analysis embedded materiel was in the instructional functions and other functions.

Figure 17. Illustration of embedded material items for teacher-participants.

Figure 18. Illustration of embedded materiel material items for student-participants.

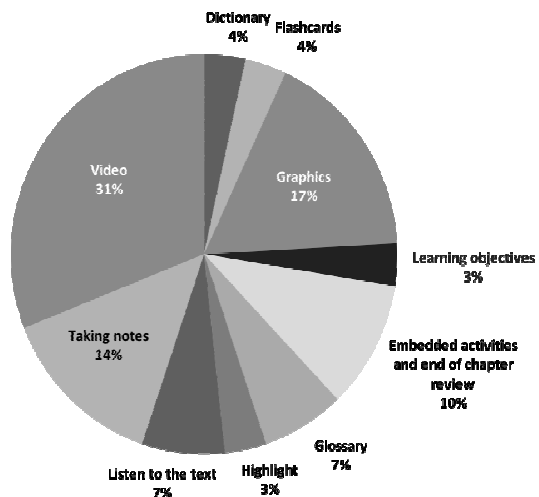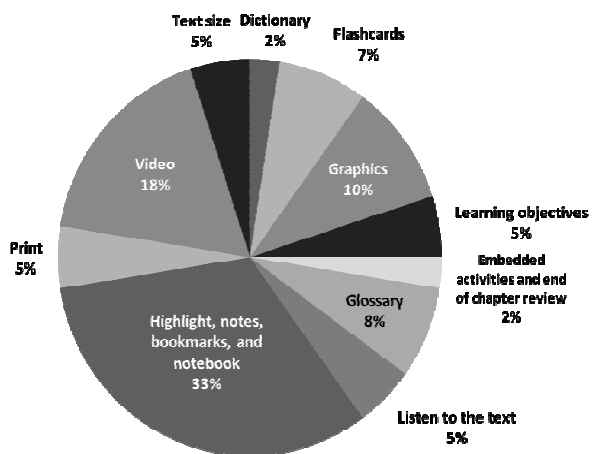Video (31%, $n = 9$), graphics (17%, $n = 5$), taking notes (14%, $n = 4$) were frequently mentioned by most of the teacher-participants. Alex, Rob, and Keith all mentioned the video function, and six of the nine comments were made by Keith. Alex and Rob mentioned the graphics, and four of the five comments were made by Alex. Taking notes was mentioned by both Rob and Keith, one comment by Rob and three comments by Keith. Dictionary, flashcards, highlight, and learning objectives were least frequently mentioned by teacher-participants. I found only 4% and 3% ($n = 1$) of teachers' comments referred to these functions. Both dictionary and flashcards were mentioned by Rob, highlight was mentioned by Keith, and learning objectives were mentioned by Alex.

Highlight/notes/ bookmarks/notebook, video, and graphics were frequently mentioned by most of the student-participants. Highlight/notes/bookmarks/notebook represented 33% ($n = 13$) of the comments, 18% ($n = 7$) of the comments consisted of talk about video, and 10% ($n = 4$) of the comments were related to graphics. Six students of seven mentioned the Highlight/notes/ bookmarks/notebook functions. Bio Karan, Bio Lindsey, and Bio John each had three comments. Two comments were related to Bus Melody, and each of Bus Fiona and Bus Sara had one comment. Video was also mentioned by six students of seven, five of them had one comment, and only one of them had two comments. Just four students of seven stated to the graphics, and each one of them has one comment. Dictionary and embedded activities/end of chapter review were least frequently mentioned by students-participants. Just 2% ($n = 1$) of student comments referred to these functions. Dictionary was mentioned by Bus Sara, and embedded activities/end of chapter review by Bus Fiona.

Evaluation of e-book was the least frequent theme that also was related to my

analysis. Just 14% (*n* = 16) of the teachers' comments, and 23% (*n* = 36) of students'

comments fell into this theme. The sub-themes for Evaluation of e-book are shown in

(see Figures 19 and 20). A typical example of this kind of comments was the one from

Bio John,

> The e-text is nice because I can access it from anywhere. I can get to the e-text
> with any computer. Because, when you have like a regular textbook, you have to
> have it in your backpack, and I'll grab at home, or something. If you have a laptop
> or a computer, you can access it on other people's devices. It's definitely more
> convenient.
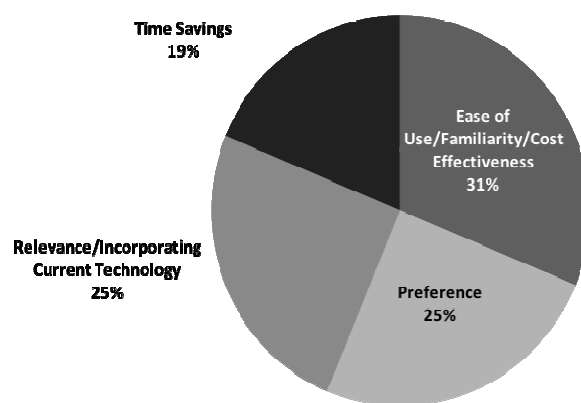
Figure 19. Illustration of sub-themes of evaluation of e-book by teacher-participants.

Effect of E-text on
Learning
25%

Ease of Use/Cost
Effectiveness
45%

Relvance/Incorporating
Current Technology
8%

Convenience
8%

Preference
14%
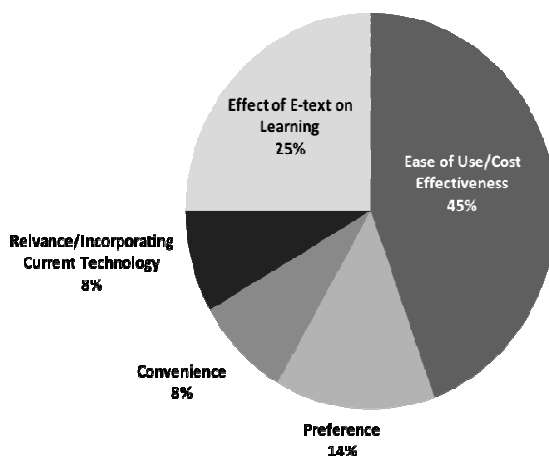
Figure 20. Illustration of sub-themes of evaluation of e-book by student-participants.

In general, teachers' comments were organized into four sub-themes, and students' comments into five sub-themes. The sub-themes of ease of use/familiarity/cost effectiveness related to teachers, and the sub-theme of ease of use/cost effectiveness related to the students were the most frequent at 31% ($n = 5$) of the teacher comments, and at 45% ($n = 16$) of the student comments. Convenience was a sub-theme related to student and represented only 8% ($n = 3$) of students' comment. These sub-themes consisted of talk about copy and paste and diverse access, and both of them were in the "Other Function" section in my functional analysis. All the comments in the sub-themes ease of use/familiarity/cost effectiveness were made by Alex.

There were also some areas that were included in the e-text analysis but that were addressed as recommendations or suggestions for future e-texts. These areas were in "Other Functions" in my functional analysis and included page design and layout, and font size.

Finally, there were some features that were included in the e-text analysis but that were not mentioned at all by either teachers or students. Examples of these features are the option of replay of audio and video or quit options using standard video playback tools in the basic pages navigation options function. Moreover, also not mentioned by teachers or students are video tools (Options for: View transcript, captions, full screen, control sounds), and content design (Consistent and readable font, ease of skimming/scanning by using short paragraphs, bulleted lists, heading different font style and color for headings, and the use of high contrast between background and text color) which appear in the "Other Function" area of my analysis.

Since the features of each e-textbook differ from publisher to publisher, some features of the business e-textbook were not mentioned by participants. Both business teacher and students mentioned the listen-to-the-text function, which is called ReadSpeaker in the "Other Functions" area of my analysis. No one mentioned these options of this function: reading speed (slow, medium, fast) or voice (male, female). The business e-textbook has a specific dictionary called Merriam-Webster's Dictionary. Participants mentioned the dictionary to look up words but they did not indicate its features and options in detail. The description of the Merriam-Webster's Dictionary in my analysis is interactive dictionaries accomplished by looking up words in dictionary directly from text, getting a term definition, getting an instant definition for any word within the e-book by highlighting word, choosing dictionary in menu options, getting examples of the word, finding out the first known use of the word, related words (synonyms, antonyms, related words, near antonyms), rhymes with the word, and by browsing (next/ previous word in the dictionary). Sharing (tweet dictionary information)

was another feature in the "Other Functions" area of my analysis that were not mentioned by either teacher or student participants. In the instructional functions area, no one mentioned the appendices feature.

The instructional functions of biology e-textbook in my functional analysis also included some features were not mentioned. These features are called stimulating recall of prior reading or reviewing relevant past learning, embedded activities, review, end of chapter review, activities, online study tools, vocabulary and comprehension support, and glossary. Also, the additional supplementary material area in my functional analysis included this website "Anatomy & Physiology: Online Help (A McGraw-Hill Online Learning Center)" which was not mentioned by participants. For more detail about this website see Appendix K.

Summary

In summary, a case study design using interviews, observations, and artifacts, four main themes were found related to the first research question with faculty participants: Navigation Through the E-book/Platform, Learning Related to E-textbook/Platform, Evaluation of E-textbooks, and Faculty Choices. Three themes related to Questions Two with student participants: Navigation Through the E-book/Platform, Learning Related to E-book/Platform, Evaluation of E-books. Within these themes, the participants, both teachers and students, discussed specific features of e-textbook and using these features in detail: Access, hyperlinks, search, scrolling, assignment, embedded materials, course-specific content. Moreover, there were a variety of responses and concerns relating to what teacher and student participants thought about their e-textbook and how they

described the positive and negative aspects of e-textbook functions toward teaching and learning (Research Question 1, Research Question 2, and Research Question 3).

In general, positive comments included ease of use, cost effectiveness, convenience, time saving, and relevance. Negative comments came primarily from the Psychology teacher who decided not to require students to use an e-textbook due to its many flaws such as outdated, incomplete, or missing information, access problems for both teacher and student, navigation problems, gradebook malfunctions, and poor access and little help in the e-textbook website and supplementary materials. Both teacher and student participants also made several recommendations or suggestions for future e-textbooks, including improving page layout, improving the interface, increasing window size, providing more complex tasks, and adding tests and quizzes, interactive features, and review questions. Faculty also recommended increasing size of the text, keeping up with technology, and providing a subject matter expert.

Finally, in the comparison phase between my functional analysis and participant responses (Research Question 4), the researcher found that navigation through the e-book/platform and learning related to e-book/platform were the most frequent categories that were related to my analysis. However, there were many features and functions described in the analysis that were not mentioned by either teacher or student participants.

CHAPTER V

DISCUSSION

Introduction

The purpose of this research was to understand the perspectives of teachers and students regarding their use of specific e-textbooks in a higher education learning environment. The e-textbooks used by the teachers and students were examined in order to determine functions and features to focus on during the inquiry. This study was particularly interested in the design of e-textbooks and how they are used by both teachers and students in the learning process. The participants in the research were also prompted to suggest improvements to e-textbooks.

A case study approach was used as the methodology to examine three teachers represented three majors in three different colleges and a small sample of their students to gather information to answer the research questions. No students from the Psychology class were available inasmuch as the psychology professor decided not to make the e-book required for his class, and the psychology students who volunteered were all using the printed text. Based on the methods of case study, several types of data were collected: a functional analysis of e-textbooks, transcripts of audio/video recordings of participant interviews, artifacts, and reflexive journaling. The study was bounded by three e-textbooks, three teachers, three one-hour teacher interviews, seven students, seven one-hour student interviews, specific data collection procedures, and taking place at a Rocky Mountain region college.

In this chapter, the researcher summarizes the findings from Chapter IV, provides discussion on these findings, and discusses the limitations of this study. Finally, this chapter highlights the implications for further research.

Summary of the Findings

In summary, a case study design using interviews, observations, and artifacts, four main themes were found related to the first research question with faculty participants: Navigation Through the E-book/Platform, Learning Related to E-textbook/Platform, Evaluation of E-textbooks, and Faculty Choices. Three themes related to Questions Two with student participants: Navigation Through the E-book/Platform, Learning Related to E-book/Platform, Evaluation of E-books. Within these themes, the participants, both teachers and students, discussed specific features of e-textbook and using these features in detail: Access, hyperlinks, search, scrolling, assignment, embedded materials, course-specific content. Moreover, there were a variety of responses and concerns relating to what teacher and student participants thought about their e-textbook and how they described the positive and negative aspects of e-textbook functions toward teaching and learning (Research Question 1, Research Question 2, and Research Question 3).

In general, positive comments included ease of use, cost effectiveness, convenience, time saving, and relevance. Negative comments came primarily from the Psychology teacher who decided not to require students to use the e-textbook chosen for that class, due to its many flaws such as outdated, incomplete, or missing information, access problems for both teacher and student, navigation problems, gradebook malfunctions, and poor access and little help in the e-textbook website and supplementary materials. Both teacher and student participants also made several recommendations or

suggestions for future e-textbooks, including improving page layout, improving the interface, increasing window size, providing more complex tasks, and adding tests and quizzes, interactive features, and review questions. Faculty also recommended increasing size of the text, keeping up with technology, and providing a subject matter expert.

These suggestions were based on participant teachers' and students' personal use of e-textbook in general and specific functions. Having actual users who interacted with e-textbook and its functionality helped to understand these users' needs and perceptions of barriers regarding their use which could lead to improve and modify different aspects of e-textbook. For example, both teaches and students in this study are not using e-textbooks maximally, sometimes only minimally, and most often not knowing about or taking full advantages of many of their e-textbook functions.

Faculty in particular need to feel more acknowledged and being included as part of the process. Involving faculty in all stages in developing e-textbooks is important to ensure that faculty are satisfied with and using e-textbook. Teachers also need ways to add their own materials into e-textbooks and choosing the resources and materials as part of the teaching process. Their recommendations or suggestions for future e-textbooks can provide valuable input from end-source users in achieving an ideal e-textbook for their students. In additions, these recommendations could alter e-textbook in a way that ensure a positive experience for faculty.

These recommendations could serve as evaluation criteria for the publishers and helping them ascertain what teachers and students need or want next, as well as what they do not feel are especially helpful. Teachers' and students' recommendations address issues they faced during their actual use or engagement with e-textbooks, which could

provide some guidance for appropriate modification of the e-textbook, and adapting the e-textbook so as to be appropriate for pedagogical situations.

Finally, in the comparison phase between my functional analysis and participant responses (Research Question 4), the researcher found that navigation through the e-book/platform and learning related to e-book/platform were the most frequent categories that were related to my analysis. However, there were many features and functions described in the analysis that were not mentioned by either teacher or student participants. Each of these findings is further discussed below as it relates to the various research questions addressed in this study, the theoretical framework, literature and research studies, and offering my own personal understanding.

Discussion

A good theoretical framework for understanding how teachers and students create meaning of what activities are chosen and how they carry out their activities with e-textbooks is activity theory. Activity theory is a framework in psychology and other social sciences for studying and understanding both single human beings and social dimensions that form in natural everyday life conditions through analyzing genesis, structure, and processes of human activities (Kaptelinin & Nardi, 2006). "Activity" is the main concept of activity theory. Activity is more than just human activity; this theory emphasizes that understanding the activity of any subject can only be through purposeful interaction of the subject with the world, "a process in which mutual transformations between the poles of 'subject-object' are accomplished" (Leontiev, as cited in Kaptelinin & Nardi, 2006, p. 31). In addition, the perspectives of teachers and students regarding their use of specific e-textbooks is best understood when viewed through other theoretical

framework: social cognitive theory, constructivism, and the Technology Acceptance Model (TAM).

In activity theory, an activity consists of three main components the subject (the person being studied), referring to experience needs and carry out activities by interaction with objects (the second component) of the world, whether these objects be tangible such as physical objects, or intangible such as meaningful goals and accomplishments. (Kaptelinin & Nardia, 2012). Finally, activities in the interaction between subjects and objects involve the third component of activity theory, which are the tools or instruments. In my study, e-textbook and e-textbook functionality serves as a learning/teaching tools to support students' learning activities. I applied these concepts to analyze teachers' and students' activities with -e-textbook and to understand how e-textbook functions are used in learning as viewed from activity theory. In other words, the e-textbook and e-textbook tool itself serve as a means to enable the teachers and students (subjects) to do many things or interact in different ways to reach the object (completion of a learning task).

From the findings, it appeared that the other materials provided by e-textbook publisher such as the homework assignments and problem sets are more important than using the e-textbook itself as a basic textbook. The perceived advantages of e-textbooks seem to reside primarily in the assignments. Teachers are most likely to take advantage of the assignment features, and they use the assignments /problem sets as effective teaching tools. This could be one strategy that teachers use to motivate students to read assigned chapters. In reality, most students tend to skip buying the textbook but when e-textbook assignments/problem sets are assigned and teachers explain the importance of having the

e-textbook for completion of the course and for success in the class, students are more likely to obtain the e-text.

This finding of use of e-textbooks as supplementary materials was one of the major themes that recurred throughout this study. The teacher-participants used their e-textbook primarily as supplemental materials for them and for their students. They considered the e-textbook as an additional resource supporting what they covered in class and what students do in class. This consistent use of e-textbooks only as supplementary raises questions about the nature and purpose of these e-textbooks and why assignments and problem sets seem to be more important to faculty than the e-textbook itself. First, is this finding an unusual case or are e-textbooks being increasingly used as supplementary sources? Gramoll (2007) mentioned that e-textbooks can function as both a stand-alone resource or as a supplement, but most of the literature does not address this issue. Also, another question is whether printed textbooks are likewise being used increasingly as supplementary resources, or do they remain as a primary tool for presenting information to students. Finally, further study of the factors around the use of e-textbooks as supplementary materials and what constitutes primary materials would add additional insight into this finding.

Assignment/problem sets was the primary reason for using an e-textbook. The assignment features were regarded positively by participants. The outcome was completion of the assignment and getting a good grade. This finding supports Liaw, Hatala, and Huang's (2010) interpretation of activity theory applied to mobile devices serving in a mediating role, as teachers selected specific activities for their students to complete as part of the learning process, rather than assigning readings as is usually done

with printed texts. These activities were viewed as mediating between the subject and the object, using transformative processes to reach the final outcome, the course goals.

In general, teachers and students used the same functions of e-textbooks but in different ways. Familiarity with the content led faculty to use the functions of e-textbooks in different ways from their students. The instructors are "experts" in the content from the e-textbooks. Their use of the search functions is probably qualitatively different from the students, because they already know the terminology, how the content is organized, etc. Students may not know the correct terms, how they are spelled, etc. E-textbook search designs let teachers use their expertise to find things they know are there. Basic search design like google-type search might be good for novice learners. Activity theory is flexible, enabling students and teachers to set separate goals and utilize tools and activities for different purposes, but with the common goal of enabling students to reach the final goal of successful completion of the course. This flexibility is supported by the reasoning of Kuutti (1996) who discusses how flexibility is useful in describing developmental processes, as accomplished through the use of tools to complete activities that move subjects towards goals.

All participants had previous experience in using electronic books. Overall, teachers and students had positive experiences toward e-textbooks with the exception of the psychology teacher. There was general agreement among teachers and students that using e-textbooks did not affect their teaching/learning. Three students (Bio Lindsey, Bio John, and Bus Melody) mentioned that their learning improved somewhat because they interacted more with the e-textbook, which is supported by activity theory where tools mediate between the subject and object to facilitate the achievement of a goal. This

finding supports those of Waycott, Jones, and Scanlon (2005) who used case study, concluding that technological tools were effective as mediators to enhance learning. Findings also showed that using e-textbooks were perceived as making the teachers' job easier, changed the way teachers obtained their resources, affected the presentation of the content, but it did not change the content of teaching.

A surprising finding of the present study revealed that teachers and students showed lack of use or lack of knowledge of many online external learning resources that are available at the home page of the publisher platform to help enhance and support the specific course content. For example, one teacher (Biology teacher) viewed some of these resources as good resources but he did not want to take the time to learn how to use these tools. This raises concerns about the implications for students. Were these good resources or not? We do not know. Being a novice teacher or teaching the course for first time might stimulate teachers to look and use the supplementary materials. This unfamiliarity with all the resources raises the question about why there is this lack of knowledge or reluctance to take the time to learn about them.

Teachers play an important role in students' use of certain specific resources. Students used mostly what their teachers used or recommended for them; sometimes their use of these supplementary and external resources was based on their needs or related to their preferred learning modes. Most of the biology students (Bio John, Bio Lindsey, and Bio Adam) presented a different perspective on using supplementary material as they found the cadaver dissections as helpful tools for practicing labs, studying, and reviewing information from their teacher who saw this tool as an important tool. As a researcher, I noted that flexibility of the dissections tools allow students to use what was most useful

for them, depending on how the individual likes to learn. From the perspective of activity theory, these results suggest the cadaver dissections are good mediating tools for practicing labs, studying, and reviewing information. Furthermore, for the students to reach likely outcomes by using these resources, teachers need to carry out their roles efficiently by informing students about these tools and teaching them how to use them (Mwalongo, 2016). Since tools by themselves may not promote the desire outcomes, conscious use of the mediating tools is important for enhancing interaction and learning.

On the other hand, for one biology student (Bio Adam), online resources were not helpful and the lab hours were enough for him based on his way of learning. He preferred talking with someone to get clarification rather than using tools. Also, going to an open lab hour enabled him to see all things visually and manipulate them. This suggests that students who are familiar with their own ways of learning can decide whether or not the kinds of resources available in an e-textbook really assist them, or whether there are other ways beyond the e-textbook to support their own learning. It also supports the general finding that e-textbooks are seen as supplementary to the primary content learning, to be used, or not used, at the discretion of the individual student.

For example, none of the business students used any type of supplementary materials. They only focused on what their professor asked them to do such as discussion boards, group/individual project, activities in class, presentations, and exams. As the professor himself did not use any supplementary materials, only the embedded assignments, students likewise did not use the supplementary materials. In fact, business students reported that they did not find these materials particularly helpful. Inasmuch the use of assignments in e-textbooks was a recurring theme, along with embedded materials

related to these assignments, the question of the purpose of e-textbooks might be more closely related to materials related to the assignments.

It is interesting to note that e-textbooks changed the strategies that teachers/students use while reading to remember or organize information. E-textbooks allowed them to interact with the text through using different tools such as highlight, notes, bookmarks, and notebook. The notebook function allowed users to access the highlight, note, and bookmark functions. The use of electronic textbooks increases affective and psychomotor learning due to features included in e-textbooks such as highlighting and note taking and other accessibility features that enable users to learn actively and interact with the text. This may form more positive attitudes toward the content and toward the active use of tools to enhance learning, which was also found by Rockinson-Szapkiw, Courdff, et al. (2013), who concluded that using affective and psychomotor modes was more effective than just reading a printed text.

One student (Bus Sara) did not even know about the notebook function. She did not understand how to navigate through pages that she highlighted. The lack of knowledge about this function might explain her preference for a printed book, which enabled her to find information easily through the use of sticky notes. Another student (Bio John) did not use the highlighting tools due to the lack of the familiarity with this tool. Moreover, his tactile preferences might explain his non-use of digital note. In terms of interacting with texts, Vandenhoek (2013) found that techniques such as highlighting or underlining on a printed text is widely accepted by most students (87%). Taking notes on the printed article itself was the next highest way of interaction at 65% followed by 55% of students taking notes on a separate piece of paper. In contrast, interacting with

digital texts found much different results, with 70% of students reporting that they took notes on a separate sheet of paper for these digital texts, and digital highlighting was used only by 29% of the students. This discrepancy pointed to another important finding of this study. Students still know little about these functions when reading pdf files from a screen (Vandenhoek, 2013). Fewer than 50% of students are familiar with highlighting, underlining, or electronic comment functions. Since users are unfamiliar and lack knowledge of annotation tools, most did not use them, underscoring the need for training students in utilizing the functions available on e-textbooks for highlighting, note-taking, etc. These findings emphasize the importance of familiarizing students, and perhaps even faculty, with the variety and use of the many functions available in e-textbooks.

The quality and accuracy of content has an influence on teacher's adaption of an e-textbook. There was overall agreement that choosing books needs to be based on the quality of the material contained within the book, regardless of the format, print or electronic. Almost all of the teachers interviewed believed that the quality of their e-textbook led them to reuse, switch, suggest to other teachers, or treat it as supplemental. These findings are supported by Lee et al. (2013), who indicated that improving the quality and accuracy of the contents is a challenges for e-textbook publishers and needs to be addressed for better acceptance and use by the audience.

One student (Bus Sara) and one teacher (Biology teacher) indicated a preference for printed books, and it is interesting to note that they used the term "real textbook." It seems that both of them did not consider the e-textbook as a book but rather as a tool or incorporating advanced technology that allowed them to take advantage of the functions and resources available in the e-textbook/publisher platform. Regardless of preference of

format, students and teachers alike viewed e-textbooks as supplementary materials, one of the most common findings found in the present study. Whether the e-textbook was used as a source for assignments, for tests and quizzes, or supplementary resources such as the biology lab, nowhere in the current study was the e-textbook used as a traditional textbook for reading.

The current study provides evidence that acceptance of an e-textbook is not an issue among teachers and students. This acceptance is supported by Sieche et al. (2013). Their study found that the Technology Acceptance Model (TAM) variables of perceived usefulness and perceived ease of use correlated with students' positive attitude toward e-books. This raises the question: if the e-textbook is used as a tool, then what is the purpose of e-textbook if people do not use it as a book but just as a resource.

In addition, findings showed that e-textbooks facilitate teachers' and students' interactions and access to the materials and resources. There is no need to carry a book, and the ability to access the whole book from any device at any time is easier than having to carry a printed book. Ease of use can be explained by social cognitive theory, according to Stone and Baker-Eveleth (2013b), who postulated that three factors influenced the development of this theory: ease of use, verbal persuasion/social norms, and previous computer experience. Students today already have much computer experience, are socialized to use technology in their daily lives, and find technology easy to use. Faculty members are increasingly becoming familiar with the use of technology and incorporating computer technology in their teaching, are recognizing that technology is an integral part of their students' lives, and often use their own verbal persuasion to encourage students to use e-textbooks (Stone & Baker-Evelth, 2013b). The biology

teacher in the current study emphasized that the primary goal of using e-textbook is to make learning easier for his students, and he liked it for ease of use, cost effectiveness, and portability. These features fit with participant needs in this century, where e-textbooks have changed the way they access the teaching/learning martials. Also, e-textbooks enables teachers to link with blackboard. The system of e-textbook enables teachers to mange their courses and select assignments on the publisher's website.

One idea that came up several times was the issue of creative thinking with e-textbooks. For example, some students in the biology (Bio Lindsey, and Bio Karan) class reported that electronic homework was really useful for providing a small amount of information to answer the homework assignment questions. The e-textbook does the task for them, and students merely look up the specific information just to answer questions. For these students, there is no need to read a whole chapter and search for the answer at the same time. These students also recognize that all these options available in the e-textbook could be a barrier to their learning beyond just completing their homework. E-textbook functionality seems to change students' reading strategies or habits, with e-textbook students skimming more rather than reading entire passages. Because no in-depth reading is required, there may be a decline in critical thinking skills because students just look up answers already provided to them, have a limited focus, and ignore other information, which could lead to less engagement of the student with learning materials. This raises a concern: Are e-textbooks changing the way we learn or has the meaning of learning changed? Is looking up answers now the equivalent of learning? Even though e-text features could save student time and direct student to memorize important concepts, does this actually impede students in thinking for themselves and

figuring out the important concepts without being told what they are. Significantly, digital natives may actually perceive the world differently, and over time, as these digital natives replace those who did not grow up with technology, the disparity between these two groups will disappear (Houston, 2011). This new perception of the world includes reading habits that, rather than reading from left to right, and from front to back, now read non-sequentially, where they navigate from page to page or topic to topic via hyperlinks. Instead of reading long passages, these digital natives look for brief summaries, bulleted or bracketed information, embedded objectives, activities, and evaluation tools (Houston, 2011).

An example of incorporating critical thinking skills in assignments can be seen in the business electronic assignments, which were designed differently from the "look up the answer" format, where each assignment links with a specific chapter and students need to read most of the chapter. The assignment questions were designed in a manner that required students to read in-depth, to exercise their critical thinking skills, testing for knowledge, and preparing for exams. In addition, students appreciated going back and forth between assignments and readings through the hyperlinks. While they complete their assignments, they use the table of the contents to go to a specific topic in the chapter and sometimes look at graphics or watch videos within the chapter which facilities doing the assignment. Their skills in going back and forth through different activities without any difficulties might be explained by the fact that reading e-textbooks is not a new experience. Dobler (2015) found that if the e-textbook reading experience is new, transitions between several techniques such as reading, viewing, and back to reading may be difficult for students. With reference to activity theory, these findings suggest that the

manner in which electronic homework functionality was designed by the publisher and used by students had the potential for discouraging or promoting critical thinking skills (Mwalongo, 2016). The electronic assignment itself serves as a means to enable the students to engage at an in-depth level which lead to promote their critical thinking skills or limit their interactions which reduces their use of critical thinking skills. This view is supported by ChanLin (2013), who found that features provided by e-textbooks system support electronic reading strategies and allowing for cognitive effort. This opportunity provided by e-textbook systems to use various features influences reading comprehension.

While reading, students could choose different strategies to learn the content (Dobler, 2015). It is not clear if all these strategies are positive. Student actions might also facilitate negative strategies; for instance, learners could scan information instead of using deeper reading strategies for reading comprehension. The decision depends on several factors such as the level of difficulty of the concept, the time available, and the preferred learning method. For example, students sometimes find it difficult to understand the content from just reading the text; they look to multimedia elements to help them understand. Multimedia elements and web-links also could be used as an additional resources based on the importance of the subject to the readers and their interest level.

The finding that the way students use the e-textbook functions could be based on their motives and goals could be explained by understanding that some of them would like just to pass the class whereas others want to get a good grade and work hard to understand the learning materials. The biology teacher explained that using e-textbook

might enhance students learning a little bit by providing multiple resources. He and the publisher, who came to the initial class meeting, told students about all the features available in the e-textbook and online resources on the publisher platform at the beginning of the course. I noted that most students know about these features even if they are not using it. Students then have options to use just what their instructor focuses on or using the e-textbook in depth, especially for those students who need the knowledge from this course to serve as a foundation for their major and to be prepared for upper level biology classes. Perhaps it is important to think about what is important for majors and for non-majors, maybe teaching majors in a different way from non-majors.

One of the important contributions of activity theory to Human-Computer Interaction (HCI) focuses on involving goals and motives as part of any human activity (Kaptelinin & Nardia, 2012). The operational (low-level) aspects of interaction with technology are connected with a specific goal, and are oriented to the needs and motives of technology users. Findings showed that teachers and students' activities are driven by conscious and considered actions. Most their activities can be categorized at this level, where teachers and students show how they use different tools and what goals they have. In terms of activity theory, "these activities are motivated and achieved through a series of conscious actions with specific goals" such as carrying out the assignment and reading course material, in-depth understanding, and general overview of course material (Otrel-Cass, Andreasen, & Bang, 2016, p. 48).

In terms of activity theory, using e-textbooks, e-textbook functionality, and other online resources available on the publisher platform may change the way that teachers and students carried out their tasks (Waycott et al., 2005). For example, the participants'

use of assignments could be understood through employing activity theory where teachers and students have different goals in using electronic assignments. Assignments that are integrated in e-textbooks or publisher platforms allow students to interact with the assignment and read the text in a different way than if they completed the assignment on paper with a printed book. Instead of of physically turning paper pages, students use hyperlinks to move back and forth between sections/parts or scroll though the text, using search functions to find specific information or a topic, or navigate through the table of content. Students get immediate feedback, are provided with a chance to practice and do the assignment many times without affecting their grade, work on their own pace, save it, until they are finally ready to submit the finished assignment, and getting their grade automatically. This flexibility of e-textbooks is indicated by the different ways students and teachers choose and use the variety of functions and resources available with e-textbooks, and is supported by the conclusions of Lokar (2015) which asserted that e-textbook design and functionality support individual characteristics, learning styles, and preferences.

Finally, teacher and student-participants provided key suggestions for educational publishers: improving page layout, improving the interface, increasing window size, providing more complex tasks, and adding tests and quizzes, interactive features, and review questions. Faculty also recommended increasing size of the text, keeping up with technology, and providing a subject matter expert. These findings are similar to those of several other researchers. Chong et al. (2009) noted that important barriers that impede many students from using e -books and prevent their access to and understanding of electronic features embedded in them. These authors found there was little satisfaction

and acceptance of e-textbooks because of poor design in terms of navigation design, page layout, and content design. Good design is fundamental to usability of an e-book, which in turn influence students' preferences and acceptance of e-book. Muir and Hawes (2013) examined students' needs of e-book. In response to the post task-interview questions that focus on suggestions for improving e-book, students emphasized improvement of interface and multimedia as features that could attract them to use e-book in the future. Furthermore, Embong, Noor, Ali, et al. (2012) and Embong, Noor, Hashim, et al. (2012) discussed the design issues of e-textbooks. The design framework is an important aspect affecting the adoption of e-textbooks, and can be used as a reference to support students and teachers in the learning/teaching process. Embong, Noor, Hashim, et al. (2012) suggested a framework for using e-books as textbooks. The framework consisted of five principles: offering various presentations of information and activities, facilitating the evaluations of students' work, automating some feedbacks for students, providing scaffolds for the learning process, and ensuring sustainable resources of knowledge.

Constraints of the Study

In this study, I noted some constraints regarding the methodologies and data collection. First, due to the nature of the study, as Creswell (2007) has pointed out, in qualitative research, there is a sense of uniqueness that findings relate to a specific time, place, and individuals. There is not so much an attempt to generalize to other populations, but rather to explore other populations. Although only three teachers and seven students participated in this study, their responses support the conclusions of other researchers, providing additional support for the ability to generalize these findings to the general populations of faculty member and college students. However, caution must be exercised,

recognizing that the findings may describe the general group of faculty member and college students but not necessarily reflect the responses of any particular teachers or students. Another constraint includes a small population from which participants were drawn, and that the study was conducted at only one university at a Rocky Mountain region college.

Implications for Future Research

If e-textbooks are used primarily as supplemental materials, what constitutes "primary" class material? Audio, video, multimedia resources, interactive tasks, and different internal and external online resources were available to teachers and students, but with all these supportive embedded materials and external materials, faculty still treated the e-textbook as supplementary. Findings shows the biology teacher use lectures and PowerPoint presentation as main resources. Further study needs to be undertaken in order to ascertain if this finding is becoming more frequent, and if so, to try to identify factors behind this change in e-textbooks as primary sources or supplementary sources. In conjunction with this type of investigation, it might be important to determine if the function of printed textbooks also reflects this change from a primary source to supplementary. Also, research is needed to examine just what is considered as primary sources of information from which students derive their learning.

It might also be helpful to investigate whether e-textbooks are in general used differently than printed textbooks in an effort to determine if the findings of the current study are unusual, or if there is a trend in education in moving to e-textbooks to treat them as supplementary materials. Other research might also examine more closely the use or non-use of various functions and options in e-textbooks. For example, are there

certain functions that are not used frequently in other classes, courses, majors, and in other locations. This may help publishers to re-examine what features they should include in e-textbooks in the future.

Finally, a more basic question into how advanced technology may have changed the way that students growing up with these technologies actually learn might warrant more investigation. An article appeared in the NY Times that summarized several research studies that suggest that technology is changing the way students learned and on the impact of technology on students' academic skills. Conducted by Pew Research Center and Vicky Rideout, these studies indicated that technology reduces the attention spans of students, creates difficulties to their writing and communication skills, results in a decline of their critical thinking skills, and influences their capabilities to do homework (Richtel, 2012). Getting quick/easy answers through using the Internet is becoming usual and acceptable behavior among students as they grow up with technology, as was found in the current study. When Gutierrez (2014) discussed how technology has changed how people learn, she found that computers, software, apps, and Internet, all of which are embedded in e-textbooks, play important role in this change. Secondly, teachers and students are both involved in the learning procedure. Students learn through an active learning style rather that passive learning, reflecting the increasing use of constructivist strategies and classroom environments. Learning is no longer limited to reading books and listening to lectures. The third way that technology has changed the way people learn relates to the ability to personalize learning. Technology, and e-textbooks as one form of this technology has personalized the learning experience by providing flexible learning

methods to deliver the content, allowing students to work based on their individual goals, needs and readiness.

Therefore, much more research is needed in order to investigate how learning itself is being altered by the use of technology, including e-textbooks. The use of e-textbooks as supplementary materials, for example, may be one reflection of this change, perhaps indicating that learning is increasingly derived from reading small bits of information or from bulleted summaries of important ideas rather than gleaned from reading large passages in a text, either in printed or electronic form.

Recommendations

The newer e-textbook is interactive, including a lot of features, functions, and internal/external resources but this is not enough to revolutionize learning. First of all, these e-textbooks are not being used to their current potential, by either faculty or students. Sometimes this is due to unfamiliarity with the uses and functions of the features, or with how to use them. This finding suggests that publishers need to provide better introduction and instruction to these faculty and students. Perhaps creative, entertaining videos could be created for each of these populations to introduce features, how to use them, and their purposes to stimulate increased use of many available features such as external resources or simulations using real life situations. There could also be more possibilities for publishers to follow up with students and faculty regarding how these e-textbooks are working for them.

This brings up another suggestion regarding contact between faculty and publishers. Collaboration between the institutions/universities, teachers, and publishers is very important in order to produce and create e-textbook fit with their teaching systems/

approach and their students' characteristics and needs. The importance of this kind of collaboration is even supported theoretically by constructivist ideologies and by research into best practices for adaptation of technology such as the Technology Acceptance Model.

Listed below are my recommendations based on the findings of this research:

1. The publishers should work with expert teachers in the subject matter.

2. Teachers play an important role in adapting and using e-textbook, the publishers should focus on teachers first in adapting the e-book because most student use what their teachers use or recommended them.

3. E-textbook must be designed in a way that enables teachers to apply their own expertise and pedagogical skills.

4. Since the assignments/problem sets was the primary reason for using an e-textbook in this study and students read the book through the assignments, publishers should design them in a way that requires cognitive engagement to enhance critical thinking (applying material learned to real-world situations) wish help them referencing and testing their knowledge, and preparing for the exams. A good example is the problem set in the business book that encourages students to read their textbook before completing their work.

5. The technological expertise of teachers and students are still low, at least in the participants of this study. Perhaps this is why they do not have higher expectations. I think the publishers should work with faculty and students from institutions of higher learning that are highly regarded for their advanced work in technical fields such as computer science or electrical engineering to get in depth suggestions to improve e-books

and ways to reach faculty and students with less technological expertise so that they can utilize these e-textbooks more efficiently.

6.   Publishers should care about the quality of the content because teachers viewed the quality of materials as an important feature for any teachers wanting to teach the course with exciting e-textbook. This again points to the need for continuing collaboration between publisher and faculty, so that these two entities can work together as a team to develop, modify, and improve e-textbooks. Perhaps publishers could create special consultants that meet regularly with particular departments and their faculty across the nation to increase and incorporate feedback fro faculty and students.

7.   Most teachers create their own materials based on their own experience and/or regarding to their institutions/university. Giving more control to the teacher to add or integrate sources, activities, change, companies, or delate any part could encourage teachers to use the book in depth not just as extra resources. Teachers are aware of their students' need and they present the information in a way that meet these needs. Also they are the subject matter experts; publishers can tap into these experts and help them better meet the student needs by working together.

8.   I think teacher control will help solve the problem of non-use of many functions and resources available in the e-textbook or at the home page of the publisher platform which currently make the book just busy work for students. Students do not have a desire or motivation to explore and learn about these functions; they don't put the effort in unless their teachers use it and asked them to use it. This highlights the critical need to reach and utilize teachers as part of the publisher team in creating and developing

e-textbooks. Faculty would have more buy-in because of their participation, and better understanding of the variety of features and functions and their uses and benefits.

Summary

For the foreseeable future, e-textbooks will continue to have an impact on formal education as well as a useful teaching/learning tool to support teaching/learning activities. This research examined the perspectives of teachers and students regarding their use of specific e-textbooks in a higher education learning environment through the lens of an activity theory framework. While the previous chapter presented individual views based on participants' descriptions of their personal activity with the e-textbook and how it functioned as a tool for them from different data sources, Chapter V presented a descriptive analysis of the overall activities and interactions with e-textbooks, from a holistic perspective, supported by the broader literature.

In general, there was overall agreement that choosing books needs to be based on the quality of the material contained within the book, regardless of the format, print or electronic. E-textbooks facilitate teachers' and students' interactions and access to the materials and resources. Results of this study showed that teachers and students activities are driven by conscious actions with specific goals such as carrying out the assignment and reading course material, in-depth understanding, general overview of course material. The teacher-participants used their e-textbook primarily as supplemental materials for them and for their students. Familiarity with the content also led faculty to use the functions in different ways from their students. Moreover, teachers play an important role in students' use of certain specific resources. Students used mostly what their teachers

used or recommended for them; sometimes their use of these supplementary and external resources was based on their needs or related to their method on learning.

The data affirmed that all participants had previous experience with technology, and reflects the incorporation of technology at an early age. In addition, evidence from the interviews supported the notion that using e-textbooks, e-textbook functionality, and other online resources available on the publisher platform may change the way that teachers and students carried out their tasks. For example, e-textbooks changed the strategies that teachers/students use while reading to remember or organizes different things. E-textbooks allowed them to interact with the text through using different tools such as highlight, notes, bookmarks, and notebook.

Additionally, the data suggested that critical thinking may be enhanced or discouraged by the design of homework assignments and format for activities and evaluative materials. Both teachers and students often indicated that they did not use many of the online external learning resources, and for some, they were unfamiliar with even embedded tools such as note-taking or highlighting. Findings also showed that flexibility in e-textbooks allowed users to customize their use of the e-textbook to meet individual needs, learning styles, and personal characteristics. The way that students in particular used, or did not use, the e-textbook may reflect changes in how these students actually learn in today's technological world. Additionally, several recommendations or suggestions for future e-texts were made by participants.

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APPENDIX A

LETTER OF INTRODUCTION FOR FACULTY

Hello,

My name is Nariman Alawami, and I am a doctoral student in Educational Technology working on my dissertation research. I'm very interested in e-texts. The purpose of this research is to understand the perspectives of teachers and students regarding their use of specific e-textbooks in a higher education learning environment. The e-textbooks used by the teachers and students will be examined in order to determine functions and features to focus on during the inquiry. This study is particularly interested in the design of e-textbooks and how they are used by both teachers and students in the teaching/ learning process. The participants in the research will also be prompted to suggest improvements to e-textbooks. Basically, I am working on my proposal to examine teachers' and college students' perceptions and experiences with electronic textbooks in order to provide insights related to learning, specific functions, and thoughts on ways to improve e-textbooks to enhance their value as a learning tool.

For the purpose of finding participants for my dissertation, the Book Stop gave me a list of course numbers that require or use an e-textbook. I see that you are one of the professors that uses an e-textbook, and I am coming you to see if you would be willing to participate in my study. This would only require a single interview lasting at most 45minutes. Please let me know if you are interested, and I can send you a brief one-page description of my research, research questions, and method.

Respectfully.

APPENDIX B

**LETTER OF MY CONTENT INFORMATION AND A BRIFE
DESCRIPTION OF THE STUDY**

Hello,

I have attached a brief one-page description of my research, research questions, and method. You can reply to this email or call me at 970-534-9297, or leave me a message in the Department of Educational Technology, 980-351- 2807. Thank you very much for your consideration of this research proposal. I of course will share my results with you upon completion.

A brief one-page description

Purpose of the Study

The purpose of this research is to understand the perspectives of teachers and students regarding their use of specific e-textbooks in a higher education learning environment. The e-textbooks used by the teachers and students will be examined in order to determine functions and features to focus on during the inquiry. This study is particularly interested in the design of e-textbooks and how they are used by both teachers and students in the learning process. The participants in the research will also be prompted to suggest improvements to e-textbooks.

Research Questions

The current study will examine the following questions:

1. How do faculty members perceive the overall utility and specific functions of e-textbooks towards their teaching/ students' learning?

2. How do college students perceive the overall utility and specific functions of e-textbooks towards their learning?

3. What functionality do faculty members and college students wish to see in e-textbooks in the future?

4. What instructional, navigational, and other functions in the examined e-textbooks were utilized in the recalled activities of teachers and students and which were not?

Method

Selection of a Case Study Design

This study uses a qualitative bounded case study approach. According to Merriam (2009), "Qualitative researchers are interested in understanding how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences" (p. 5). The focus of the study, effective e-textbook functions, is within a

bounded context--the context of the teaching and learning processes. This study will define three e-textbooks, a limited number of participants, data collection, and time of interview. Therefore, this study will be bounded by three e-textbooks, three teachers, three one-hour teacher interviews teacher interviews, 12 students, 12 one-hour student interviews, and specific data collection procedures. My study is considered to be a descriptive case study because the end product would be rich, thick descriptions of the phenomenon of functions and features contained within e-textbooks that may support and enhance the teaching and learning process including illustrations of the perspectives of teachers and a sample of their students regarding these functions and their suggestions for improving e-textbooks.

The design of this research is a single case study that will focus on exploring participants' e-text book experiences. It is exploratory in that the goal is to develop salient hypotheses and propositions that can serve as a springboard for future inquiry (Yin, 2014). The first exploration will be to conduct an analysis of the functionality to ascertain specific instructional functions in the presentation and practice of new information and also specific navigational, and other functions utilized in this presentation and practice such as, hyperlinks, links to additional information, multimedia resources, visualizations of difficult concepts, note sharing, and dictionary and thesaurus for term definition. This analysis will inform the creation and development of the semi-structured interview protocol, which will guide interviews in addressing the following questions. Utilizing qualitative data from multiple sources such as in depth interviews, document reviews/ will be used to analyze and examine the overall utility of e-textbooks toward learning/teaching, and specific functions related to the instructional and navigational design of e–textbooks.

APPENDIX C

**EMAIL TO TEACHERS AND STUDENTS TO SCHEDULE
INTERVIEW**

Dear,

At your convenience, I would like to schedule a 45-60 minute meeting with you to take place during the April, 2016.

You will be asked a series of questions in a face-to-face interview regarding your perspective of e-textbooks as an educational tool as well as your suggestions on how to improve e-textbook to enhance the teaching/ learning process. This would only require a single interview.

Please give me options of the date, time, and place.

Thanks for your interest, and I look forward to hearing back from you!

Sincerely,

Nariman Alawami

E-mail: alaw0346@bears.unco.edu
Phone Number: (970) 534-9297

APPENDIX D

CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH
TEACHER PARTICIPENTS

UNIVERSITY *of*
NORTHERN COLORADO

CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH
UNIVERSITY OF NORTHERN COLORADO
TEACHER-PARTICIPANTS

Project Title: Examining Teachers' and College Students' Perspectives toward e-Textbooks as an Instructional Tool
Researcher: Nariman Alawami, Department of Educational Technology
Phone Number: (970) 534-9297
E-mail: alaw0346@bears.unco.edu
Advisor: Dr.Heng-Yu.Ku, Department of Educational Technology, (980)-351-2807

Purpose and Description: The primary purpose of this study is to understand the perspectives of teachers and students regarding their use of specific e-textbooks in a higher education learning environment. The e-textbooks used by the teachers and students will be examined in order to determine functions and features to focus on during the inquiry. This study is particularly interested in the design of e-textbooks and how they are used by both teachers and students in the learning/teaching process. The participants in the research will also be asked to suggest improvements to e-textbooks.

If you volunteer for this study, you will be asked to bring your own device that you used it to access your e-textbook. Also, you will be asked to respond to questions that will be presented in the interview, and you will be asked to meet with the researcher during a time that is convenient to you and in a location that is comfortable. These interviews will be recorded with a digital audio recorder for the entire interview; however, I will use a video recording for part of the interview to focus on how you navigate the ebook on your personal device so that I may better review and analyze the information. This will allow me to assess the functions that you are using and the steps that you take. The intent of the video is to record your interaction with the device with you talking through your actions and motivations as part of the interview process. The video will be focused on the device, your hands, and actions.

page 1 of 2_____
(participant initials here)

You will be asked a series of questions regarding your perspective of e-textbooks as an educational tool as well as your suggestions on how to improve e-textbook to enhance the teaching/ learning process. Each interview will be approximately 45 to 60 minutes in length. At the completion of the interview, you will receive a copy of the transcribed interview so that you may review them for accuracy and completion. Because you are taking the time to participate in this study, I will provide you with a $ 10 (Amazon, Target or Starbucks) gift card.

Please be assured that confidentiality will be maintained in this study. To protect my participants from being identified, the participants' identity will not be disclosed; they will be referred to by pseudonym through asking them if they want a particular pseudonym or which will be assigned randomly. No personal information will be shared with others. Consent forms with participant signatures will be kept in folder, separate from all other data in a locked filing cabinet in the office of my research advisor in McKee 225. After each interview, the recordings will be stored in a locked cabinet in my personal home office until completion of the study. Once the study finished, the voice and video recordings of the interview recordings will be destroyed.

There are no identifiable physical, psychological, social, or economic risks involved in your participation of the study those ordinarily encountered in daily life. However, if, at anytime you feel uncomfortable with the process you may ask to withdraw and any data collected from you will be destroyed and not included in the study.

The benefit to participating in this study is to provide a better understanding of the impact of e-textbook functionality on use by both teachers and students, which may contribute to a better design, resulting in more effective, efficient, and attractive e-textbooks in the future. It also provides a starting point for researchers interested in examining e-textbook functionality from different methodological perspectives, such as quantitatively or with other qualitative lens.

Participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if you would like to participate in this research. A copy of this form will be given to you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact Sherry May, IRB Administrator, Office of Sponsored Programs, 25 Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910.

_____

Participant Name

_____   _____

Participant Signature   Date

_____   _____

Researcher Signature   Date

APPENDIX E

LETTER OF INTRODUCTION FOR STUDENTS

Hello,

My name is Nariman Alawami, and I am a doctoral student in Educational Technology working on my dissertation research. I'm very interested in e-texts. The purpose of this research is to understand the perspectives of teachers and students regarding their use of specific e-textbooks in a higher education learning environment. The e-textbooks used by the teachers and students will be examined in order to determine functions and features to focus on during the inquiry. This study is particularly interested in the design of e-textbooks and how they are used by both teachers and students in the learning/teaching process. The participants in the research will also be prompted to suggest improvements to e-textbooks. Basically, I am working on my proposal to examine teachers' and college students' perceptions and experiences with electronic textbooks in order to provide insights related to learning, specific functions, and thoughts on ways to improve e-textbooks to enhance their value as a learning tool.

I am coming you to see if you would be willing to participate in my study. This would only require a single interview lasting at most 45 minutes. Please let me know if you are interested, and I can send you a brief one-page description of my research, research questions, and method.

Respectfully,

Nariman Alawami

APPENDIX F

CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH
STUDENTS PARTICIPENTS

UNIVERSITY of NORTHERN COLORADO

CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH
UNIVERSITY OF NORTHERN COLORADO
STUDENT-PARTICIPANTS

Project Title:	Examining Teachers' and College Students' Perspectives toward e-Textbooks as an instructional tool
Researcher:	Nariman Alawami, Department of Educational Technology
Phone Number:	(970) 534-9297
E-mail:	alaw0346@bears.unco.edu
Advisor:	Dr.Heng-Yu.Ku, Department of Educational Technology
	(980) 351- 2807

Purpose and Description: The primary purpose of this study is to understand the perspectives of teachers and students regarding their use of specific e-textbooks in a higher education learning environment. The e-textbooks used students will be examined in order to determine functions and features to focus on during the inquiry. This study is particularly interested in the design of e-textbooks and how they are used by students in the learning process. The participants in the research will also be prompted to suggest improvements to e-textbooks.

If you volunteer for this study, you will be asked to bring your own device that you used it to access your e-textbook. Also, you will be asked to respond to questions that will be presented in the interview, and you will be asked to meet with the researcher during a time that is convenient to you and in a location that is comfortable. These interviews will be recorded with a digital audio recorder for the entire interview; however, I will use a video recording for part of the interview to focus on how you navigate the ebook on your personal device so that I may better review and analyze the information. This will allow me to assess the functions that you are using and the steps that you take. The intent of the video is to record your interaction with the device with you talking through your actions and motivations as part of the interview process. The video will be focused on the device, your hands, and actions.

page 1 of 2_____
(participant initials here)

In this interview, you will be asked a series of questions regarding your perspective of e-textbooks as an educational tool as well as your suggestions on how to improve e-textbook to enhance the learning process. Each interview will be approximately 45 to 60 minutes in length. At the completion of the interview, you will receive a copy of the transcribed interview so that you may review them for accuracy and completion. Because you are taking the time to participate in this study, I will provide you with a $ 10 gift card to either Amazon, Starbucks or Target.

Please be assured that confidentiality will be maintained in this study. To protect my participants from being identified, the participants' identity will not be disclosed; they will be referred to by pseudonym, which will be assigned randomly. No personal information will be shared with others. Consent forms with participant signatures will be kept in folder separate from all other data in a locked filing cabinet in the office of my research advisor in McKee 225. After each interview, the recordings will be stored in my personal home office in a locked cabinet until completion of the study. Once the study finished, the voice recordings of the interview recordings will be destroyed.

There are no identifiable physical, psychological, social, or economic risks involved in your participation of the study beyond those ordinarily encountered in daily life. However, if, at anytime you feel uncomfortable with the process you may ask to withdraw and any data collected from you will be destroyed and not included in the study.

The benefit to participating in this study is to provide a better understanding of the impact of e-textbook functionality on use by both teachers and students, which may contribute to a better design, resulting in more effective, efficient, and attractive e-textbooks in the future. It also provides a starting point for researchers interested in examining e-textbook functionality from different methodological perspectives, such as quantitatively or with other qualitative lens.

Participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if you would like to participate in this research. A copy of this form will be given to you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact Sherry May, IRB Administrator, Office of Sponsored Programs, 25 Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910.

Participant Name	Email

Participant Signature	Date

Researcher Signature	Date

APPENDIX G

E-TEXTBOOK TABLE

Categories	Name of the Function	Described How This Function Operates
Instructional Functions	Practice with feedback	• "If an incorrect answer is used, the program gives automated feedback telling the learner his or her answer is wrong, providing a hint and asking the learner to try again." (Clark & Mayer, 2008, p. 22).
	Tailored/differentiated instruction	• "Based on learners' response, for example, if the learner makes errors on a practice problem of intermediate complexity, the program can offer either an easier problem or a similar problem accompanied by increased instructional help." (Clark & Mayer, 2008, p. 23)
	Social software and collaboration	• "collaborative tools for learning such as wikis, blogs, chat, email, discussion board." (Clark & Mayer, 2008, p.22)
	Simulations and games	• based on a simulated case study (Clark & Mayer, 2008, p.23)
	Embedded Assessments	• "Self-assessments enable learner to check his or her understanding and assess how well learner has mastered the content." (Features for Students/MyLab and Mastering, 2015).
	Examples	• Worked examples and practices exercises (Clark & Mayer, 2008).

Categories	Name of the Function	Described How This Function Operates
	Glossary	• "Providing quick access to explanations of concepts relevant to the text." (Features for Students/MyLab and Mastering, 2015).
	various presentations of information and activities	• "E-Books can present any type of auditory or visual materials including speech, text, music, animations, photographs, or videos alone or in different combinations." (Embong, Noor, Hashim, et al., 2012).
	practice of differentiating instruction	• Switch between levels of difficulty (Kim, & Jung, 2010)
	Sharing the material	• Access to teacher and/or student-created material to support instruction (Features: For students, 2013)
	Virtual reality simulations	• Placing users inside a lifelike experience (Vaughan, 2011).
	A pedagogical avatar	• "An avatar can guide the learner through the course, present content for the lesson, pose questions, provide tips, prompt reflection on the subject, and speak directly to the learner." (Bailey, 2013).
	Embedded Media	• Availability of videos of real teachers and student in actual classrooms/clinical settings (Features for Students/MyLab and Mastering, 2015).

Categories	Name of the Function	Described How This Function Operates
	MyLab	• Access to MyLabs offering hands-on practice and exercises (Features for Students/MyLab and Mastering, 2015).
	vocabulary and comprehension support	• Provision of brief explanations, definitions, synonym when mouse over a word (Dalton, 2014).
Navigational Functions	Basic pages navigation options	• Jump to different pages: browse table of contents, Browse the index, Search across full text, search for specific information, go to next, previous page, or specific page (forward and backward movement; Cassidy et al., 2012; Lam, Lam, Lam, & McNaught, 2009; Muir, & Hawes, 2013). • Replay of audio and video or quit options (Clark & Mayer, 2008, p. 311). • Chapter or lesson exit (Clark &Mayer, 2008). • Menu reference easily accessible from every display (Clark &Mayer, 2008, p. 311). • Scrolling pages, navigation is accessible from both the top and bottom of the page (Clark & Mayer, 2008, p. 311).
	Full text search	• Keyword search in full text (Browne, & Coe, 2012; ChanLin, 2013).

Categories	Name of the Function	Described How This Function Operates
	Interactive table of content	• Table of content browsing (Browne, & Coe, 2012). "Access to a specific page through table of content." (ChanLin, 2013).
	Interactive index	• E-book index will be "accessible from any location in the text, and allow easy return to the place at which the user left the text." (Browne, & Coe, 2012, p. 294).
	Hyperlink	• To quickly jump to the relevant sections; Cassidy et al., 2012; ChanLin, 2013; Muir, & Hawes, 2013)
	Links	• Links to additional information (Browne, & Coe, 2012).
Other Functions	Notes	• Note-taking (either in margins or on sticky notes, or insert text boxes to make notes; Cassidy et al., 2012, Parsons, 2014).
	Highlighting	• "Highlight important sections of text in a range of colours." (Lim & Hew, 2014, p. 37).
	Bookmarking	• Bookmark to search and track (ChanLin, 2013; Muir, & Hawes, 2013)

Categories	Name of the Function	Described How This Function Operates
	Annotation	• Using the annotation tools to write in texts, underline, circle, add comment, . . . (Cassidy et al., 2012; Embong, Noor, Hashim, et al., 2012).
	Sharing	• Share highlights with peers (Parsons, 2014). • Instructor share highlights with students (Parsons, 2014).
	My Journal	• "All of users highlights, notes, and bookmarks are automatically saved, organized, and accessible from their journal, that creates an instant study guide." (Features, 2015).
	Copy and paste	• Ability to copy and past a snippet of text (Cassidy et al., 2012; Muir, &Hawes, 2013).
	Printing	• Print pages from an e-book (Muir, & Hawes, 2013).
	Dictionary and thesaurus	• For term definition (Muir, & Hawes, 2013, Parsons, 2014).
	History of prior reading	• Starting with previewing of prior reading (ChanLin, 2013)
	Multimedia resources	• Illustrating chapter content (Videos, audio, animations, graphics; Dalton, 2014; Dobler, 2015).

Categories	Name of the Function	Described How This Function Operates
	Visualizations for difficult concepts	• Use of diagrams, table, graphs, and charts; Muir, & Hawes, 2013).
	Storing and reusing the information	• Store and reuse saved searches and mark favourites (Muir, & Hawes, 2013).
	Note sharing	• Users create e-notes shared with each other while reading (Dobler, 2015)
	Zoom function	• Zoom in/out (Lam et al., 2009)
	Orientation clue	• Orientation clue to inform readers where they are in the chapter (Chong et al., 2009).
	Outlining	• Outline of chapter content (ChanLin, 2013)
	Font size	• Enlarged and reduced font (ChanLin, 2013)
	Smart links	• "Access or add instructional vides, audio, or other web content directly into e-textbooks)." (Features, 2015).
	Text clarity	• Adjustment of textual clarity (ChanLin, 2013)

Categories	Name of the Function	Described How This Function Operates
	Interactive dictionaries	• Get instant definition for any word within the e-book، read loud option, Translation to different language (Dalton, 2014; Embong, Noor, Hashim, et al., 2012).
	Divers access	• Ability for access on any computer/device (Parsons,2014)
Instructor Resources	MyLab & Mastering	• Instructor's Resource Manual and Test Bank (Features for Educators/MyLab & Mastering, 2015). • Test Generator (Features for Educators/MyLab & Mastering, 2015). • PowerPoint presentations (Features for Educators/MyLab & Mastering, 2015). • Reports and charts related to students or entire section performance, assignment results, specific learning objectives, etc. (Features: For instructors, 2013). • Automatically grades students' (Assignment, homework, and quizzes). (Features: For instructors, 2013). • Connect e-book with LMS (Features: For instructors , 2013).

		• Storage system (teaching materials, PowerPoint files, manuals assessment; Features: For instructors, 2013).
		• Course and Assignment sharing with peers (Features: For instructors , 2013) • Customizable content (to edit all existing content, upload martials, share notes within the e-books, record lectures, include bookmarks, and incorporate news feeds) (Features: For instructors, 2013) • Assignment creation (Features: For instructors , 2013).

APPENDIX H

QUESTIONS FOR TEACHER-PARTICIPANT INTERVIEW

RESPONSE TO INTERVIEWS

Name of participant: _____   Date: _____

Name of Interviewer: _____

Part One: Personal Demonstration

- Pretend that I am a new student who doesn't know how to use an e-book for this course. What would you show me in 10 minutes that would help me to use this e-book effectively for this course?

Part Two: Interview

1.   Why did you select this e-textbook?

2.   How would you describe your experience with e-textbook?

3.   What was your primary goal while using the e-textbook?

4.   Show me how you use your e-textbook?

5.   Which navigational features did you find the most helpful and which for the most problematic?

6.   How would you compare your e-textbook text with a regular written text with respect to navigating and finding information?

7.   Tell me which supplementary materials you used the most, which ones you used less often, and which ones you did not use. Please give me your opinions about why and how important these different supplementary materials were for you?

8.   How is your teaching affected by the e-textbook?

9.   What functions do you use that helps you in your teaching?

10.   What do you perceive as features of e-textbooks that create barriers to teaching/learning, and how?

11.   What advice would you give to students about to take this class using this e-textbook?

12.   What advice would you give to teachers about teaching this class using this e-textbook?

13.   What advice would you give creators of this e-textbook for future changes?

Part Three: Demographic Information:

1.   What is your current teaching position?

2.   How long have you been teaching?

3.   How long have you taught this class?

4.   Please enter your age group

   - 26-29
   - 30-39
   - over 40

5.   Gender

   - Female
   - Male

6.   What device(s) do you use to read e-textbook?

   - Dedicated e-book (Kindle, Sony, Nook, etc.)
   - Other devices such as cell phone, iPod Touch, iPad, laptop computer, or desktop computer

APPENDIX I

QUESTIONS FOR STUDENT-PARTICIPANT INTERVIEW

RESPONSE TO INTERVIEWS

Name of participant: _____   Date: _____

Name of Interviewer: _____

Part One: Personal Demonstration

- Pretend that I am a new student who doesn't know how to use an e-book for this course. What would you show me in 10 minutes that would help me to use this e-book effectively for this course?

Part Two: Interview

1.   How would you describe your experience with e-textbook?

2.   What was your primary goal while using the e-textbook?

3.   Show me how you use your e-textbook?

4.   Which navigational features did you find the most helpful and which for the most problematic?

5.   How would you compare your e-textbook text with a regular written text with respect to navigating and finding information?

6.   Tell me which supplementary materials you used the most, which ones you used less often, and which ones you did not use, if any. Please give me your opinions about why and how important these different supplementary materials were for you?

7.   How is your learning affected by e-textbook?

8.   What functions you used helped you in your learning?

9.   What do you perceive as features of e-textbooks that create barriers to learning, and how?

10. What advice would you give to students about to take this class using this e-textbook?

11. What advice would you give creators of this e-textbook for future changes?

Part Three: Demographic Information:

1.   Please enter your age group

- 18-21
- 22-25
- 26-29
- 30-39
- Over 40

2.   Gender

- Female
- Male

3.   Living situation

- On campus
- In town
- Commute

4.   Is English your first language?

- Yes
- No (what is your native language?)

5.   Major field of study? _____

6.   What is your current level of college:

- Freshman
- Sophomore
- Junior
- Senior

7.   What device(s) do you use to read e-textbook?

- Dedicated e-book (Kindle, Sony, Nook, etc.)
- Other devices such as cell phone, iPod Touch, iPad, laptop computer, or desktop computer

APPENDIX J

INSTITUTIONAL REVIEW BOARD APPROVAL

UNIVERSITY OF
NORTHERN COLORADO

Institutional Review Board

DATE: April 8, 2016

TO: Nariman Alawami
FROM: University of Northern Colorado (UNCO) IRB

PROJECT TITLE: [880535-2] Examining Teachers' and College Students' Perspectives toward
                               e-Textbooks as an Educational Tool
SUBMISSION TYPE: Amendment/Modification

ACTION: APPROVED
APPROVAL DATE: April 8, 2016
EXPIRATION DATE: April 8, 2017
REVIEW TYPE: Expedited Review

Thank you for your submission of Amendment/Modification materials for this project. The University of
Northern Colorado (UNCO) IRB has APPROVED your submission. All research must be conducted in
accordance with this approved submission.

This submission has received Expedited Review based on applicable federal regulations.

Please remember that informed consent is a process beginning with a description of the project and
insurance of participant understanding. Informed consent must continue throughout the project via
a dialogue between the researcher and research participant. Federal regulations require that each
participant receives a copy of the consent document.

Please note that any revision to previously approved materials must be approved by this committee prior
to initiation. Please use the appropriate revision forms for this procedure.

All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED
adverse events must be reported promptly to this office.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this
office.

Based on the risks, this project requires continuing review by this committee on an annual basis. Please
use the appropriate forms for this procedure. Your documentation for continuing review must be received
with sufficient time for review and continued approval before the expiration date of April 8, 2017.

Please note that all research records must be retained for a minimum of three years after the completion
of the project.

If you have any questions, please contact Sherry May at 970-351-1910 or Sherry.May@unco.edu. Please
include your project title and reference number in all correspondence with this committee.

APPENDIX K

ANALYSIS FOR EACH E-TEXTBOOK

E-book 1:

Guffey, M. E., & Loewy, D. (2015). *Business communication: Process and product* (8th ed.). Stamford, CT: Cengage Learning.

Instructional Functions	
Glossary Terms A-Z	• Providing quick access to explanations of concepts relevant to the text
Flashcards	• Pick the Deck: See the glossary term flashcards from a different chapter by selecting it • Extra Stuff: Look in settings to select which side of the card to see first or to print. (key term or definitions) • Flip it: Click the card to see the other side • Move Ahead: View the next card or click and hold to scan through the deck • Make Your Own: Add your own cards for the things you need to learn • Shuffle deck
Images structure	Photographs, figures and graphs are integrated with the text, and they add clarity with color and textual information
Chapter introductions	At the beginning of each chapter to encourage students to think about the the following material presented in the chapter and get an overview

	Chapter introductions begin with: • first, picture related to the chapter content, learning objectives of the chapter, zooming in video, and finally discussion questions related to the video
Embedded objectives (informing the learner of the objectives	The learning objectives appear in each chapter introduction, in the margins of their corresponding sections, and again in the end of chapter review "Summary of learning objectives"
Embedded :Activities and review	In each chapter there are many sections where users will find activities and review to each sections and chapter sections objectives • Ethics Check • Reality Check • Checklist • Career Coach • Zooming In boxes to apply chapter content " Your Turn: Applying your skills"
End of Chapter Review	• Summary of learning objectives
	• Questions linked with chapter objectives and content (similar to an exam over the chapter)
End of Chapter Embedded Activities	• "Critical thinking: Questions designed to apply material learned to real-world situations"

	• "Chat about it: In each chapter you will find five discussion questions related to the chapter material. Your instructor may assign these topics for you to discuss in class, in an online chat room, or on an online discussion board. Some of the discussion topics may require outside research. You may also be asked to read and respond to postings made by your classmates" • "Grammar &Mechanics : Sentences require students to correct to help reinforce your language skills at the same time you are learning about the processes and products of business communication (students can check to see if they are correct)"
Appendices (these are actually reference materials)	• Appendix A: Grammar and Mechanic Guide • Appendix B: Document Format Guide • Appendix C: Documentation Formats • Appendix D: Correction Symbols

Navigational Functions	
Search	The search function is through a search box. Users are able to search for the following components: "Page Numbers: Enter a page number to search for a page from the printed book, Content: Enter keywords to search for content in Readings, Media and other Activities, Your Content: Enter keywords to search your own quick notes and highlights"
Full book navigation options	• Use this application to browse (next page, last page, etc.) the full book and make adaptations such as font size
Basic pages navigation options	• Go to the next and previous pages • Select from the list of chapters in the book (browse Table of Contents, browse the Appendix) • Chapter or page exit (close App and close Activity icon • Menu reference or toolbar options accessible on right side from every display • Home Base icon or navigator access accessible on the top of page from every display. You can see all the book reading, and find the info you're looking for • MindTop: By the book, get the details about the book and Mind top

	• Scrolling pages, navigation is accessible from both the top (Chapter Contents) and bottom of the page (horizontal bar) • Jump to any page in the chapter and track your location (horizontal bar at bottom of page)
	• Replay of audio and video or quit options using standard video playback tools
Interactive Table of Contents	• Access main book sections through Table of Contents
Hyperlinks	• Use to quickly jump to the relevant sections, Footnotes ✳ (references), Glossary terms, Activity, Figures, Objectives, Links to additional information (indicated by blue font color)

Other Functions	
My Notes (highlights, notebook, bookmarks)	• "Highlights show the highlights and quicknotes you add to your Reading Activities (Create new highlights and quicknotes by selecting text in the Reading, Print out a copy of all your highlights and quicknotes to study later, Notes display on the left with the text you entered, highlights display on the right, Use the arrow to return to the spot where you created the note or highlight, To update, edit or remove notes and highlights, return to the spot you created them and click them to see your options)" • "Notebook:If available in your MindTap, the Notebook lets you take notes in an Evernote MindTap notebook. You can use an existing Evernote account or create a new one (By using a free Evernote account to create notes, you get access to your notes from any device at any time, not just while in MindTap" • "Bookmarks mark selected places in the book (Add bookmarks by clicking on the bookmark icon at the top of the Reader, select a bookmarked page by clicking on My Notes, then Bookmark)"
ReadSpeaker	• Use the ReadSpeaker app to listen to an entire page or selected text read aloud • Reading Speed (Slow, Medium, Fast) • Voice (Male, Female)

Copy and paste	• Ability to copy and paste a snippet of text
Printing	• Print pages from an e-book
Merriam-Webster's Dictionary	Interactive dictionaries: Look up words in dictionary directly from text for: • Term definition Get instant definition for any word within the e-book by highlighting word, choose Dictionary in Menu Options • Examples of the word • Frist known use of the word • Related to the words (synonyms, Antonyms, related words, near antonyms) • Rhymes with the word • Browse (next/ previous word in the dictionary)
Font size	• Adjust the text size for your reading (select small, medium, or large text)
Image and figures size	• Enlargeable images and tables
Video tools	Options for: • View transcript, captions, full screen, control sounds
Visualizations for concepts	• Use of diagrams, table, graphs, and charts
Outline of chapter content	• Detailed outline of each chapter contents
Orientation clue	• Orientation clue to inform readers where they are in the chapter shown by horizontal bar at bottom of page

Diverse access	• Ability for accessing on any computer/device
Sharing	• Tweet dictionary information
Help	• Help options available both on specific page of text, and for using specific tools indicated by icons on the top right of the text
Content design	• Consistent and readable font, ease of skimming/scanning by using short paragraphs, bulleted lists, heading different font style and color for headings, and the use of high contrast between background and text color.
Page design and layout	• Plenty of white space • Consistent page layout. • Using short pages to avoid scrolling

Supplementary Material	
1. Aplia: Aplia for Guffey/Loewy's Business Communication: Process and Product http://www.aplia.com Aplia includes the following components:	
Feedback and explanations	"Robust feedback explains the reasoning process behind each answer" "Aplia's chapter-specific problem sets ensure that students are learning key concepts and preparing for in class discussion and exercises" • "Aplia offers compelling assignments that include automatically graded, randomized questions and detailed step-by-step feedback" • "Explanations help reinforce course concepts and ensure that student learn from every questions"
Personalized Reviews	"Students preparing for tests and quizzes need to know what materials to focus on so that they can best use their time. Aplia's student tool called Personalized Reviews addresses this by showing students which questions need more attention and offering a chance to improve their performance at their own pace, without affecting their scores. They can compare their performance on these reviews to their graded assignments" "After a graded assignment is completed and the deadline has passed, Aplia generates a review containing questions from that assignment on which the student scored lower than 80%, making the materials targeted and not overwhelming"

	"Based on the results of your completed assignments, we've automatically generated reviews for you to practice the questions you most need help with. Don't worry, this won't affect your grade at all. It is for personal review only!" "When students take a review, they will find that the grading behavior of the review is just like that of a practice assignment. Students can use the review page to track and compare their performance on a review to their original graded assignment scores."
Modes of Grading	• **Grade It Now** encourages students to learn from their mistakes and rewards them for trying a different version of the problem. Problem sets are randomized and can be automatically graded once a student submits his or her answers before or after the deadline. After each variation, you can receive immediate grading and feedback by selecting the *Grade It Now* button. This will reveal the points you earned for each task as well as a blue region containing an explanation after each part within the question. If you want to save your work but aren't ready for it to be graded, you can pause or move ahead to other problems by selecting the *Save & Continue* button. This allows you to come back to problems you are unsure of and resume working on them at any time before the due date. After you have completed an attempt by selecting the *Grade It Now* button and reading the explanations, you can continue on to the next question, or you can attempt another version of the same

	question by selecting the *Try Another Version* button. The different versions of a question cover the same concept or information, but with a different setup, example, or numbers.
	Grade it Now scoring options: • **Averaging**: The score that is reported to your instructor is the average score of your attempts as of the deadline, including any work you have saved but not submitted for grading • **Keep the Highest**: Students can answer up to three versions of a question. The final score is the highest score of the attempts. The goal of this method is to encourage you to practice without fear of decreasing your score. • **Do No Harm**: Students can answer up to three versions of a question; however, only scores equal to or higher than subsequent attempts will be considered in the average. • **Graded at Deadline** assignments allow students to work until the deadline. Answer choices are randomized to discourage cheating. Once the deadline passes, assignments are graded. If different versions of the questions are available, each student will receive a different version. *Graded at Deadline* mode allows you to attempt only one variation of a question, which is graded at the deadline chosen by your instructor. In this mode, you have the option to modify your answer multiple times before the deadline, but you will not

	be able to view the correct answers or the feedback until the deadline passes. After the deadline passes, you can return to the question and review the explanations to help you understand why your answers were right or wrong.
	• **Practice** assignments give students the opportunity to understand concepts before completing graded assignments. If different versions of the questions are available, each student will receive a different version. If they are not randomized, then every student sees the same question. At the bottom of each practice question, you will see a *Check Answer* button. Select this button to get immediate feedback. This will tell you which parts of the question you got right or wrong and provide explanations of the correct answers. There are deadlines attached to practice assignments, but these are suggestive; students can always go back to the problem set after the deadline to clear their answers and redo their work. You cannot view student performance with practice assignments, but you can view whether or not students attempted the assignments, given that they did not clear their answers
Different Question Styles	• Selection lists, Radio buttons, Checkboxes

Supplementary Material	
2. Student premium Website for Guffey/Loewy's Business Communications: Process and Product. http://www.cengage.com/us/	
Quizzes	- Chapter review - Beat the clock game - Listening - Grammar/Mechanics - Communication skills - Practice final exam
PowerPoint Review	Separate PowerPoint for each chapter.
Simulations	"Workplace simulations help you apply business communication principles to a variety of realistic communication situations. Each of the simulations enables you to apply what you learn in class to workplace conditions. These simulations help bridge the gap between classroom and employment."
Documents for Analysis	Text links to this site
Grammar/Mechanics	Extended grammar/mechanics resources
Flashcards	"Identical to e-text, included here to eliminate having to go back and forth between web page and text."
Writing Resources	- E-PortfolioTutorial: Creating a Personal Portfolio Website - Online Writing Labs - MLA Format - APA Format

	• Report Topics • How to Write Instructions Topics
Business Etiquette	"In this 'Guide to Business Etiquette and Workplace Manners,' Dr. Guffey covers 17 topics of interest to both workplace newcomers and veterans."

Instructor Resources	
Aplia instructor home **My Home**	**"My Home** is the first screen you'll see after you sign in to Aplia. From this page, you can create a new course, access previously created courses, browse Aplia online materials, Access online help and documents, or contact our support team (customer support ,and manage your account information). You can also look here for weekly announcements of new materials, new features, and helpful hints, and you can view or reply to recent posts in our **Instructor Discussion** forum."
Aplia: Course Home	From the Course Home page, you can do the following: • "Post and view announcements for the course." • "View a list of assignments due during the current week as well as upcoming weeks." • "View the Course Outline, which lists all the assignments in the course, specified due dates, you can adjust deadlines, scoring methods, and made the assignments visible, as well as edit or add assignments." • "Post supplemental materials, such as lecture notes, handouts, or your syllabus." • "Switch to another course or create a new course." • "Manage the non-content aspects of the course, such as course time, course location, course type, and comments."

	• "View the course as your students see it." • "View and block students."
Course Content	"Aplia content prepares students for class and gets them engaged. The types of content that you can add to your course include automatically graded problem sets, news analyses, tutorials, experiments, and, for textbook-specific courses, textbook readings. Aplia offers different types of content such as:" • **"Problem Sets:** Problem sets present concepts learned in class. In courses that include digital texts, problem sets have questions that encourage students to read their textbook before completing their work. You can assign problem sets in Practice mode and Graded mode. In Practice mode, assignments have suggested deadlines, as opposed to the firm deadlines for assignments in Graded mode. Practice problems allow students to get familiar with material without affecting their scores. In Graded mode, students receive feedback only after Aplia grades the problem." • **"Textbook Readings (Textbook-Specific Courses Only):** These are just what they sound like: assigned readings from your course textbook. Note that this assignment type is available only for textbook-specific courses (courses that include a digital edition of the textbook)."

Course Grading	• "Aplia offers three types of grading: Grade It Now, Graded at Deadline, and Practice."
Monitoring students performance	• "Aplia offers several tools to monitor student performance and participations."

E-book 2:

Michael, M, O'Loughlin, V. D. & Bidle, T. (2015). *Anatomy & physiology an integrative approach* (2th ed.). New York, NY: McGraw-Hill Education.

Instructional Functions	
Vocabulary and comprehension support	Provision of pronunciation, brief explanations, definitions, when mouse placed over a word
Glossary Terms A-Z	Alternate way to access same information as in vocabulary.
Interactive Multimedia	Various presentations of information and activities including text, images, audio, video, figures. These elements are linked which enables users to browse and navigate through them.
Text structure	"Text discussions provide structural details in the context of their functional significance to integrate coverage of anatomy and physiology in each chapter."
Images structure	• "Rich Detail: Vibrant colors and three-dimensional shading make it easy to envision body structures and processes." • "Photographs: Atlas-quality micrographs and cadaver images are frequently paired with illustrations to expose students to the appearance of real anatomic structures." • "Multilevel Perspective: Microscopic structures are connected to macroscopic views to show changes in perspective between increasingly detailed drawings."

	• "Color Coding: Many figures use color coding to organize information and clarify concepts for visual learners." • "Real-Life Context: Illustrations include depictions of realistic people and situations to make figures more relevant and memorable."
Embedded software program (Anatomy & Physiology Revealed: APR Module)	"**Anatomy & Physiology REVEALED (APR)** is an interactive cadaver dissection tool to enhance lecture and lab that students can use anytime, anywhere. APR contains all the material covered in an A&P course, including these three modules: Body Orientation, Cells and Chemistry, Tissues." This software presents all the e-book information, concepts, and visual materials with pronounce words , speech, text, dissection, animations, histology, and quizzes alone or in different combinations.
Chapter introductions	"Career opportunities pursued by students studying A&P are highlighted at the beginning of each chapter."
Embedded objectives (informing the learner of the objectives	In the beginning of each chapter sections you will find learning objectives related to the chapter material. "Each Learning Objective from the textbook is tied to interactive questions in Connect, to assure that all parts of the chapters have adequate coverage within Connect assignments."
Stimulating recall of prior reading or Reviewing relevant past learning	"Chapters emphasize the interdependence of body systems by weaving prior coverage of one system into textual explanations of how other systems work. These system relationships are also covered in Integrate: Concept Connection boxes."

Embedded :Activities and review	In each chapter there are many sections where users will find activities and review to each sections and chapter sections objectives.
	• "Applications are presented in 'Integrate' Clinical View boxes to apply chapter content using clinical examples that show students what can go wrong in the body, to help crystallize understanding of the norm." • "practical advice for remembering material are presented in 'Integrate: Learning Strategy' boxes." • Special "Concept Overview" figures in each chapter tie together multi-faceted concepts in 1- or 2-page visual summaries. Different Question Styles: • "Reading comprehension questions in 'What Did You Learn' are mini self-tests at the end of each section that assess whether students have a sufficient grasp of the content before moving on." "e.g. which, how, where, what, identify, describe, define, list, explain multiple choice, fill in blank." • "Critical thinking questions in 'What Do You Think?' engage students in application or analysis to encourage students to think more globally about the content."

End of chapter review, activities, and online study	• Chapter summary that highlight main points of the chapter.
	• "Challenge Yourself assessments include Do You Know the Basics, Can You Apply What You've Learned?, and 'Can You Synthesize What You've Learned?' question sets."
	"Chapters end with a summary of media tools available to help learn each chapter's content."
	• Clinical Case Study
	• Interactive Questions
	• LearnSmart (explained below)
	• Anatomy & Physiology Revealed
	• Animations

Navigational Functions	
Search	• Content: Enter keywords to search for content, and you can filter your search results by reading, video, images, exercises, my notebook. Search for image or video enable users to • See related reading to that image or video • Add audio, video, figures, images to my notebook.
Book content navigation option	• Use this application to browse the full book.
Chapter sections navigation option	• Use this application to browse the full chapter.
Basic pages navigation options	• Page Numbers: Enter a page number to search for a page from the e- book • Go to the next and previous pages. • Browse the book content including all chapters, Table of Contents, the Index, and Glossary. • Select from the list of chapters in the book content • Select from chapter sections options • Menu reference options accessible on side bar from every display on the top of page. • Scrolling pages with the toolbar, toolbar navigation is accessible from the top of the page • Jump to any page in the chapter

	• Replay of audio and video or quit options using standard YouTube tools.
Interactive Table of Contents	Access a specific page through Table of Contents
Hyperlinks	Use to quickly jump to the relevant sections: chapters, chapters sections, index, glossary terms, reading, audio, video, figures, table, images, enlarge pdf for figure, links to additional information (indicated by blue font color).

Other Functions	
Highlighting	"Highlight important sections of text in a range of colors (you can also hit 'H' to create a highlight."
Notes	"Note-taking in a range of colors (users can edit the note by clicking on note's text and save changes, move the note by dragging the note top bar, or delete the note with the trash can on the top bar. Users can also hit 'N' to create note."
Bookmarking	"Add bookmarks by clicking on the add book mark, select a bookmarked page by clicking on jump to book mark options. Users can also hit 'B' to create a bookmark."
My notebook	• "Users get access to their highlights, notes, and bookmarks through my notebook." Also users can • "Add audio, video, figures, images to their notebook." • "select items to print or delete any items from my notebook."
Copy and paste	"Ability to copy and paste a snippet of text."
Printing	Print pages from an e-book
Font size	"Adjust the text size for your reading from the setting icon (select small, medium, or large text)."
Image and figures size	"Enlargeable images and tables (users can see the enlarged pdf for figure)."

Video tools	Options for: View transcript, captions, full screen, control sounds
Visualizations for concepts	Use of diagrams, table, graphs, and charts
Outline of chapter content	Detailed outline of each chapter contents
Diverse access	Ability to access platform on any computer/device
Content design	Consistent and readable font, ease of skimming/scanning by using short paragraphs, bulleted lists, heading different font style and color for headings, and the use of high contrast between background and text color.
Page layout	- Plenty of white space. - Consistent page layout.

Supplementary Material	
1. Connect assignments • "**My Courses page:** is the first screen you'll see after you sign in to Connect. From this page, you can see current assignments."	
Assignments Modes	From the Course Home page, you can do the following: • "View the Course Assignments, which lists all the assignments in the course, specified due dates." • "View Next assignments, study for the assignments, calendar showing assignment due dates." • "Connect offers compelling assignments that include automatically graded, and detailed feedback." • **"Graded at Deadline** assignments allow students to work until the deadline (unlimited attempts). *Graded at Deadline* mode allows you to attempt only one variation of a question, which is graded at the deadline chosen by your instructor. In this mode, you have the option to modify your answer multiple times before the deadline."
Assignment buttons	• "Instructions: Opens a window showing assignment instructions and summary data." • "Help: Opens a window showing Help content related to doing an assignment."

	• : "Helps you navigate through the assignment questions, returns you to the previous question, takes you to the next question, and the dropdown menu lets you jump to any question."
	• an "eBook" icon. "Click this icon to see eBook content for this assignment."
	• "Sends a copy of the current question to your printer."
	• "Submit Assignment: Submits your assignment for grading. Typically you'll only want to do this after you have answered all of the questions."
	• "Save & Exit: Saves your work and exits the assignment."
	• "Check My Work: you will see a 'Check My Work' icon after each auto-gradable question. Click this icon at any time to check your answer. The actual answer will not be displayed; if your answer is incorrect, you can try again by closing this window and selecting a different answer."
	• "References: Click this icon to show or hide references or other information. For example the questions type, and the learning objectives."

	• "eBook Link: you will see an 'eBook Links' icon after each question. Click this icon to see eBook resources related to this question."
Question Types	"Each Learning Objective from the textbook is tied to interactive questions in Connect, to assure that all parts of the chapters have adequate coverage within Connect assignments" • True/ Falls questions • Multiple Choice questions • Yes/No questions • Ranking questions • Check All That Apply questions • Fill in Blank questions • Short Answer questions • Labeling questions • Composition questions • Sequence questions

Supplementary Material	
2. McGraw-Hill LearnSmart for Students: "LearnSmart is an adaptive learning system built around the SmartBook text, and designed to help students learn faster, study more efficiently, and retain more knowledge for greater success. By focusing your study on only what you need to learn, LearnSmart eliminates unnecessary studying of what you already know. The result: you'll learn more and get better grades." LearnSmart includes the following components:	
Assignments	Students can track their progress through: • "You can see your progress in completing assignments in the learning dashboard next to the chapter you have selected." • "You can see also see future assignments, and deadlines."
Preview	Preview reading material to overview your SmartBook chapters.
Read	• "Reading the SmartBook chapters will guide your reading. Specific sections of each chapter are highlighted because it contains topics that are especially important for you." Options for: • Adjust the text size for your reading (select small, or large text), move to practice page, full screen, spread page (view two pages at same time, show coach). An avatar can guide the learner and provide recommendations, tips, and help for using the features. • Horizontal bar at bottom of page to inform readers where they are in the chapter. • Flip to the next and previous pages.

Practice	• "LearnSmart measures how confident you are of each chapter."
	• "You can indicate if you're sure of your answer, have no idea or some where in between." The answer options are I know it, Think so, Unsure, No idea.
	• "LearnSmart can adapt itself to deliver the level of questions that will help you succeed."
	• "When you get a question right. You will see that the number of questions remaining decreases by one."
	Options for:
	move to read page, show coach (An avatar can guide the learner and provide recommendations, tips, and help for using the features, "check the leaderboards and monitor standing against other students taking the same course."
	• horizontal bar at bottom of page to inform readers the numbers of items left.
Recharge	"To make sure you remember what you have recently learned, use the Recharge feature."
My Reports	On the "My Report Screen" you can see: • "**Current Learning Status:** View how much you have left to learn and how much you should refresh so that you don't forget your new knowledge."

	• "**Topic Scores:** View the modules and sections struggled with the most. You can look up each challenging section for more study." • "**Missed Questions:** View frequently missed questions. You can practice questions you recently get wrong." • "**Most Challenging Learning Objectives:** View the learning objectives that are the hardest for you. You can look these up in your book in order to study them further." • "**Self- Assessment:** View how aware you were of the whether or not you know the answers. This awareness can help you study more effectively." • "**Tree of Knowledge:** Watch your tree grow as you learn."
How to use SmartBook	Help options available on the menu on the left Provide information about using LearnSmart resources.

Supplementary Material

3.   McGraw-Hill LearnSmart Prep for Students: is "a self study version, this allows you to work through the material independent of any actual assignments."

- "LearnSmart Prep is the perfect tool to help you prepare for college. LearnSmart Prep identifies areas where you need to reinforce your knowledge using a series of adaptive questions."

- "LearnSmart Prep provides you with learning resources like slides, videos, and activities on topics where you need extra reinforcement."

"LearnSmart Prep also encourages you to review the material again, increasing the likelihood you'll retain your new knowledge."

Self Study	You can work on the assignment in different ways • "Choose a learning mission: For example, you can choose to focus on a main topic or pay extra attention to what you know and don't know. These missions will help you break the assignment into small pieces. All missions will count towards completing your assignment." • "Let the system guide you: If you prefer to work on your assignment without selecting specific missions along you can click 'complete the Assignment' and let the program determine where you need to spend more time." • "If you want to focus on something new you can always change your mission." From the menu on the left.

	Options for:
	• "Assessing how sure you are of your answer." "You can indicate if you're sure of your answer, have no idea or somewhere in between." The answer options are I know it, Think so, Unsure, No idea. "That way LearnSmart Prep can adapt itself to deliver the level of questions that will help you succeed."
	• "Choosing a learning resource to help you build your knowledge." "A learning resource can be a slide, a video, a library, a lable game, or some other type of interactive resource."
	• "There is no penalty for using learning resources! Take you time and study them carefully."
	• Show coach (An avatar can guide the learner and provide recommendations, tips, and help for using the features, "check the leaderboards and monitor standing against other students taking the same course."
	Track your progress through:
	• "Track your current assignment progress by looking at the progress bar on home page."
	• "You can also see the assignment progress at the bottom of the screen while answering questions."

	• "At any time you can look at the details of your progress by clicking on the pie icon."
Recharge	"It's a good idea to refresh your knowledge when you see a topic in the Recharge list."
My Reports	"Use the reports to find information on your progress and performance." "LearnSmart. The types of reports are the same on LearnSmart screen, and in addition to these types, in 'Practice Quiz Reports;' you can make your own practice quizzes."
Library	"If you want to read more about a certain topic, the library is always available either through suggested Resources Panel or the menu on the left."
How to	Help options available on the menu on the left Provide information about using LearnSmart Prep resources.

Additional Supplementary Material	
4. "Anatomy & Physiology: Online Help (A McGraw-Hill Online Learning Center). Many of our titles now come with Online Learning Center (OLC) Websites. They are packed with digital McGraw-Hill content and ready for immediate use. OLCs work in tandem with your specific book for a true interactive learning (and teaching) experience."	
Connect support	"Connect online help is where you'll find tutorials on getting started, your study resources, and taking assignments in Connect. Everything you need to know about Connect is here!" • Getting Started • Course Management • Roster • Section Home • Assignment • Questions categories • Questions types • Questions Editor • Library • Reports • Using eBook • Web Activity Assignments • Premade Assignments • Speech Assignment

| Students resources | Interactive Concept Overview Figures have assessable from the online Learning center website. |

E-book 3:

Wood, S. E., Wood, E. R. G., & Boyd, D. R. (2013). *Mastering the world of psychology*
(5th ed.).Upper Saddle River, NJ: Pearson/Education,Inc.

Instructional Functions	
Glossary Terms A-Z	"You can view glossary terms and definitions by clicking:" 1. "The Glossary accordion bar in the left navigation pane." 2. "A word or phrase in the eText that has a color treatment when:" • "The Show Links button is selected." • "You place the mouse pointer over a word or phrase when the Show Links button is not selected." 3. "The Glossary button on the toolbar."
Key Terms	"**Key Terms Boldfaced** key terms are highlighted in the text and defined in the margin on the page on which they first appear. A complete list of key terms, with page references, is supplied at the end of the chapter, and a complete Glossary can be found at the end of the text."
Interactive Multimedia	Various presentations of information and activities including text, images, audio, video, figures. These elements are linked which enables users to browse and navigate through them.

SQ3R method	"SQ3R is a learning method made up of five steps- Survey, Questions, Read, Recite, and Review. . . . The SQ3R method is integrated throughout the text to help students make the connections between psychology and life, while promoting a more efficient way to approach reading, studying, and test taking."
Images structure	Photographs, figures and graphs are integrated with the text, and they add clarity with color and textual information.
Embedded objectives (informing the learner of the objectives	"**Learning Objective:** Each chapter in this text is structured around specific learning objectives. These numbers learning objectives are stated as questions, because research shows that open-ended questions help readers locate critical information, process it deeply, and commit it to memory. The learning objectives appear in each chapter opener, in the margins of their corresponding sections, and again in the end of chapter Summary, to help focus students' attentions on key information."
Embedded Activities	4. "**Think about it**" activity at the beginning of each chapter to encourage students to think about the the following material presented in the chapter and get an overview 5. "**Summarize It:** these comprehensive summary tables help consolidate major concepts, their components, and their relationships to one another, providing students with a unique visual study tool."

	6. "**Remember It:** These fill-in-the blank quizzes appear at the end of every major sections in the text allowing students to check their understanding of the material before moving on the next sections in the chapter."
	7. "**Apply It:** This feature combines scientific research with practical advice to teach students how to improve their study habits or handle challenging situations that may arise in their personal, academic, or professional lives."
	8. "**Try It:** This popular feature provides brief applied experiments, self-assessments, and hand- on activities, which help personalize psychology, making it simple for students to actively relate psychological principles to every day life. For instance, students can find their absolute thresholds for their movement (chapter 3) or take a quiz to find their life stress score (chapter 10)."
	9. "**Explain It:** This feature provides psychological explanations for some common everyday occurrences. For instance, 'What does your credit score mean' (Chapter 1) and 'Why are some individuals drawn to dangerous hobbies like skydiving' (Chapter 9)."

Examples	"To ensure that students identify with the material-examples added throughout the text to both help students understand the material and to apply the material to their everyday lives." "Examples of difficult concepts provide students with additional support for connecting information in the text to real-world setting."
Chapter summary	"Chapter Summary Organized around the learning objectives, each end-of-chapter Summary provides a comprehensive study tools as well as a quick reference to the chapters."
Chapter study guide	"Each chapter concludes with a study guide, featuring multiple-choice, true/false, matching critical thinking writing prompts. Answers to the study guide questions are located at the end of the eText."
MyPsychLab video series	"18 half-hour episodes. Comprehensive. Current, and cutting edge, the new MyPsychLab video series features over 100 original video clips covering the most recent research, science, and applications across the general psychology curriculum and utilizing the latest in film and animation technology. Each 4-6-minute video clip has automatically graded assessments questions tied to it." **Video widow offer:** • Introduction include (Short introduction for the video, question before you watch, and what will you learn). • Conclusion include (short description to what you already learn, and questions related to what have you learned.

	Accessing to Video series through • MyPsychLab page of the Pearson learning platform (video series tab) • e-Text reading • Left navigation pane of the e-Text.

Navigational Functions	
Search	"The search tab enables you to search for relevant keywords contained in the book. In the Search text box located at the top of the page, you can enter one or more words or portions of words; then, click **Go**. The search results automatically include similar words. The results are listed in order of relevance or sort by chapter as they appear in numerical order." "You can also filter your search results by pages or limit your results to entire book or specific part in the book such as front matter chapters, Appendix, Glossary, Reference, index." "The left navigation pane 'Search History' provides a list of up to 10 terms or phrases previously searched. You can click any term in the list to view search results for that term."
Book content navigation option (left navigation pane)	"You can navigate within an eText by clicking one of the following accordion bars in the left navigation pane:" • Table of contents (chapter and chapter sections) • Glossary • Index Name • Index subject • MyPsychLab Video Series • Audio • Notes • Bookmarks

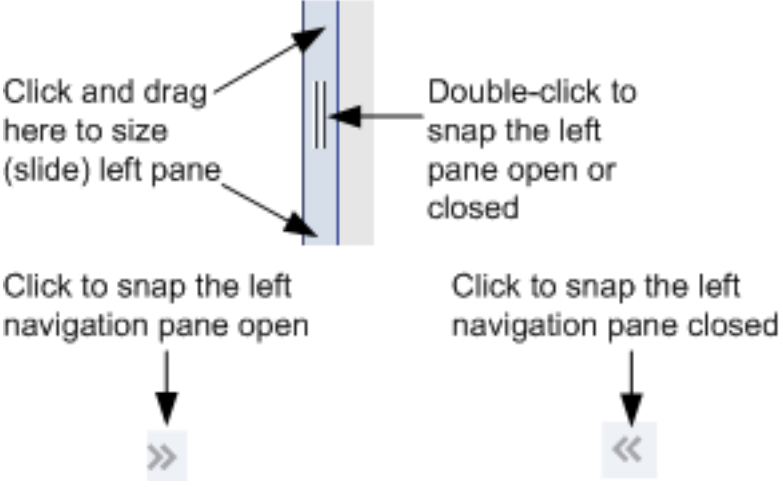| Basic pages navigation options	**To navigate among pages in the eText:**
	• "Click **Previous Page** button or the **Next Page** button to navigate through the eText."
	• "You can also click the **Previous Page** or the **Next Page** vertical bar on either side of the page to navigate through the eText."
	• "Enter a page number in the Page text box and press **Enter**."
	To navigate to last visited page:
	• "Click the **Last Page** button to go to the last visited page."
	Navigating by Keyboard
	• "You can navigate through an eText using the keyboard."
	Navigating by Using Custom Icons and Custom Toolbars:
	• "Hotspots can be displayed in two ways, either as a simple rectangular highlight or as an icon."
	To use a hotspot icon:
	"Click the custom icon to play audio, video, or some other type of media to which the icon is linked."
	To use a custom toolbar icon:
	"Click the toolbar button to navigate directly to any page number, image, or some other item to which the button is linked."

	• Menu reference or toolbar options are accessible on the top of page from every display.
	• "Navigation pane accessible on the left side from every display. You can see all the book readings, and find the info you're looking for such as video, index, notes . . ." • Scrolling pages, navigation is accessible from both the top and bottom of the page (vertical bar). Replay of audio and video or quit options using standard video playback tools.
Interactive index	"Browse the index through the left navigation pane that include an Index accordion bar in the eText." **To use the index:** • "Click the **Index** accordion bar in the left navigation pane to open it." • "Click a letter of the alphabet to view the eText index page starting with that letter (Index Name)." • "Click the page number associated with your desired index term to navigate to the page where the index term can be found in the text (Index Subject)."
Interactive Table of Contents	**To navigate within the eText using the Table of Contents:** 1. "Click the **Table of Contents** accordion bar in the left navigation pane to open it."

	2.	"Double-click the folder to expand another level in the Table of Contents, repeating this action to view a section (module, unit, chapter, or heading, for example) in the eText."
	3.	"Click a section to view the starting page in that particular section. The corresponding page opens in the right pane and the page number appears in the Page text box in the toolbar."
Hyperlinks		• "Use to quickly jump to the relevant sections: SQ3R (A study method involving five steps survey, questions, read, recite, and review) chapters, chapter opener (Audio), pages, glossary terms, figures, table, Audio, links to additional information , MyPsychLab Icons (watch, listen, explore, stimulate, study and review on MyPsychLap (indicated either as a simple rectangular highlight or as an icon)."
		• The left navigation pane elements are also hyperlinks

Other Functions	
Highlighting	"Highlighters tools allows you to mark an area of importance on a page within the eText. Using the Highlighter Tool, you can add highlights or hide and show them. Highlighted areas can also resized, move (repositioned) and deleted."
Notes	"Using the Note Tool button on the toolbar, you can add notes to any location on a page. Personal notes are indicated with a yellow pushpin." "When you create a note on a page, the page number is added as an entry to the Notes section in the left navigation pane." Options for • "Editing a note." • "Repositioning the Note icon and Note box." • "Deleting a note" • "Hiding or Showing Notes" • "Using the Notes Manager: Notes Manager lets you view locate, edit, delete, print, and export notes in your eText." "You can open Notes Manager using one of the following methods:" 1. "Selecting Open Notes Manager from the Notes button on the toolbar." 2. "Selecting the Notes section in the left navigation pane. When the pane opens, click the Open Notes Manager button."

"Notes Manager only displays a portion of the available notes."

- "To see the entire text, click the pencil icon."

"Notes Manager provides the following options when searching for notes:"

- "Search by page range -- enter the range of pages to search in the Page fields."

- "Search by chapter -- select the chapter to search from the In menu."

- "Search by term -- enter the text to search on in the Search field."

"You can also show all recent notes within the last two weeks. To show all recent notes, select **Show Recent Notes** from the Find Notes By menu."

"If you find a note through searching and the eText is not open to the page the note resides on, click the Navigation button to jump to the page containing the note."

"To collapse Notes Manager, click the **Minimize** button."

"To expand Notes Manager, click the **Maximize** button."

- "**Using the Notes list:** The navigation pane includes the Notes accordion bar. When selected, this area opens and displays all the notes created for the eText, identified by page number."

Bookmarking	"You mark specific pages in the book so you can easily find those pages at a later time. Pages in an eText that you bookmark are listed in the Bookmarks list in the left navigation pane." "eText provides a Bookmark Page button on the toolbar, you can add new bookmarks to the Bookmark list in the left navigation pane and delete existing bookmarks."
Printing	"You can use the Print link at top right of your screen to print one or more pages." "Any external information added on a page, such as notes and highlights, is not printed. Only original book content on the page is printed."
Zooming function	• "**Zoom In** button to increase the size of page view in 25% increments." • "**Zoom Out** button to decrease the size of page view in 25% increments." • "**Fit to Width** button to fit the page to the width of the content area." • **"Fit to Page** button to fit the entire page in the content area." • "zoom percentage from the Zoom percentage drop-down."
Arrow Tool	"Lets you select items on the screen."
Hand Tool	"Lets you move a page around within the viewing area by clicking and dragging the mouse."
Showing or Hiding Links	"If you see the following button in your eText toolbar, you can show and hide links in your eText."

Adjusting the size of the navigation pane	"To show the left navigation area, adjust the size of the pane, by clicking and dragging the slider to the desired width." "You can also snap the left pane open and closed by double-clicking the slider or by using the Snap tool, as the following figures show."
Viewing two facing pages	"Your eText can display single pages at a time or can display two facing pages. When you display two facing pages, the left navigation pane is hidden." **To view two facing pages in the eText Viewer:** • "Click the **Single\Two Page View** button located in toolbar." • "The facing pages are displayed, and the navigation pane is hidden." **To display the navigation pane:** • "In two-page view, the left navigation pane collapses to the left. To expand the left navigation pane, click and drag the slider to the desired width."

	• "You can also snap the left pane open and closed by double-clicking the slider or by using the Snap tool, as the figures show above." **To return to single-page view:** • "Click the **Single\Two Page View** button located in the toolbar again."
Switching Views	"The eText Viewer has two views for displaying content:" • "**A Browse view** - in this view you can browse and search the eText." • "**A Whiteboard view** - in this view you can navigate through the eText in a way that's optimized for presentation devices. This view also supports access to defined zoom areas-predefined areas of an eText used to draw the attention of the learner to that area of the eText page. When you are in Whiteboard view, you may find some of the Viewer's Browse features missing or behave differently." "You may use the Whiteboard view in a browser on a computer or by projecting it on a physical Smartboard touch device. When using a physical device, you can navigate in the eText using zoom areas and single touch hand gestures, instead of using a mouse." **To switch to Whiteboard view:** "Click the Whiteboard view button to switch to Whiteboard view, shown in the following figure." **Whiteboard Features** "You can select the following features through the toolbar when the Whiteboard view is active." "**Show/hide navigation bar** :Click the **Navigator** button to open and close the navigation bar."

	"**Switch to Browse view**--Click the **Browse** button on the toolbar to switch from Whiteboard view to Browse view."
	"**Settings menu** -- Displays a menu with options that control the appearance of the Whiteboard view. These options include:"
	• "**Single/Two page view**:Lets you read the eText in a single- or two-page view."
	• "**Last Page Viewed**: Lets you navigate to the previous page you viewed."
	• "**Move toolbar**: Lets you reposition the toolbar to any of the docking positions allowed by the eText author."
	• "**Show/Hide Highlights**: Lets you show or hide highlights on the current eText page. To make changes to highlights, switch back to Browse view."
	• "**Show/Hide Links**: Lets you show or hide links on the current eText page."
	• "**Zoom In**:Lets you increase the size of an eText page."
	• "**Zoom Out**: Lets you decrease the size of an eText page."
	• "**Note:** The Navigation drawer closes when the toolbar moves."
	• "**Fit Page**: Fits an entire page in the content area."
	• "**Scribble menu**:Displays a menu with options that control scribbling. These options include:"
	• "**Pen**: Lets you draw free-form marks on the page."
	• "**Shapes**: Lets you draw rectangles, ovals, and straight lines."
	• "**Clear All**: Removes all scribble marks from the page."

	• "**Arrow Tool**: Let you select items on the screen."
	• "**Hand Tool**: Let you move a page around within the viewing area by clicking and dragging the mouse." • "**Previous page, Next page and Page number**: Lets you navigate between the pages." **To switch to Browse view:** "In Whiteboard View, click the Browse view button in the toolbar to switch to Browse view."
Audio text	"Use the audio text feature to listen to full chapter or specific sections of the chapters. Access this feature from the Pearson interactive learning platform, click on the e-text & Chapter Audio tab then choose listen to the Text icon or from the left navigation pane in the e-text."
Video tools	Options for: captions, full screen, control sounds
Visualizations for concepts and data	Use of diagrams, tables, graphs, and charts, images
Outline of chapter content	Detailed outline of each chapter contents
Diverse access	Ability for accessing on any computer/device
Help	Help options available for using specific tools indicated by icons on the top right of the text
Content design	Consistent and readable font, ease of skimming/scanning by using short paragraphs, bulleted lists, heading different font style and color for headings, and the use of high contrast between background and text color.
Page design and layout	• Plenty of white space. • Consistent page layout. • Using short pages to avoid scrolling

Instructor only supplementary material indicated by * (Hidden from students)

Supplementary Material	
My courses from Pearson is the first screen you'll see after you sign in to Pearson. When you open your course, you see the Pearson MyPsychLab interactive learning platform for instructors and students providing the main information area for your course. From this page, you can see	
Manage course	Options for; • "Edit Course Menu: Add new items. Expand to see all items. Select an item to rename, edit, or archive it." • "Restore/Delete Archived Items: Restore archived items to the course menu or delete them permanently. You can't retrieve deleted items." • "Edit Theme: Select a color for your course's theme or select Restore Original." • "Upload School Logo: Upload or replace a logo image that students see above the course menu." • "Course Roster." • "Manage Files."
Assignment calendar	"The calendar lets you easily assign activities with due dates. You and your students can use the calendar to locate assigned activities and to view assignment due dates and notes. Icons are used to identify days on which assignments are due."

	Each calendar has three views you can select:
	"**Month**: Overview of all assets assigned for the current (or selected) month. Click a day to view the details for that day including: assignments due, notes, or assignments scheduled to start." "**Week**: Overview of all assets assigned for the current (or selected) week. Click a specific day; for example Monday, to switch to the day view for that day." "**Day**: Detailed view of assets assigned, scheduled to start, or notes added to the current (or selected) day." "Calendar icons help you understand what is available for each day:" - Due items - Past due items - Assigned items - Scheduled items - Contains multimedia - Requires manual grading - Start date items

Study plans & course contents	**View study plans** "Study plans are designed to assess and ensure student comprehension of course materials prior to attending class. The study plan is not meant to be a high-stakes assessment, like a test; rather, it is meant to lead a student down a personalized learning path, including multiple learning styles that result in mastery of the course materials." Study plans typically include three components: • "**Pre-test**: After reading the assigned material, students take the pre-test, which is a multiple choice quiz. The purpose of the pre-test is to assess the student's comprehension level of the chapter content. You can specify how many times a student can take a pre-test." • "**Study material**: Based on your students' results, the MyLab (common to all e-Texts in all fields, in contrast to MyPsychLab, which is customized only for Psychology) creates a personalized set of study materials, which is a list of multimedia activities." • "**Multimedia activities** can present the same content as the textbook but in a highly visual manner. Formative assessment questions are included to check comprehension and provide contextual feedback."

- "**Post-test**: Students have unlimited attempts to successfully complete the study plan post-test. They should continue to work and submit the post-test until they achieve the pass criteria you set for each level of the study material. By default, the post-test score in the gradebook is the most recent submission, but you can set a preference to display the highest post-test score if you prefer."

"Pre-test questions are intricately tied to each level of study materials. After students submit the pre-test, they receive a score at each of these levels. If students do not achieve the passing threshold for each level, by default set at 70%, they get access to study materials that help them better understand the content they still need to master. After working through these study materials, students take the post-test, which also consists of questions associated with each level of the study material. Students can take the post-test an unlimited number of times until they achieve the passing threshold you set for each level."

"Both pre- and post-test scores are recorded in the gradebook."

To view study plans:

- "Click **Study Plans & Course Content** in the course menu."

- "Open a folder that contains a study plan. Typically, each content folder includes one study plan folder."

	• "Click the down arrow to the right of the study plan to open the options menu." • "Click **Open**."
*Course home	"The **Course Home** page is the first page you see when you enter your course. The page includes welcome information from Pearson as well as links that help ensure that you have the necessary software and other tools to take advantage of course materials." From the **Course Home** page, you can: • "Communicate with all course students using <u>announcements</u>." • "Open the course Syllabus page to create, upload or edit the course syllabus." • "Quickly connect to <u>Pearson 24/7 Customer Support</u> and other support resources." • "<u>Tune up your browser</u> and other programs to take best advantage of the rich materials in your course." • "Synchronize your course <u>time zone, date and time format, and language</u>." • "View instructor and student <u>user guides</u>." In addition, you can: 1 "<u>Read the course eText</u>." 2 "<u>Listen to the course eText</u>." 3 "Connect to social media sites related to your course."

*Simulations	"MyPsychLab Simulations allow students to participate in online simulations of virtual classic psychology experiments and research-based inventories, helping to reinforce what they are learning in class and in their book."
Video Series	"Comprehensive, current, and cutting edge, the new MyPsychLab Video Series features over 100 original videos clips covering the most recent research, science, and applications across the general psychology curriculum and utilizing the latest in film and animation technology. Each 4-6 minute video clip has automatically graded assessment questions tied to it."
*Writing space	"Writing Space helps you master concepts and develop critical thinking through writing. Writing Space provides a single place within your MyLab to create and track your writing assignments, access writing resources, and exchange meaningful, personalized feedback quickly and easily. Plus, Writing Space has integrated access to Turnitin, the global leader in plagiarism prevention."
*Student Resources	"The Student Resources area has helpful tools and resources available to you for use throughout this course." **Flashcards**: "These flashcards include the key terms from your textbook along with an adaptive speed-drill designed to help target your study time." **MyPsychLibrary**: "The library includes numerous student tools and resources, including electronic files of the study skills and plagiarism tutorials, current research students from the APS, and more."

	MySearchLab™: "Pearson's MySearchLab™ gives you all of the tools you need for writing and research in one convenient location, including four databases of credible and reliable sources."
	MyPsychlab Brain: "This 3D simulation enables you to better visualize the workings of the brain. The hands-on experience makes course content and terminology relevant."
	Spanish Flashcards: "These flashcards include key psychology terms in Spanish along with an adaptive speed-drill designed to help target your study time."
	Operation ARA: "Operation ARA is an interactive role-playing game, driven by a 'save the world' plot that teaches critical thinking skills. To succeed, the player must develop a set of skills with which they can interrogate suspected extraterrestrials to foil the plot and save humanity."
	Learning Catalytics: "Learning Catalytics is a 'bring your own device' student engagement, assessment, and classroom intelligence system."
	Web Links:
	The Psych Files: "Listen to this podcast series aimed at anyone curious about human behavior or studying psychology."
	American Psychological Association: "The American Psychological Association (APA) is a scientific and professional organization that represents psychology in the United States."

	Association for Psychological Science: "The Association for Psychological Science (APS) is a nonprofit organization dedicated to the advancement of scientific psychology and its representation at the national and international level." **YouTube Psychology Video Links**: "This series of videos highlights the best resources on YouTube for psychology students and instructors."
*Student Grade	"You can click **Student Grades** to view your results on assignments that you have submitted. You can view the answers you submitted for an given assignment along with any related messages by selecting **View Submissions** from its options menu. You can also view previous versions of auto-graded essays including any feedback."
*Communication Tools	"The Communication tools to your left are available to help you communicate with your instructor and / or classmates." **"Discussion:** is where students and instructors can discuss and share ideas by creating discussion topics or adding responses." **"Chat & ClassLive:** is a collaborative online classroom where instructors and students can share a whiteboard, software applications, text, images and videos." **"Email:** Instructors and students can send email to other members of their class."

*Instructor Grades &Assignment	"The results of graded assessments, such as tests, quizzes, homework, and study plan pre-tests, post-tests, and study materials, are recorded on the **Instructor Grades & Assignments > Gradebook > Grades** page." "The gradebook is an extremely flexible and powerful tool that lets you evaluate a wide range of student and course data. The gradebook looks similar to a spreadsheet, with each activity and study plan listed in its own column and each student's grades listed in a unique row." "The Instructor Grades and Assignments has tools available exclusively for instructors. Click on one of the items below." **Assign Content:** "Assign content to your students using the Course Calendar." **Manage Course Materials:** "Edit assignment content or create your own assignments for your course." **Gradebook: "**View the Gradebook for your course." **Reports:** "View and generate Reports for your course." **Notifications:** "View Course Performance information Preferences." **MyTest:** "Create tests to assign within this MyLab or to distribute as paper tests." **Preferences:** "Select course settings for grading, assignments, and study plans."

*Course Roster	**Use the course roster**
	"The course roster lists all students enrolled in your course. The roster shows the student's name, email, role, status, and <u>temporary access</u> information."
	From the course roster, you can:
	• View a student's user ID
	• <u>Print the roster</u>
	• <u>Make a student active or inactive in a course</u>
	To open the roster:
	Do one of the following:
	• "Click **Course Roster** in the course menu."
	• "Click **course settings > Course Roster** under the course title."
	• "Click **Courses** in the banner, then click the number next to **Students Enrolled** under the course name in the courses list."
	To view a student's user ID:
	• "Use the search field 🔍 or the alphabetical list to find a student in the **Name** column."
	"Point to the student's name in the roster. A pop-up shows the user ID."

Instructor Resources	
The Instructor Resources feature has tools available exclusively for instructors.	
Test Bank	"The test bank for your text contains thousands of questions to help build tests and quizzes for your class."
PowerPoint	"The PowerPoints for your text include lecture notes and images as well as highly-visual, interactive PowerPoints."
Instructor's Manual	"This downloadable Instructor's Manual offers an exhaustive collection of resources for your text in an easy-to-use format, including activities, assignments, hand-outs, and more."
Multimedia Library	"This multimedia library provides quick and easy access to all the videos, simulations, and explore activities that support your text. Many of these resources are also available within your Course Content with accompanying self-scoring quizzes. To assign these resources to your student, please refer to the Instructor User Guide for step-by-step directions."
MyPsychLab Simulations User Guide	"This document provides instructors with information on the activities within MyPsychLab simulations as well as quick how-to information for assigning these activities."
Writing Space user Guide	"This document provides information on the auto-feedback writing assignments within Writing Space, as well as instructions for incorporating and assigning these activities. Rubrics used to build these writing prompts are also available."

Preparing for DSM 5 Teaching Tips	"A Preparing for DSM 5 Teaching Tips instructor's manual, organized by topic, gives instructors a brief description of the expected changes coming with DSM 5 as outlined by the American Psychological Association (APA) and suggestions for how you can start introducing these exciting new changes in your course."
Dynamic Study Modules Reporting Guide	"This document offers a description of each *Dynamic Study Modules* report in the instructor reporting dashboard, and provides examples of how this data can be leveraged to improve existing learning programs, verify knowledge transfer and deliver more targeted learning programs."