ATHABASCA UNIVERSITY

FACTORS THAT INFLUENCE ATTITUDES TO, AND ENGAGEMENT WITH,
E-TEXTBOOKS ASSIGNED AS REQUIRED COURSE READINGS
AMONG MID-CAREER LEARNERS IN ONLINE GRADUATE STUDIES

BY

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Approval of Thesis

The undersigned certify that they have read the thesis entitled

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In partial fulfillment of the requirements for the degree of

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Abstract

E-textbook reception and use by mid-career learners enrolled in online graduate courses has received scant research attention. Using a sequential, exploratory, mix-methods approach, this study used demographic and attitude surveys (N=25) followed by 23 telephone interviews to examine how a variety of factors affect attitudes and engagement strategies. Respondents were found to be: computer savvy, but much more inclined to choose printed textbooks over e-textbooks; negative about most of the supposed affordances of e-textbooks; convinced that they learn less from e-textbooks than from printed textbooks; and dissatisfied with the support they received from instructors and the university. Pre-existing attitudes to e-texts were a good predictor of attitudes to course e-textbooks. Women were found to be statistically significantly more likely to hold negative attitudes towards e-textbooks than men. The study concludes that many of the factors contributing to negative attitudes to e-textbooks can be overcome by means of specific corrective actions.

Acknowledgements

As a mid-career learner juggling Master of Education studies, day-to-day work pressures, and family responsibilities, I know that moving forward depends heavily on generous support and encouragement from others.

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I also benefitted greatly from the support provided by the others members of my thesis committee – Dr. Cindy Ives, Dr. Cynthia Blodgett, and Dr. Shawn Fraser. Cindy, who has played a leading role in Athabasca University's eText Initiative from the very start, brought both an academic and a practical perspective to the table. Her many helpful questions, comments, and suggestions helped me focus on how my findings might inform the on-going work of introducing e-textbooks to graduate and undergraduate students. Cynthia, who I was fortunate to have as an instructor in *Research Methods* and *Research Proposal Writing* courses before she agreed to serve on my committee, helped me lay the groundwork for my thesis study, particularly regarding the use of qualitative research methods. Shawn, as my external advisor, brought a fresh perspective to the analysis of my data and helped me polish the presentation of my findings.

I would like to extend special thanks to the 23 graduate students who participated so enthusiastically in my interview research. To a person, they conveyed their interest in the topic, shared thoughtful comments about their experiences with e-textbooks, and

made insightful suggestions about how student experience with e-textbooks can be improved in the future.

I would like to conclude by thanking my family for their love, encouragement, and support. My partner, Lisa Menard, who was completing a PhD as I was working on my Masters, has always been my best sounding board and source of inspiration. Her energy has propelled me forward. Our children, Rae and Rhys – engaged in studies of their own – have shown kind interest in their parents' degree aspirations. Together, we celebrate our accomplishments and eagerly anticipate the road ahead.

Table of Contents

List of Tables

List of Figures

Chapter 1 Introduction

       The use of e-books for recreational, business, and academic purposes is now so

pervasive that it is easy to forget that their widespread use is scarcely 20 years old. The

era of publicly accessible e-books is often traced to the 1971 launch of Project

Gutenberg, a then-ambitious initiative to create an electronic public library of 10,000

books (Ebook Timeline, 2002). However, before 1980, access to e-books and e-texts was

limited to a very small number of people with terminals linked to mainframe computers.

After that date, the advent of personal computers meant that e-texts could be accessed by

individuals from their homes and workplaces by means of stand-alone media such as

diskettes and CDs, and, beginning in the late 1980s, via the Internet. The advent of the

first practical electronic book readers (e-readers) in the early 1990s extended this

capability to millions of additional people, including a rapidly increasing proportion of

high school and post-secondary students. Today, more than 80% of college and

university students own laptops or other portable devices such as tablets, e-readers, and

smartphones capable of accessing e-texts virtually anytime, anywhere (Smith & Caruso,

2010).

       Curiously, the development of one major category of e-books – the e-textbook –

lagged well behind the development of e-reading devices. The reason: it took textbook

publishers nearly a decade after the widespread introduction of portable computing

devices linked to the Internet to work out ways to commercialize e-versions of existing

textbooks and protect them from digital piracy. With those problems now largely

resolved, the last few years have seen an increasing stream of e-textbooks entering the

educational market, with some observers projecting exponential growth in their adoption

in coming years (Becker, 2010; Reynolds, 2011).

Close on the heels of these significant changes, researchers began to explore

student attitudes to e-textbooks, practices in using them, academic results, and many

other topics in order to better understand the implications and impacts of e-study and to

devise improved e-textbook features and support services. Most researchers have focused

on 18-22 year-old full-time undergraduate students enrolled in on-campus studies, who

account for only 16% of higher education enrollments in the United States (Stokes,

2008). Other students in this age range are enrolled in alternative forms of face-to-face

learning (e.g. private training programs, apprenticeships, etc.) or in on-line learning

programs. However, a sizeable percentage of college and university students are *non-*

traditional or *non-conventional* learners in the 30-55 age range, who Stokes describes as

"largely working adults struggling to balance jobs, families, and education" (2008, p. 1).

In Canada, approximately 21% of students fit this description in 2007 (Statistics Canada,

2010). Within the total body of higher education enrollments, age distribution varies

considerably by program level, with a much higher percentage of non-traditional learners

enrolled in master's, doctoral, and graduate-level certificate or diploma programs than in

bachelor's programs (see Figure 1). One professor, who teaches a graduate-level distance

education course in research methods at Canada's Athabasca University, said that, in the

past ten years, all of her students – except one – have been non-traditional students (C.

Blodgett, personal communication, May 21, 2013). Clearly, it is important to understand

the attitudes and aptitudes of this important group of learners and to make sure that

educational programs and materials, including e-textbooks, support their needs as well as

those of other learner groups.
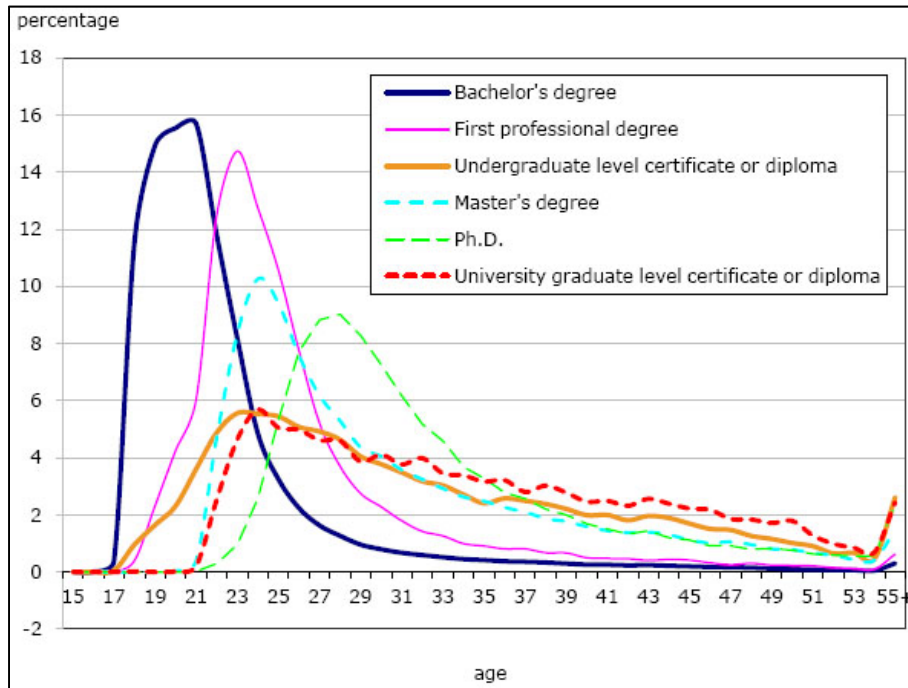
Figure 1. Age distribution of university students, by program level, 2007, Statistics

Canada, Postsecondary Student Information System, 2010.

Past Research

The need to understand how the introduction of e-textbooks has affected learner

reading, note-taking, and sense making activities has been a focus of research since the

first e-textbooks began to appear more than a decade ago. This has covered a wide range

of interests including: learner attitudes to e-books; investigations of how learners engage

with e-books; studies of e-book use on learner outcomes; studies designed to compare the

e-book-reading affordances of *tethered* and *untethered*[1] computing devices; studies

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[1] An example of a tethered computing device is a desktop computer tied by cables to a power source and peripheral devices. Untethered devices include a range of mobile technologies such as laptops, tablets, e-readers, and smart phones.

focused on the psychological dimensions of "hypertext" reading; and much more.

The largest body of academic research in this area has focused on learner attitudes, much of it arising from the need of academic libraries to ascertain whether collections should remain print-based, migrate entirely to e-texts, or maintain a balance between these two media in order to support learner preferences. This type of study often includes current and historical circulation and usage data for print-based and e-books in library collections. Many such studies in recent years have found that students generally prefer print-based textbooks to e-textbooks, although there are significant – and growing – numbers of students who have come to appreciate the lower costs and hypertext features[2] of current-generation e-books (e.g. Bliss, Hilton, Wiley, & Thanos, 2013; Gregory, 2006; McNeish, Foster, Francescucci, & West, 2011; Noorhidawati & Gibb, 2008; Revelle, Messner, Shrimplin, & Hurst, 2011). The affordances of hypertext are discussed in more detail in the literature review section of this paper. Several large-scale, recurring studies of student opinions are helping to track the evolution of attitudes to e-textbooks and other features of online studies, with trend lines generally indicating growing acceptance of on-line reading and learning (e.g. Morrone, 2012; Dahlstrom, 2012).

Studies have also addressed the ways in which learners make use of e-textbooks. Here, the objective in many cases has been to understand the similarities and differences between the ways in which students engage with print-based and digitally-based texts in order to improve the organization and features of e-textbooks to help learners make better use of them. A variety of research approaches have been used, such as prompted think-

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[2] These features include search, bookmarking, and cut-and-paste capabilities, as well as links between passages within an e-book and to resources external to the e-book.

aloud methods (Berg, Hoffmann, and Dawson, 2010), face-to-face focus groups

(McNeish, Foster, Francescucci, & West, 2012), and surveys (Becker, 2010; Dahlstrom,

2012; Li, Poe, Potter, Quigley, & Wilson, 2011). A recurring finding of such studies has

been that many students do not know about, or make use of, the search, highlighting,

note-taking, and sharing capabilities of modern e-reading devices – often leading to

negative impressions that might be addressed through better information and training

regarding how to use e-textbooks.

In recent years, there has been rising interest in how the use of e-textbooks affects

student outcomes such as grades and satisfaction with a learning experience. These

studies generally use an experimental format in which outcomes for students relying on

print-based texts are compared with outcomes for students using the same texts in a

digital format (Kissinger, 2013; Marques, 2012; Richards, 2013). Although some studies

have found that students using mobile devices to access e-textbooks in non-traditional

learning settings (e.g. outside of the classroom and away from personal study spaces,

such as in transit from place to place) are less able to remember what they have read than

students in conventional settings (Kissinger, 2013), others have found no difference in

cognitive learning and grades between the print book and e-book readers (Rockinson-

Szapkiw et. al., 2012).

An area of study that has grown exponentially in the last half decade focuses on

how mobile technologies such as laptop and netbook computers, tablets, e-readers, and

smart phones might be employed to enhance learning. A particularly useful resource in

this regard is Mohammed Ally's (Ed.) 2009 book entitled *Mobile Learning –*

Transforming the Delivery of Education and Training. In it, articles by researchers from

around the world examine the technology itself, research on mobile learning, and emerging applications for m-technology in learning. However, in this book, as in the majority of books and articles on m-learning, scant attention is given to the appropriateness of m-technologies for reading academic e-texts, or to learner attitudes to e-texts accessed through their mobiles. The assumption that reading course texts on mobile devices will be satisfactory for learners does not appear to have been justified in the research literature.

Studies of how students approach e-reading (generally on desktop computers) have sought to establish theoretical understandings of what is taking place on the psychological level when students engage with various kinds of e-texts. Particularly helpful in this regard are academic papers focused on the phenomenology of reading from linear online texts (Carusi, 2006; Miall & Dobson, 2001), and hypertext theory (Landow, 2006; Salmeron, Kintisch, & Canas, 2006; White, 2007), which explore the characteristics and affordances of non-linear online materials consisting of lexias (discrete portions of text or individual media objects) and links (means to navigate at will among lexias). The power of hypertext to promote rich constructivist and connectivist learning – championed by hypertext theorists – has been challenged in some studies by researchers who have measured and compared such things as reading time, information retention, and synthesis of what has been learned from linear and hypertexts (e.g. Miall & Dobson, 2001; DeStefano & LeFevre, 2007), and found hypertexts to be wanting.

Discussion of Issues and Deficiencies

As indicated in the previous section, much of the focus of academic e-book research has centered on undergraduate university students in classroom-based courses,

although a number of other groups – such as students taking online courses, visually impaired students, students in specialized programs such as nursing, engineering, or the sciences, and graduate students – have received at least some attention. Noticeably lacking in the research literature is attention to mid-career learners in the 30 to 55 age range who have embraced distance learning in increasing numbers in recent years as a means of acquiring advanced credentials or to embark on studies leading to a career change (Stokes, 2008). Such students can be expected to bring different life experiences, skills sets, and attitudes to the virtual classroom from what undergraduates fresh out of high school or graduate students who have continued their studies directly from an undergraduate degree bring. Non-traditional students may also have different attitudes and needs regarding the use of e-textbooks in their studies.

Other e-textbook-related topics that appear to be under-represented in the literature are:

- the attitudes and practices of students studying exclusively in an online (distance education) environment;
- studies designed to identify better practices for the design and support of e-textbooks to meet the requirements of specific student groups (e.g. non-traditional students); and,
- the impact of various e-reading technologies and environments on non-traditional students' attitudes, perceptions, and strategies when engaging with e-textbooks.

These deficiencies highlight the need to investigate how circumstances surrounding the use of e-textbooks such as prior attitudes to e-texts, e-textbook features,

the type of e-reading device used, and instructor or institutional guidance / support affect

attitudes to, and engagement with, e-textbooks among mid-career learners enrolled in

online graduate courses.

Significance of the Research

        This study is significant because it contributes to a better understanding of how

best to support mid-career learners required to use e-textbooks in online graduate studies.

This is important because many educational institutions, Athabasca University[3] among

them, are about to embark, or have already embarked, on initiatives to make much greater

– or exclusive – use of e-textbooks in both online and in-classroom courses. Strategies to

help traditional learners make effective use of e-textbooks may not be entirely

appropriate to the mid-career learner who may bring a different set of life experiences to

academic coursework. To support the success of non-traditional learners studying in an

all-digital reading environment, it is hoped that the results of this study will help the

managers of e-text initiatives to choose e-textbook formats and develop e-text training

appropriate to this demographic.

        For publishers, the implications of the study are important because the results may

help them to create e-textbooks that make the most of a digital reading environment to

facilitate learning. Many other kinds of e-resources may also benefit – business and

management books, how-to guides, training materials, etc. – which are produced for use

in the workplace. A better understanding of how mid-career learners engage with e-

textbooks may also help publishers to produce better workplace resources of other kinds.

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[3] Athabasca University is particularly notable because, in addition to being a respected Canadian institution of higher learning, it is among a handful of universities in the world committed exclusively to distance education at both undergraduate and graduate levels.

Definition of Terms

The following terms are used in this document and are defined as follows.

Connectivism

A term coined by George Siemens (2004), connectivism draws its inspiration from biological studies of the human brain and from the concept of neural networks in machine learning. Siemens sees Web-based learning networks as connections between entities, which he calls nodes. Nodes can be "individuals, groups, systems, fields, ideas, or communities" (Bell, 2012, p. 102).

Constructivism

Social constructivism, which has its roots in the writings of Lev Vygotsky (see, for example, *Educational Psychology*, 1926), sees learning as a social activity in which individuals construct personal understanding and improve performance by consuming information, interacting with others, conducting experiments, and reflecting on these experiences. Although constructivism was conceived long before the advent of the Internet and was, initially, concerned mainly with how children learn, it offers a philosophical perspective very well suited to learning in an online environment.

E-book

James Clay, in a 2012 JISC Observatory TechWatch series report (2012, p. 6), defines e-book as "a book that is in a digital format that is read on an e-book reader or application. Unlike other forms of digital textual content, generally the e-book follows the same conventions as a printed book."

E-Text

The Athabasca University *eText Initiative* uses "*eText*" as a shorthand term for "electronic textbook". It is the digital version of a textbook, which can include other educational resources such as workbooks, problem sets, tutorials, videos, simulations, and interactive software. E-texts give you instant access to content wherever you are, whenever you want it; they usually have a search feature and allow highlighting of text and note taking which can be synced between computers/devices.

Hypertext

Non-linear online materials consisting of discrete portions of text (lexias) or individual media objects and links that permit navigation at will among lexias and media objects (Landow, 2006).

Mobile devices

Devices capable of displaying digital texts that do not rely on wired connections to the Internet. Examples include laptop computers, netbooks, tablets, e-readers, and smart phones.

Non-traditional learner

A working adult, generally in the 30-55 age range, who has returned to school to earn additional academic credentials in support of career change or advancement (Stokes, 2008).

Phenomenology of reading

Phenomenology, as a discipline, is the study of phenomena – or, as van Manen (1997) put it, the lived experience of things. This may apply to "the appearances of things, or things as they appear in our experience, or the ways we experience things"

(Smith, 2013). It is explicitly about conscious experience from a subjective point of

view. The phenomenology of reading, therefore, is about the experience of reading texts

of various types, including the reading of textbooks in printed and digital formats.

Additional specialized terms are defined in the text as they arise.

Chapter 2 Literature Review

The need to understand how the introduction of e-textbooks has affected learner reading, note-taking, and sense-making activities has been a focus of research since the first e-textbooks began to appear more than a decade ago. Although there is a diversity of studies in this area, it is possible to divide the literature into five broad categories: studies of learner attitudes to e-books; investigations of how learners engage with e-books; studies of e-book use on learner outcomes; examinations of how e-reading devices and other factors affect learner attitudes to e-books; and, studies focused on the psychological dimensions of "hypertext" reading.

Learner Attitudes

The largest body of academic research in this area has focused on learner attitudes, much of it arising from the need of academic libraries to ascertain whether collections should remain print-based, migrate entirely to e-texts, or maintain a balance between these two media in order to support learner preferences. This type of study often includes circulation and usage data for print-based and e-books in library collections. There has been a considerable change in attitudes since the first studies in this area were conducted. A good early example is Cynthia Gregory's 2006 study, which investigated undergraduate usage and attitudes toward electronic books. Her survey-based research conducted at the College of Mount St. Joseph, Cincinnati, Ohio, sought to determine the attitudes of millennial students (students born from the early 1980s to the early 2000s) to e-books. Counter-intuitively, she discovered that, in the context of student use of library resources, millennials, who have grown up using on-line resources, still overwhelmingly preferred print-based textbooks to e-textbooks, but that heavy promotion of e-books by

the library and instructors tended to increase e-book use and improve attitudes. That

same year, a study at Royal Roads University (Spencer, 2006) concerning the online

course-related reading habits and choices of graduate and undergraduate students also

found that "learners preferred print copies of text materials for reasons of portability,

dependability, flexibility, and ergonomics" (p. 33), but expressed discomfort at the lack

of information available on how readers engage with print and online texts and why they

choose one format over another.

An article by Karen Coyle (2008) echoed Gregory's and Spencer's finding that

many students object to reading e-texts online, but pointed out that different forms of

electronic books draw different responses. Coyle identified two predominant forms of

electronic books – scans of print books, and digital texts that are formatted so that they

can be read on most kinds of e-readers. The first, which draws the most negative

reactions, is poorly suited to being used on screen for reading because fixed page

dimensions often do not fit comfortably on computer screens, particularly those of mobile

devices. The second flows to fit screen dimensions and accommodates the reader's wish

to dog-ear pages, make marginal notes, read in a comfortable seating arrangement, and

receive clues about where he or she is in the text (Coyle, 2008). As Coyle puts it: "The

problem with electronic books is not that they are electronic, but that all of our attempts

have been to render the print book electronically rather than developing a new technology

that facilitates reading." (2008, p. 161). Noorhidawati and Gibb (2008) explored another

cause for liking or disliking e-textbooks when they asked students at Strathclyde

University about their preferred uses for e-texts. Their web survey revealed that "there

were three different types of e-book use in an academic setting: (a) fact finding; (b)

finding relevant content; and (c) extended reading. The most popular reason for using e-books was for "finding relevant content which indicated that e-books were not read in their entirety but instead were consulted or used for reference purpose" (Noorhidawati & Gibb, 2008, p. 1). In many cases, students who were negative about the prospect of using an e-textbook for extended reading were very positive about using them for fact-finding. As Noorhidawati and Gibb (2008) put it: "for *fact finding* and *finding relevant content*, respondents preferred to use an e-book (100% and 86% respectively). This shows that respondents acknowledged that e-books are more practical than paper books for searching information". This finding was echoed by Rickman, Von Holzen, Klute, and Tobin (2009), who asked undergraduate students at Northwest Missouri State University about how they made use of e-textbooks. When asked if the e-textbooks were more convenient for accessing and retrieving information, the majority of students (56.3% percent) indicated that e-textbooks significantly outperformed regular physical textbooks (Rickman et al., 2009). Similar results were obtained by Li, Poe, Potter, Quigley, and Wilson in 2011, when studying e-book usage by students at University of California campuses. While 49% of survey respondents preferred print books and 34% preferred e-books, the ability to search within and across e-book content was identified as the primary advantage of e-books regardless of whether respondents preferred print books or e-books (Li et al, 2011). What these studies seem to indicate is that student preferences have evolved from an indiscriminate dislike of e-textbooks in early studies to a more discerning understanding of e-book affordances in later studies, possibly because of repeated exposure to them.

A large study conducted in 2010 at the Miami University of Ohio (Shrimplin, Revelle, Hurst, & Messner, 2011) used Q-methodology to explore in detail attitudes and opinions about e-books among a group of faculty, undergraduate students, and graduate students. An initial phase of oral interviews formed the basis for a collection of opinion statements concerning e-books versus print. Factor analysis of the opinion statements revealed four distinct clusters of opinions on e-books: Book Lovers, Technophiles, Pragmatists, and Printers[4]. A subsequent survey based on the opinion statements (Revelle, Messner, Shrimplin, & Hurst, 2011) sought to quantify adherence to each of these clusters. The researchers found that the 1,135 respondents were made up of 31% Booklovers, 22% Technophiles, 19% Pragmatists, and 28% Printers. The large number of respondents made it possible to report on results by department affiliation, gender, and academic status (undergraduate, graduate, faculty). Among graduate students, the study found that 31% were Booklovers, 20% Technophiles, 18% Pragmatists, and 30% Printers – close to the averages for all respondents. Interestingly, the 68% of respondents who did not express an outright preference for print books had a generally positive attitude to e-textbooks, even if some preferred to print out passages that they found particularly helpful.

A recent study nicknamed *Project Kaleidoscope* surveyed students and teachers at eight community colleges in California, Nebraska, and New York, to determine their

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[4] *Book Lovers* cherish books as physical objects and strongly dislike reading longer texts on screen. *Technophiles* are strongly interested in the possibilities of new technology and feel that the advantages in searching and access outweigh any downsides to e-books. *Pragmatists* are mainly interested in content and see pros and cons to both formats. *Printers* prefer print books because they have trouble reading text on a screen; their tendency is to print online texts.

attitudes to open educational resources (OER)[5] that had been provided to them as

compulsory course e-texts (Bliss, Hilton, Wiley, & Thanos, 2013). In this instance, the

majority of students and faculty reported a positive experience in using online textbooks,

in part because the texts had been made available at no cost, but also because they felt

that the texts used in the study "were better presented, more convenient, better organized,

or a more effective learning resource than other texts they have used" and because of the

texts' "availability, mobility, searchability, or efficiency" (Bliss et al., 2013, *Results*,

n.p.).

A recurring study of student attitudes has been particularly helpful in establishing

trend lines for the acceptance of e-textbooks and e-technologies. In 2012, the *ECAR*

Study of Undergraduate Students and Information Technology published its 9th annual

research report (Dahlstrom, 2012). Drawing on responses from 100,000 students at 184

U.S. universities and colleges, the ECAR study noted a significant rise in the use of e-

textbooks in recent years (see Figure 2):

> "In 2010, only 24% of students reported using e-books or e-texts; this figure was
>
> 54% in 2011 and 70% in 2012. In 2012, 47% of students said they wish their
>
> instructors used e-books or e-textbooks more, suggesting that there is still room to
>
> grow here" (Dahlstrom, 2012, p. 21).

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[5] "*Open educational resources* (OERs) are materials used to support education that may be freely accessed, reused, modified and shared by anyone." (Downes, 2011)
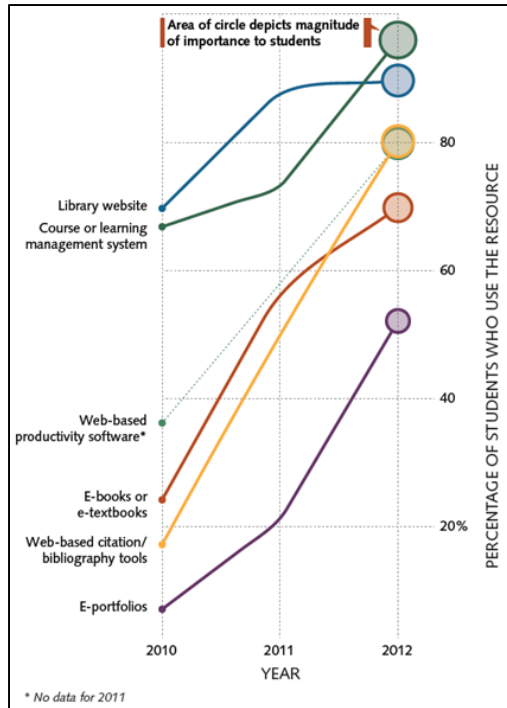
Figure 2. Institution-Supported IT Resources and Tools (Dahlstrom, 2012, p. 20)

How learners engage with e-books

A second major area of study has addressed the ways in which learners *make use of* e-textbooks. Here, the objective has been to understand the similarities and differences between the ways in which students engage with print-based and digitally-based texts in order to improve the organization and features of e-textbooks to help learners make better use of them. For instance, a survey-based study conducted at the University of Ontario Institute of Technology (UOIT) by Percival and Muirhead in 2009 sought to understand usage patterns related to a suite of e-learning tools, which included an e-textbook. The sample group of second-year bachelor of commerce students and their instructors included both face-to-face (F2F) and blended learners[6]. Blended learners reported considerably more use of the e-book than their F2F counterparts, with 45% using the e-

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[6] Blended learners take a portion of their studies in classroom settings and the remainder online.

book to complete case studies, 37% to prepare for F2F lectures, and 41% to study for exams. In contrast, only 22% of F2F students used the e-book to complete case studies and only 29% used it to review material before a lecture (Percival & Muirhead, 2009).

Another example of this kind of study, also conducted in 2009, by Rickman, Von Holzen, Klute, and Tobin used a survey approach to examine how the introduction of e-textbooks as substitutes for traditional textbooks at Northwest Missouri State University affected student study habits. They concluded that the impact of e-textbooks with respect to students' overall study habits was neutral. In the same study, when students were asked if e-textbooks were more convenient than traditional texts for accessing and retrieving information, the majority (56.25 percent) indicated that e-textbooks significantly outperformed regular physical textbooks (Rickman et al., 2009).

In a 2010 study by Berg, Hoffmann, and Dawson, the researchers used a "prompted think-aloud method to gain an understanding of the information retrieval behavior of students in both formats" (Berg et. al., 2010, p. 518), in order to capture the decision-making and information-gathering behaviours of participants as they performed a prescribed task. The test group was made up of a convenience sample of 20 undergraduate students – 9 male and 11 female – enrolled in Faculty of Science programs at The University of Western Ontario, London, Ontario. The participants were recruited by means of informational posters placed on bulletin boards in the library and at strategic locations near lecture halls and classrooms. A total of eight textbooks were used, four in electronic format and four in printed format.

Each participant was asked to perform eight tasks, one task for each of the eight textbooks. All 20 participants interacted with all eight of the textbooks, each of them performing the same set of tasks identified in Table 1.

For each task, the participant was asked to think out loud as he or she searched for information or a particular resource. These fact-based tasks were appropriate to students in the sciences who tend to use textbooks to find specific information when and as they require it, rather than reading the book from cover to cover.

Table 1

Tasks and Books Used in the Berg, Hoffmann, and Dawson Study (Berg et. al., p. 520, 2010).

Task	Book
1. Find information about the "Alexander Technique" in alleviating chronic pain.	Banks, Carol, and Karen Mackrodt, eds. *Chronic Pain Management.* Philadelphia: Whurr Publishers, 2005.
2. Find information about which animal models are used in asthma research.	Falus, András. *Immunogenomics and Human Disease.* Chichester, Hoboken, NJ: John Wiley, 2006.
3. Find a summary table that outlines the USDA soil classification system.	Fang, Hsai-Yang and John Daniels. *Introductory Geotechnical Engineering: An Environmental Perspective.* New York: Taylor & Francis, 2006.
4. Do both the genus and species names of an organism need to be capitalized?	Matthews, Janice R. and Robert W. Matthews. *Successful Scientific Writing: A Step-by-Step Guide for the Biological and Medical Sciences.* 3rd ed. Cambridge: Cambridge University Press, 2008.
5. What are the effects of Dichloro-Diphenyl-Trichloroethane (DDT) on eggshell formation in birds?	Norris, David O. and James A. Carr, eds. *Endocrine Disruption: Biological Basis for Health Effects in Wildlife and Humans.* Oxford: Oxford University Press, 2006.
6. What is the difference between WiFi and Bluetooth?	Walls, Colin. *Embedded Software: The Works.* Boston: Elsevier/Newnes, 2006.
7. What are the indoor air contaminants associated with children's asthma?	Wigle, Donald T. *Child Health and the Environment.* Oxford: Oxford University Press, 2003.
8. Find information about the relationship between garlic and heart disease.	Wildman, Robert E. C., ed. *Handbook of Nutraceuticals and Functional Foods.* Boca Raton, FL: CRC Press, 2001.

To control for differences that might arise from different e-reading devices, all of the students used a laptop computer supplied by the researchers to access the e-textbooks through a common web browser. Further, the e-textbooks were exact replicas of printed books displayed as PDF pages.

Each participant was video/audio recorded by one of the researchers as the participant performed the task and verbalized his or her thoughts. The second researcher made observations and took notes during the session, while the third researcher acted as the host-facilitator and prompted the participant to think out loud while performing the task.

When each participant's eight research tasks had been completed, a concluding survey was used to capture data regarding the participant's previous experience with e-books and their attitudes towards e-books. This complemented a demographic questionnaire that participants had been asked to complete before the prompted think-aloud sessions began.

The results were then subjected to semantic analysis, which identified four themes relating to information retrieval from electronic and print books:

(Non)Linear Strategies - Participants used linear approaches when seeking information in print books but used non-linear paths with e-books;

(In)Tangible Volumes - The physicality of the print book facilitated participant awareness of where they were within the book and within the text on the page. This was not the case with e-books.

(Un)Met Expectations - Participants were able to navigate print books successfully and confidently, with no need to orient themselves to the layout prior to beginning an information-seeking task. E-books weren't able to meet their expectations in the same way.

(Non)Transferable Behaviors – Many behaviours did not seem to be transferable between printed books and e-books. For instance, participants very rarely

used the index as an information-seeking tool in e-books. E-books are not

seen as exact duplicates of print books.

One of the researchers' findings was that, although current undergraduate students

are highly computer literate, they do not intuitively know how to navigate and use e-

books effectively (Berg et. al, 2010).

A second study, conducted among undergraduate students at the Ted Rogers

School of Management, Ryerson University (McNeish, Foster, Francescucci, & West,

2012), sought to address gaps in understanding about student resistance to giving up

paper-based textbooks by examining attributes of paper texts, absent from e-texts, that

students see as being necessary for knowledge transfer. Advancing in two phases, the

study first used face-to-face focus groups to identify content areas that might explain

student preferences. In the second phase, 386 students responded to an online survey in

which they answered questions based on the content areas. The researchers were able to

conclude that:

Students' resistance to giving up the paper textbook positively relates to the way

in which the paper textbook facilitates learning and study processes, is permanent

and under the students' control during and after the course is finished. The fluid

and dynamic nature of digital content compared to the more consistent and

predictable nature of information on paper appears to be a barrier to the

acquisition of knowledge for the purpose of assessment. (McNeish et. al., 2012, p.

58)

If something in the nature of digital content interferes with knowledge acquisition among undergraduates, it would seem appropriate to ask if mid-career learners encounter the same barrier.

A somewhat similar study in 2012 at Andrews University in the U.S. compared two groups of students, one made up of individuals who purchased the electronic version of an e-textbook for a class, the other made up of students who purchased the traditional print format of the book. Students, who were free to use the format of their choice, overwhelmingly chose the printed version of the book, but the students who chose the e-textbook said they would use e-textbooks again and would recommend them to friends (Marques, 2012). When students who chose the e-textbooks were asked if the digital text influenced their learning experience, 13 of 23 respondents answered "yes." Of these, 10 of the students said it influenced their experience negatively, giving reasons such as "text harder to read," "don't absorb as much," and "they make me want to study less" (p. 16). Further, the researcher found that few students read their e-textbook from cover to cover. As other researchers have found (e.g. Noorbidawati & Gibb, 2008; Rickman, Von Holzen, Klute, & Tobin, 2009), the majority of e-textbook readers in this case skimmed through the text to find relevant information, often skipping over illustration captions, charts, section summaries, and study questions entirely (p. 11).

In a 2013 study, Roberta Richards examined how students at Portland Community College made use of e-textbooks. Her findings confirmed what some previous researchers (e.g. Haq, 2012) had concluded, that students who read e-books for pleasure were more inclined to be positive about e-textbooks. As Richards puts it: "Research and

anecdotal evidence have shown that e-reading leads to more reading" (Richards, 2013, n.p.).

A study published in 2013 explored student experiences during the first year of Florida State College's transition entirely to electronic textbooks for undergraduate courses in the 2010 – 2011 academic year (Kissinger, 2013). The research used a multiple case study approach to document student experiences with e-books delivered on digital e-book readers through the lens of learning theories commonly applied to mobile learning such as constructivism, social cognitive theory, self-efficacy theory, and situated cognition. Among the study's conclusions were that "students expressed feelings of high self-efficacy when using the mobile e-books" and "students valued the use of mobile e-books for their learning" (p. 155), although no control group was present to indicate what the attitudes of students NOT using mobile e-books might have been. As the study took place during the first year of a significant transition and focused on students using a particular e-reading device, the author also concluded that "the ways that the transition to mobile e-books will impact student learning are unclear, and researching the issue will ensure that students are positively served through the transitions" (Kissinger, 2013, p. 155).

To summarize, numerous studies of undergraduate students have found that learners engage differently with print books and e-books. Print books seem to lend themselves to more linear information-finding strategies than e-books and give learners a better understanding of where they are within a book at any given moment. E-texts are seen as being more convenient for accessing and retrieving information, although

standard print book strategies such as consulting the index are rarely used in online research strategies.

E-textbooks and learner outcomes

A third area of study investigates how the use of e-textbooks affects student outcomes such as grades and satisfaction with a learning experience. These studies generally use an experimental format in which outcomes for students relying on print-based texts are compared with outcomes for students using the same texts in a digital format. For instance, a 2012 study at a private university in Virginia, which included undergraduate and graduate students in both residential and online studies, examined the relationship between textbook format and student *grades* and *perceived learning* scores (Rockinson-Szapkiw, Courduff, Carter, & Bennett, 2012). The study found that, while there was no difference in cognitive learning and grades between the two groups, "students who chose e-textbooks for their education courses had significantly higher perceived affective learning and psychomotor learning than students who chose to use traditional print textbooks" (Rockinson-Szapkiw et. al., 2012, p. 259). In other words, universities about to embark on an e-text initiative might expect learning and grades that are at least as good as in print-book-based studies AND improved growth in attitudes, emotions, and beliefs (affective learning), and improved motor skills and coordination (psychomotor learning).

Kissinger (2013) also took particular notice of affective outcomes of learning from e-textbooks. Students were asked to maintain written journals during the study period in which they recorded their thoughts, feelings, and experiences using the e-textbooks. In addition to expressing feelings of high self-efficacy when using e-books,

the researcher noted that students valued the use of mobile e-books for learning, made

use of opportunities provided by their e-books to connect with other learners online, and

employed higher-order thinking (i.e. metacognition) to help them plan how to approach

learning tasks and self-evaluate progress (Kissinger, 2013).

The Richards study (2012) identifies concentration as a factor that can be affected

negatively by the use of e-textbooks. In a section of her website entitled *E-textbooks and*

student learning – the challenges, Richards mentions that the attractive interactive

features of e-books may come at the cost of reader concentration. To help overcome the

challenges to concentration, Richards notes that "Researchers studying student use of e-

textbooks recommend that electronic reading assignments be accompanied by some sort

of assessment or activity to enforce more consistent attention to text read on the computer

screen" (2012, n.p.). Examples of such activities include quiz questions, interactive

exercises, or research tasks.

How the choice of an e-reading device affects attitudes to e-textbooks

The rise in use of mobile technologies such as laptop and netbook computers,

tablets, e-readers and smart phones has given rise to many studies focused on how such

devices might be employed to enhance learning and improve access to course texts.

Organizations such as CourseSmart actively promote the use of iPads, iPhones, Android

devices, and Kindle e-readers to "take your e-textbooks to go, no backpack required"

(CourseSmart Homepage). However, while many articles and studies highlight the

ability of m-devices to connect learners with one another, access resources anywhere on

the Web, create and share content, and read course texts whenever and wherever the user

may wish (see, for example: Ally, 2009; Ntloedibe-Kuswani, 2008; Sims, 2006; Stead,

2006), mobile learner attitudes to e-books in general, and learner practices in using them, are rarely mentioned. In fact, in a 2010 review of selected m-learning literature, the authors concluded that weak study design and problems with research implementation draw into question the validity of conclusions reached in the existing literature about the effectiveness of m-technology for learning (Koszalka & Ntloedibe-Kuswani, 2010). The assumption that reading course texts on mobile devices will be attractive to learners has not been sufficiently studied.

One study that deals with the general topic of how different digital devices affect the kinds of content that learners feel comfortable in accessing and the practices that they employ is Trish Chatterley's 2010 article on personal digital assistant (PDA)[7] usage among undergraduate medical students at the University of Alberta. Using a survey followed by three hour-long focus groups, Chatterley (2010) found that personal digital assistants and desktop computers were used for very different things – the first used mainly to do quick searches for reference materials and the latter for more extensive Internet and database searches, for writing notes and papers, and for reading textbooks. Students using PDAs were more likely to report problems in figuring out how to use all the features of their device and to report difficulties in accessing the Internet, downloading programs, or updating resources. These students also were more likely to express the need for technical support and training from the University. Clearly, their experience in accessing textbooks and other digital assets from small mobile devices was more negative than it was when desktop computers were used. Chatterley (2010) summed up the findings by observing: "Focus group responses revealed that because of

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[7] The author used the term "personal digital assistant" to refer to devices supported by the university's medical reference and drug database, which included devices that use the Palm and PocketPC operating systems, as well as Blackberry phones and iPhones.

the cost of Internet access, the small screen size, the slower processing speed of PDAs, and slower typing capabilities, students in all years preferred to use computers for any in-depth literature or Internet searching" (Chatterley, 2010, n.p.). Studies such as these underline the need to control for the type of computing device used when asking questions about student attitudes to e-textbooks.

The Importance of Instructor Support

In addition to studies focused on how e-reading devices affect student reception of e-textbooks, another attitude-and-practice-influencing factor that has received some attention is guidance provided to students by their instructors on how to make effective use of e-textbooks.

In Percival and Muirhead's 2009 survey-based study at the University of Ontario Institute of Technology (UOIT), instructors were asked about factors that influence student reception of online learning resources, including e-textbooks. Their responses suggested that faculty who make the effort to adopt or develop online learning resources will find that students are more likely to be positive about doing so themselves. Seeing their instructor make the transition from a traditional classroom setting to a blended setting seems to be an incentive to become more familiar with the technology and its benefits.

Doering, Pereira, and Kuechler (2012) also concluded that efforts by instructors to inform their students about the availability and use of e-textbooks are an important factor in creating positive attitudes towards e-texts. But, puzzled about why many instructors do not make this effort, the researchers suggested that a future research question could address factors which might explain why some instructors are willing to actively

introduce e-textbooks. Is it something about the instructor's background that hinders or

helps the adoption of e-textbooks – or is some other factor at work such as college or

university administrative processes? (Doering, Pereira & Kuechler, 2012).

Roberta Richards, in her 2013 study at Portland Community College, notes that

students find it easier to engage with e-textbooks and report higher satisfaction with their

online reading when their instructors guide them through the effective use of these

resources. In particular, students are more likely to engage with e-textbooks if their

instructor includes "variations of prompts, matrix notes, advanced organizers, previews,

concept maps, and questions" to guide e-book use (Richards, 2013, n.p.).

Theoretical perspectives

To help make sense of learner experiences, another category of academic study

seeks to establish a theoretical framework for understanding what is taking place on the

psychological level when students engage with e-texts. Helpful in this regard is a

literature review by Lisa Nowak tracing the development of digital reading theory and its

relationship to academic reading practice (2008). Nowak sees hypertext theory and

exploration of the phenomenology of reading as "methods of understanding the digital

reading process and as starting points for the development of new online reading tools"

(2008, p. 1).

When e-texts became widely available in the 1990s, it seemed apparent that an

entirely new way of reading and learning had emerged. Researchers were quick to seize

on the term "hypertext" – coined by Theodor H. Nelson in 1963 – to refer to the

phenomenon of "text chunks connected by links which offer the reader different

pathways" (Nelson, 1980). One of the seminal thinkers in this new field is George

Landow, who, in 1997, published *Hypertext 2.0: The convergence of contemporary critical theory and technology*. Landow was one of a group of developers and theorists, who included Nelson, Roland Barthes, Andries van Dam, Douglas Engelbart, Tim Berners-Lee, Peter Brown, and others, who saw hypertext as a revolution in the way humans learn and think. In Landow's 2006 sequel to Hypertext 2.0, *Hypertext 3.0: Critical theory and new media in an era of globalization*, he summed up his views in this succinct paragraph:

> We must abandon conceptual systems founded on ideas of center, margin, hierarchy, and linearity and replace them by ones of multi-linearity, nodes, links, and networks. Almost all parties to this paradigm shift, which marks a revolution in human thought, see electronic writing as a direct response to the strengths and weaknesses of the printed book (p. 1).

 As Landow sees it, the key difference between paper books and true hypertexts is the linearity of the former and the "multi-linear or multi-sequential" (i.e. access to multiple learning pathways) nature of the latter (Landow, 2006). It is important to point out that Landow clearly differentiates among three main types of hypertexts. The first is text in HTML or PDF format with no links of any kind. This form takes no advantage of the possibilities of hypertext. The second form presents a document with a limited selection of links to materials within the document and to related documents elsewhere on the web. In this case, the author makes it clear that he or she is writing in the context of other texts on the same subject and provides explicit guidance on what to consult. A third type of academic hypertext takes the form of a text linked to a wide range of networked documents that provide supporting or contrasting evidence. As the reader is

entirely free to choose what areas to investigate in greater depth, this full-featured or "unbounded" (Carusi, 2006, p. 169) form comes closest to fulfilling the full promise of hypertexts. Landow's attention to forms of hypertexts is a reminder that a study of learner attitudes to e-textbooks must control for the form of hypertext(s) that the learner has encountered.

In the world of full-featured hypertexts, new rules and experiences are said to apply. For instance, Landow sees learners using hypertexts as simultaneously being writers, not only because they often write annotations that add their perspectives on the text they are reading, but also because the act of choosing pathways creates a unique text for each reader. In this environment, more emphasis is placed on data – individual bits of knowledge – than on the structure of a document as a whole. This notion seems to fit well with the results of studies reported earlier in this document, in which students report being more comfortable using e-textbooks for data searches than for prolonged reading.

Hypertext theorists emphasize that the use of hypertexts changes the balance of power in education. As it is up to the learner to chart a path and to draw meaning from his or her stops along the way, the "instructor" must trade the role of lecturer for that of coach, mentor, and collaborator (Landow, 2006). For the student, playing his or her role effectively means becoming an active constructivist or connectivist learner responsible for accessing, sequencing, and making sense of information. Further, Landow sees hypertext reading as fostering critical thinking because it cultivates the habit of "seeing the way various causes impinge upon a single phenomenon or event and then evaluating their relative importance, and well-designed hypertext encourages this habit" (Landow,

2006, p. 279). Landow and other hypertext theorists believe that people exposed to hypertext will become better at performing these kinds of functions.

The reference in the preceding paragraph to constructivism and connectivism and their connections to hypertext theory arises from the work of researchers such as George Siemens (2004), Stephen Downes (2006), and Frances Bell (2011), who have directed their studies to understanding how Web-enabled and classroom-based learning are different. Neither constructivism nor connectivism is a theory, but rather a philosophical explanation of the nature of learning. Social constructivism, which has its roots in the work of Lev Vygotsky (see, for example, *Educational Psychology*, 1926), Jean Piaget (1952), Jerome Bruner (1960), and others sees learning as a social activity in which individuals construct personal understanding and improve performance by consuming information, interacting with others, conducting experiments, and reflecting on these experiences. Although constructivist theory was developed in the pre-Internet era and was, at first, focused on learning during childhood, e-textbook publishers embracing a constructivist perspective might be expected to present learners at any level with rich sources of information, multiple perspectives, a variety of learning experiences, and opportunities for social interaction from which to reach their own understandings (Schunk, 2008).

As an Internet-era alternative to constructivism, Siemens (2004) proposed *connectivism*, which draws its inspiration from biological studies of the human brain and from the concept of neural networks in machine learning (Bell, 2012). Siemens sees Web-based learning networks as "connections between entities" (Siemens, 2004, p. 6), which he calls nodes. Nodes can be "individuals, groups, systems, fields, ideas, or

communities" (Bell, 2012, p. 102). Stephen Downes (2005) further describes web-based

learning networks as *distributed* because they are always spread across more than one

node or entity. In Downes' words: "A property of one entity must lead to or become a

property of another entity in order for them to be considered connected; the knowledge

that results from such connections is connective knowledge" (2005, para. 4).

Connectivism differs from constructivism in its broader definition of what a learning

"network" is and how it operates. It is not just, or primarily, a network of individuals.

Learning benefits from an ever-changing network of nodes that include single

individuals, aggregations of individuals (e.g. groups, organizations, communities, etc.),

resources (e.g. ideas, readings, presentations, etc.), and tools (e.g. survey engines,

software agents, data mining programs, etc.) – to name but a few. For publishers, this

becomes a prescription for creating a rich hypertext environment within and surrounding

an e-textbook in order to foster the emergence of networked connective knowledge.

Hypertext theory – and, by extension, connectivism – has come under close

scrutiny by researchers steeped in the phenomenology of reading. For instance,

Annamaria Carusi, in her influential 2006 article entitled *Textual practitioners: A*

comparison of hypertext theory and phenomenology of reading, acknowledged the impact

of online technology on many forms of social interaction, but observed that: "it is unclear

what difference they have made to actual practices of reading, in particular for higher

education teaching and research purposes" (pp. 163-164). Carusi goes on to say that,

while both hypertext theory and the phenomenology of reading have their roots in literary

studies and theory, they represent very different views about how reading takes place.

Hypertext theory, as George Landow presents it, has its basis in post-structuralism and

deconstruction, which makes a virtue of the non-linearity of hypertexts. As hypertext

theorists see it, "the more guidance and control hypertexts supply the closer they are to

traditional book forms" (Carusi, 2006, p. 164), which, in their view, is a bad thing.

Carusi identifies what she calls "a series of binary oppositions" that hypertext theorists

have used to differentiate hypertexts and printed books (see Table 2).

Table 2

Binary Oppositions Differentiating Hypertexts from Printed Books (Carusi, 2006, p.

166):

Hypertexts	Printed books
web-like	linear
non-hierarchical	hierarchical
open	closed
dispersed or diffused	centred or focused
reader-centred	author-centred
anti-authoritarian	authoritarian
active reading	passive reading.

Clearly, the words used to differentiate the two approaches are loaded with

positive implications on the hypertext side, and negative ones on the print book side.

Aficionados of printed books would be unlikely to agree with this characterization.

In contrast to hypertext theory, which takes a position on how reading should take

place, phenomenology aims simply to describe the experience of reading (Carusi, 2006).

From this frame of reference, full featured (unbounded) hypertexts have some notable

weaknesses. For instance: "If for each reader there is a different whole/text, how does a

teacher in a learning context, or a student, enter into a discussion about the wholes/texts

thus created, since the very basis for discussion – that there be something in common

spoken about, something inter-subjectively shared – has been put into question?" (Carusi,

2006, p. 169). Carusi points out that empirical studies by Charnery (1994), Miall and

Dobson (2001), and others have found that "when the burden of structuring is placed on the reader she (or he) may come away disoriented, cognitively burdened, and with "a false or incomplete representation of the texts in the network or even the information relevant to her issue" (Carusi, 2006, p. 170). These studies have also found that hypertext readers consistently take longer to read a given passage, are more confused, and feel that they have "missed something" compared with readers who encounter the same materials in a printed format. In the Miall and Dobson study, it was noted that "the reading practices of hypertext readers become increasingly fragmentary, that they are distracted by surface features[8]; their response to the text is more general, less specific and less emotionally engaged than that of linear readers" (2001, p. 10). Given these shortcomings of unbounded hypertexts, Carusi proposes a "suite of technologies for designing online reading spaces for higher education and research purposes which would be guided by the phenomenology of reading linear literary text, focusing on the interaction between reader and text, rather than on hypertext theory which tends to focus on the reader's construction of the text" (2006, p. 178). For the purposes of the research outlined in this proposal, it was important to ask how e-textbooks with many internal and external hyperlinks compare with more linear texts with respect to how they influence learner attitudes/opinions to the texts they have been assigned.

Summary

In summary, a review of academic e-book research confirms that, while much has been learned about e-textbook reception and use by mainly undergraduate students studying on campus, little attention has been paid to the attitudes, perceptions, and

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[8] For example, typographical treatments, selection icons, menus, illustrations, and highlighted text indicating links to related materials.

practices of mid-career online learners in the 30 to 55 age range with regard to e-textbooks assigned as required readings in online courses. However, the literature is helpful in identifying instructor interventions (Percival & Muirhead, 2009; Dennis, 2011; Doering, Pereira & Kuechler, 2012; Richards, 2013), the choice of e-reading device (Chatterley, 2010), and the interactive features of e-texts (Landow, 1997; Miall & Dobson, 2001), as important factors in determining learner attitudes and perceptions. The development of theoretical frameworks to explain how e-textbooks affect learning is still at a formative stage, but perspectives provided by connectivism, hypertext theory, and the phenomenology of learning are helpful in identifying issues and forming research questions.

Chapter 3 Theoretical Framework and Design

It was hoped that this study's empirical findings might lead to the formulation of concepts and propositions that could help the managers of e-text initiatives and course instructors provide learners with guidance on how to make the most effective use of e-textbooks, and help publishers create e-textbooks that make the most of a digital reading environment to facilitate learning.

A pragmatic approach, which emphasizes the importance of focusing attention on a research problem and then using pluralistic (i.e. mix methods) approaches to understand and find solutions to the problem, seemed best suited to these kinds of outcomes (Creswell, 2009). For a researcher taking a pragmatic approach, it is appropriate to make use of both quantitative and qualitative research methods if a mixed methods approach promises to provide the best understanding of the research problem. In this case, using a qualitative (interview-based) research method to build on the findings of quantitative (survey-based) research offered a way to add a level of detail, nuance, and understanding about the research problem that neither approach alone could achieve.

While a pragmatic approach to research is not committed to – and does not entail the testing of – any pre-existing theory or system of philosophy, it is not inconsistent with the use of theoretical perspectives to guide the kinds of issues that are explored. In this regard, *hypertext theory* and the *phenomenology of reading* were chosen as alternative perspectives on how learners might derive the most benefit from e-textbooks. Hypertext theory asserts that learners benefit the most from e-texts that are web-like, non-hierarchical, reader-centered, and open to resources outside of the text itself. Phenomenologists who have studied e-textbook use predict that more linear, hierarchical,

author-centred, and self-contained e-texts are likely to produce a more satisfying and productive learner experience. Taking these two perspectives into account, it seemed to make sense to ask if student attitudes are influenced by such things as e-textbook characteristics, the kind of device used to access the text, the level of instructor support, and perhaps other factors identified by learners. It was hoped that learner responses to questions like these might lend greater weight to one of the two perspectives as a model for the design of e-textbooks.

Purpose of the Research: Central Question

Based on the findings and discussion above, the central and sub-questions chosen for this study were as follows.

For mid-career learners enrolled in online graduate courses, how are attitudes to, and engagement with, e-textbooks shaped by the circumstances in which e-textbook use takes place?

Sub-Questions

Five sub-questions were used to explore key aspects of the central question:

1. What attitudes and e-reading experience do mid-career learners bring to on-line studies?

2. What features of e-textbooks support or hinder learning? (e.g. text-only format vs. rich-text that includes illustrations, animation and/or video clips; fixed-format PDF texts vs. free-flowing HTML text; availability of mark-up tools; a closed environment vs. one that provides links to outside resources).

3. In what ways is the experience of using an e-textbook different depending on the kind of e-reading device used? (e.g. desktop, laptop, tablet, e-reader, smart phone).

4. How does instructor guidance – or lack of guidance – regarding how to make best use of an e-textbook affect e-textbook reception and use?

5. What other factors do learners believe play a part in shaping their attitudes and engagement strategies with respect to e-textbooks?

Delimitations

There are two delimitations for this study:

1. The study is confined to mid-career students enrolled in distance education courses at the Master's level at Athabasca University.

2. Participants' responses are confined to their experiences with e-book use in their personal and academic lives.

Limitations

Three limitations are of importance to this study:

1. As this study made use of a convenience sampling in the quantitative phase of the study and a purposeful sampling for the qualitative (interview) phase, the researcher cannot say with confidence that the sample is representative of the overall population (Creswell, 2009). However, in this exploratory study, generalizability was not a primary focus.

2. The study drew 18 of its 25 participants from students in four Nurse Practitioner courses, with the remaining 7 participants drawn from five non-nursing courses. For this reason, the study results may be more representative

of a particular group of students (nurse practitioners) having experienced e-textbooks under a special set of circumstances than of the overall population.

3. Although every effort was made to remove the researcher's biases from the gathering and analysis of the study's qualitative data, the interpretative nature of qualitative research may mean that the researcher introduced his biases into the qualitative data coding. To help limit the effects of bias, a second researcher was asked to review and comment on the qualitative data coding.

Ethical Considerations

This study sought the guidance and approval of the Athabasca University Research Ethics Boards before data collection began. The *Application for Ethical Review* was accompanied by the proposed recruiting letter, consent form, and test instruments for review and approval by the Board.

While this study entailed minimal risks to the researcher and participants, the main ethical issue concerned the protection of the participants' privacy. In particular, recording participant names in order to compare survey and interview data was sensitive, but was addressed by treating personal information in the strictest confidence and taking measures such as password protection for any file containing personal information to prevent unauthorized use. In other words, while anonymity could not be protected, all personal information gathered was kept strictly confidential and separated from the data. Numerical identifiers (e.g. Participant #18) replaced personal names in data analysis documentation, transcripts, or published materials. Digital audio recordings, transcripts, and all other electronic files have been similarly protected. In order to meet the need to

store research data securely, the researcher made arrangements to store all digital files related to the study in password-protected files on a secure computer.

Target Population and Sample

The population of this study was delimited to mid-career learners enrolled in Master's-level courses at Athabasca University that require the use of at least one e-textbook. It is estimated that the total population of such learners at the time of the study was approximately 250.

There were 25 respondents, 18 (72%) female and 7 (28%) male. This representation of men and women is close to their over-all representation in the Faculty of Graduate Studies at Athabasca University (F: 70.5%; M: 29.2%; Undeclared: 0.3%)[9].

Additional details about the sample are provided in *Chapter IV: Results - Results from Phase 1: Demographic Survey*.

Research Methods

The setting for this research was a selection of online graduate courses from several faculties at Athabasca University that prescribed at least one e-textbook as a required course reading. Typically, students in such courses engage in online studies and complete surveys from a work space in their own homes, but may also make use of mobile devices to read e-texts, engage in course work, and respond to survey requests in other locations such as their work place or while commuting. Respondents recruited by means of an open invitation to participate in the research – and who were later selected to participate in interviews – were asked to identify the setting(s) in which they typically read the assigned e-textbook. The demographic survey that accompanied the invitation and the attitudinal survey that was administered shortly thereafter were completed online.

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[9] Reported by Sheldon Krasowski, Research Analyst, OIS, Athabasca University, Sept. 29, 2014.

For respondents who were invited to participate in an interview, the researcher negotiated with them to identify a specific time at which they would be reached by telephone.

Pilot Study

In fall, 2013, the researcher conducted a pilot study to test and refine the research questions and data-gathering instruments, and to identify key words, phrases, and "clusters of meaning" (Creswell, 2007) that might be useful during the qualitative data analysis phase of the thesis research study.

During the pilot study, the central question was essentially the same as in the thesis study:

> *For mid-career learners enrolled in graduate courses, how are attitudes to, and engagement with, e-textbooks shaped by the circumstances in which e-textbook use takes place?*

For the thesis study, the central question was amended to include the word "online" as a modifier for "graduate courses."

The pilot study's central question was accompanied by eight sub-questions:

1. *What attitudes and e-reading experience do mid-career learners bring to on-line studies?*

2. *How do mid-career learners go about reading an e-textbook?*

3. *What features of e-textbooks support or hinder learning?*

4. *Is the experience of using an e-textbook different depending on the kind of e-reading device used?*

5. *Does instructor guidance – or lack of guidance – on how to make best use of an e-textbook affect e-textbook reception and use?*

6. *Are the opinions and strategies of fellow learners influential in forming an individual's attitudes to e-textbooks and approaching their use?*

7. *What other factors do learners believe play a part in shaping attitudes and engagement strategies with respect to e-textbooks?*

8. *Do learner attitudes change – for better or worse – as a result of using an e-textbook?*

For the purposes of the thesis study, these were reduced to five (see p. 37, above) to make data collection and analysis more manageable.

Participants in the pilot study were recruited late in the Fall 2013 term (weeks 9-10 of the 13-week term) entirely by means of a Letter of Invitation posted by five course instructors in their course chatrooms. This proved to be an unproductive way to reach out to students, possibly because so few routinely checked messaging in the various chatrooms. Initiating data gathering so late in the term may also partially explain the very small response rate (3 out of a possible population of 126 in the five courses approached) as students focused on completing major end-of-course assignments. In the thesis study, the researcher sought to remedy these shortcomings by beginning data gathering earlier in the Summer 2014 term (weeks 5-6) and by seeking instructor cooperation in sending the Letter of Invitation directly to each student by email as well as posting it to course chatrooms.

Pilot study data collection took the form of a demographic questionnaire to capture basic information about the test subjects and a free-flowing (semi-structured) interview in which the research questions were used as "prompts" to elicit the test subjects' recall of their e-textbook experience. The demographic questionnaire was delivered as an attachment to an email sent to individuals who responded to the Letter of Invitation. Unlike the subsequent thesis study, the pilot study did not include an attitude survey because it was hoped that the interviews alone would be sufficient for that purpose. The attitude survey was added to the thesis study as a means of obtaining quantitative data on student attitudes to e-textbooks to supplement the qualitative data gathered by means of interviews. Once the completed demographic surveys had been

returned, the researcher arranged a time with each respondent to conduct a telephone interview, with the interview questions provided to the respondents in advance. In addition to the planned interview questions, the interviewer asked questions of clarification when the meaning of a response was not entirely clear or when an answer invited elaboration. However, the interviewer was careful not to express personal opinions that might influence the respondent's answers. A verbatim transcript of each respondent's responses was then prepared.

The pilot study interviews were analyzed manually according to a multi-step process that consisted of: (1) open coding; (2) code definition (preparation of a coding table); (3) axial coding (grouping of codes into higher-level categories); (4) definition of the categories; (5) preparation of a composite description of what the participants had experienced and the context in which it was experienced; and, (6) summarization of the "essence" of the study participants' e-textbook experience.

When it came time to conduct the thesis research, the pilot study proved to be helpful in improving the recruitment process, focusing the research questions, refining the research instruments, and guiding the analysis phase.

Chosen Methodology and Rationale for the Thesis Study

In keeping with the purpose of this study and its pragmatic approach, *a sequential, exploratory, mixed-methods methodology* incorporating both quantitative and qualitative data gathering and analysis methods was chosen for thesis research. Creswell's prescription that a *mixed methods* approach is appropriate when a researcher "seeks to elaborate on or expand on the findings of one method with another method" (2009, p. 14) seemed appropriate in this case. The study used structured one-on-one

interviews and qualitative analysis methods to build on data gathered using a

demographic and an attitudinal survey conducted early in a course, which were analyzed

using quantitative methods. The *sequential* aspect of the study refers to the gathering and

analysis of quantitative and qualitative data at different times – quantitative proceeding

qualitative. It is also important to emphasize the *exploratory* nature of this research. In

exploratory research – as opposed to confirmatory research – the subject is generally very

new with few established explanations of why things occur as they do. That is certainly

the case for mid-career learner use of e-textbooks[10]. As described by Neuman, some of

the reasons for conducting exploratory research are to:

- Become familiar with the basic facts, setting, and concerns
- Create a general mental picture of conditions
- Formulate and focus questions for future research
- Generate new ideas, conjectures, or hypotheses
- Determine the feasibility of conducting research
- Develop techniques for measuring and locating future data

(2011, p. 38)

Neuman's articulation of the reasons for conducting exploratory research was

helpful when it came time to make sense of the data gathered during the research phase.

It is useful to note that exploratory research is often afforded some latitude when it comes

to establishing reliability levels. In an article entitled *Critical thinking, cognitive*

presence, and computer conferencing in distance education, Garrison, Anderson, and

---

[10] Prior research on student use of, and receptiveness to, e-texts gives little attention to mid-career graduate learners. Although under-graduate research provides clues about factors that may play a role in shaping the attitudes and engagement of this study's target group, there currently is little in the literature to "confirm."

Archer (2001) state that "Research that is breaking new ground may go forward with reliability levels somewhat below what is usually expected" (p. 18).

The research steps outlined above are depicted graphically in Figure 3.
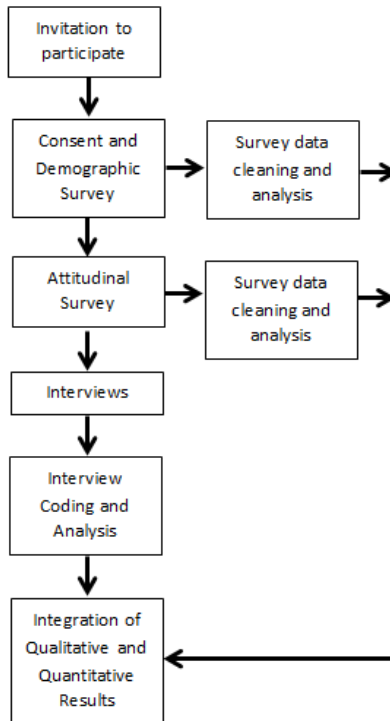
Figure 3. Research Steps Procedural Diagram.

As the study relied on a convenience sample of students in graduate courses that require the use of e-textbooks, an effort was made to find out if students who did NOT participate in the study were different in any significant way from those who did. Assistance was sought from course instructors to identify a few individuals who did not participate in the study in order to ascertain if they had any particular reason for not participating. However, although 3 of the 9 professors involved issued invitations to non-participants to contact the researcher, no responses were received. In addition, the preamble to the Demographic Questionnaire (see *Appendix 2: Demographic Questionnaire and Consent to Participate*) included the following invitation: "You are

also free to discontinue your participation in this study at any time, for any reason. However, if you ***do not*** want to participate, it would be helpful for study validation purposes if you would briefly provide your reason(s) for not participating by sending an email to the researcher." No responses to this invitation were received.

Research Challenges

Recruiting a sufficient number of participants (all interested respondents for the quantitative stage and approximately 20 for the interview stage of the research) was a particular challenge as this entailed requesting time from busy mid-career learners who typically have employment and family obligations in addition to their studies. Four strategies were implemented in an effort to overcome this barrier:

- the Letter of Invitation was issued during weeks 5-6 of the 13-week summer term in an effort to engage respondents before their course work-loads became too heavy, but allowing enough time for them to become familiar with their course e-textbook;

- the invitation to participate in the study characterized it as an opportunity to share personal experiences and attitudes arising from the required used of an e-textbook, emphasized its pioneering nature, and underlined the potential value of the outcomes to other students and the University as the e-Text Initiative is gradually implemented;

- every effort was made to keep the survey and interviews as succinct as possible to limit the amount of time demanded of respondents. No more than 5 minutes of respondent time was required to complete the demographic survey, 10 minutes for the attitudinal survey, and 30 minutes for the interview

(for a total of about 45 minutes in three events for those who were

interviewed; for those who were not interviewed, the time commitment was

about 15 minutes). None of the participants expressed any concern about the

time commitment; and

- a promise was made to share a summary of the final results with any

  interested participant.

Measures

Three measures were employed to gather data: an Internet-based demographic

survey; an Internet-based attitude survey; and a 10-question interview conducted with

selected individuals by telephone.

The purpose of the demographic survey (see *Appendix 2: Demographic*

Questionnaire and Consent to Participate) was to gather basic demographic information

about each respondent which could be used during the analysis phase to explore how

factors such as gender, age, language, previous use of e-textbooks, and computing device

ownership might be related to attitudes and e-text usage strategies. A paper version of the

demographic survey was tested during the pilot study. As no issues related to the

demographic survey arose during the pilot and the survey provided an adequate basis for

analysis, the questions were used again, without change, in the thesis study. However, in

a departure from the approach used in the pilot study, thesis study respondents went

online to complete surveys created using LimeSurvey. This approach simplified and

sped up the process for respondents and made it possible for the researcher to track

results as they were received.

The attitude survey (see *Appendix 3: Attitude Survey*) was used to generate Likert

scale data regarding the respondents' existing attitudes to e-textbooks. The survey was a

modified version of one used by Revelle, Messner, Shrimplin, & Hurst (2011) to quantify

student adherence to four clusters of opinions on e-books that had been identified in a

previous study (Shrimplin, Revelle, Hurst, & Messner, 2011). The survey of

undergraduate students, graduate students, and faculty at Miami University (N=1,135)

took the form of 13 statements, each expressing an opinion about the experience of using

hardcopy or e-textbooks. Students responded to each statement using a 5-point Likert

scale ranging from "strongly agree" to "strongly disagree". The extent to which

respondents agreed or disagreed with the statements was used to classify them by opinion

type. The attitude survey used in the thesis study used six of the thirteen Revelle et. al

(2011) statements essentially unchanged (see Table 3, Qs 1,3,5,7, 9,11), adding 14 others

using a similar statement style arising from the thesis study's central and sub-questions.

Table 3

Survey Questions Used to Classify Respondents by Opinion Type

Q1	There is just something about sitting down and actually reading a physical book.
Q2	I personally think having e-books would defeat the purpose of having a physical library.
Q3	I do not really see a downside to e-books.
Q4	I love that about e-text, that I can do text search.
Q5	There are times when it is beneficial to have a paper book, so that I can write on it, or view it anywhere.
Q6	It is hard when there is only one copy of a print book and someone else has it; if everything was online then that would not be a problem and everyone could have access to it.
Q7	I do not like to just read stuff online; I have to print it. So e-books would be good if you could print the stuff out that you needed.
Q8	Electronically, I can go back and forth a lot faster. My intellectual process flows more smoothly with the electronic copy.
Q9	Reading off a monitor is just as easy as reading off paper; it would be great for me.
Q10	There are certain books that I have passed by, because there was not an electronic resource of it, because I did not want to tote another thing in my bag.
Q11	I find that when I am reading material on a computer, I absorb it less. I print it so I can absorb more info and refer to multiple articles at the same time.
Q12	I am not comfortable reading e-books online.
Q13	When it comes to my leisure reading, I will probably want to have the actual book.

The third measure, a free-flowing (semi-structured) 10-question interview (see *Appendix 4: Interview Questions*) was used to elicit the test subjects' recall of their e-textbook experience in order to build on the findings of the demographic and attitude surveys. The interview questions were tested during the pilot study and used again, without change, in the thesis study.

Quantitative data collection and analysis

The quantitative phase of this research was used to gather personal information about each respondent and to generate Likert scale data regarding the respondents' existing attitudes to e-textbooks. When data collection was complete, LimeSurvey data were converted into Microsoft Excel format, then imported into SPSS software for detailed analysis.

Quantitative data analysis in support of the five sub-questions was as follows:

1. *What attitudes and e-reading experience do mid-career learners bring to on-line studies?*

   The results of the demographic survey were used in conjunction with the attitude survey and interviews to enable a break-down of participants and results by gender, previous exposure to e-textbooks, and principal e-reading device. The attitude survey generated numerical (Likert scale) data regarding respondent attitudes and e-textbook usage patterns. This data was then examined using SPSS analysis tools, which included univariate measures (non-parametric) such as frequency distributions, measures of central tendency (mean, median and mode), and measures of variation (spread, dispersion and variability).

2. *What features of e-textbooks support or hinder learning?*

   Quantitative data with a bearing on this question were drawn from the attitude survey, which generated numerical data regarding respondent attitudes to various aspects of e-textbook usage. Particularly useful in this regard was Pearson correlation analysis that looked for statistically significant correlations between respondent answers to each attitude survey question and all of the others.

3. *In what ways is the experience of using an e-textbook different depending on the kind of e-reading device used?*

   Data regarding the number of respondents who owned each type of e-reading device were collected by the demographic survey. During the interviews, respondents were asked to identify which device they considered their primary means of accessing the course e-textbook. It was then possible to correlate respondent attitudes to e-textbooks to their favoured device.

4. *How does instructor guidance – or lack of guidance – regarding how to make best use of an e-textbook affect e-textbook reception and use?*

   One of the attitude survey questions ("I feel I have received adequate guidance from my instructor on how to use the course e-textbook") generated quantitative data that could be compared with responses to a similar question asked during the one-on-one interviews ("Did instructor guidance on how to make best use of an e-textbook affect your e-textbook reception and use?"). It was then possible to correlate data on instructor involvement with attitudes to e-textbooks.

5. *What other factors do learners believe play a part in shaping attitudes and engagement strategies with respect to e-textbooks?*

As described above, quantitative data generated by the attitude survey was compared with interview-based qualitative data.

Qualitative data collection and analysis

The qualitative phase of this research – 23 telephone interviews employing 10 open-ended questions – captured what respondents had to say about their e-textbook experience. As in the Pilot Study, the researcher asked supplementary questions when the meaning of a response was not entirely clear or invited elaboration, but was careful not to express personal opinions that might influence the respondent's answers. None of the respondents refused to answer any of the questions, and none questioned the appropriateness of any of the prepared or follow-up questions. Each interview was recorded and a verbatim transcript prepared.

As in the pilot study, data analysis employed coding and analysis methods designed to enhance the interview data as described below. However, rather than using manual coding and analysis methods for the thesis study, the researcher used ATLAS.ti qualitative data analysis software for this purpose. The researcher went through each of the transcripts multiple times, highlighting key phrases, sentences, and paragraphs, assigning each highlighted selection to one or more codes (see *Appendix 15: Coded Document Sample*), and making adjustments as his understanding of the interview texts deepened. This is in keeping with the notion that coding and analysis are iterative processes in which multiple readings, thoughtful consideration of the meaning behind words, phrases, or statements, and constant search for connections and higher-order

meanings lead gradually to generalizations that may form the basis for new perspectives or theory (Saldana, 2009). Useful guidance on how to conduct transcript coding was also provided by Pat Fahy (2001) and Rourke, Anderson, Garrison, and Archer (2001), with both studies providing advice on appropriate text elements (e.g. words, sentences, ideas, etc.) that can serve as a basis for systematic coding. In this study, sentences and paragraphs were chosen most often as coding units because they were the most likely to express complete ideas.

The interviews were analyzed according to a multi-step process:

1. The researcher used ATLAS.ti's code assignment tool to mark what he felt were significant statements, sentences, or quotes regarding each participant's e-textbook experience. This process was repeated several times to ensure consistency in coding among the 23 interviews and to make adjustments based on increasing understanding of the participants' responses (see *Appendix 7: Sample ATLAS.ti Coding Page*). As each new code was assigned, the researcher wrote a preliminary definition/explanation/commentary in the notes field provided by ATLAS.ti (see *Appendix 8: Sample ATLAS.ti Code Manager*). In some instances, a more general memo was written to capture ideas that might guide further analysis or be included in the paper's Conclusions and Recommendations section;

2. The codes were refined by renaming some of them to better reflect their meaning and by merging overlapping or similar codes (see *Appendix 6: Merging of Codes*). Further, some of the consolidated codes were grouped

to develop thematic "clusters of meaning" (Creswell, 2007) – "families" in

ATLAS.ti parlance (axial coding – see *Appendix 9: Consolidation of Codes*

and Clusters);

3. The researcher clarified the meaning of each of the resulting codes and

cluster by writing a succinct description accompanied by a code definition

and a representative statement or statements taken from the interview

transcripts. The frequency with which each code/cluster appeared was also

noted;

4. The researcher grouped the codes and clusters into several high-level

themes that captured the essence of the respondents' collective experience

with e-textbooks and wrote a definition of each theme;

5. The researcher made use of ATLAS.ti's analysis tools (in particular, the

Query Tool and the *Code Co-occurrence Explorer*) to explore possible

relationships between the ways in which respondents who answered one of

the questions in a particular way typically responded to other questions; and

6. The researcher commented on the outcomes of the coding and analysis

process.

Summary

In summary, this study used a pragmatic, mixed-methods research approach in

seeking to build understandings of how mid-career learners enrolled in graduate-level

courses engage with e-textbooks by capturing the attitudes, perceptions, and behaviours

of a convenience sample of such learners. To explore the central question (For mid-career

learners enrolled in online graduate courses, how are attitudes to, and engagement with,

e-textbooks shaped by the circumstances in which e-textbook use takes place?) and five

sub-questions, the researcher employed a sequential, exploratory, mixed-methods

approach incorporating both quantitative and qualitative data gathering and analysis

methods. Quantitative data gathering took the form of a demographic survey and an

attitude survey, which were used to gather personal information about each respondent

and to generate Likert scale data regarding the respondents' existing attitudes to e-

textbooks. The quantitative data from the two surveys were combined and analyzed using

SPSS software. Qualitative data were collected by means of 23 telephone interviews

employing 10 open-ended questions. The researcher used ATLAS.ti qualitative data

analysis software to code and assist in the analysis of verbatim transcripts of the

interviews.

Chapter 4 Results

Results from Phase 1: Demographic Survey

A full set of Demographic Survey statistics and graphics is included in Appendix 10. To summarize, there were 25 respondents, 18 (72%) female and 7 (28%) male. The representation of men and women was close to their over-all representation in the Faculty of Graduate Studies at Athabasca University (F: 70.5%; M: 29.2%; Undeclared: 0.3%). The respondents ranged in age from 28 to 55.

Table 4

Descriptive Statistics: Respondent Ages and Quartiles

N	Valid	25
	Missing	2
Mean		39.28
Std. Error of Mean		1.640
Median		39.00
Mode		42
Std. Deviation		8.198
Variance		67.210
Range		27
Minimum		28
Maximum		55

Q1: 31.5 Q2: 38.0 Q3: 46.5

28 28 29 29 30 30 33 34 35 36 36 38 39 39 42 42 42 44 45 48 49 49 50 52 55
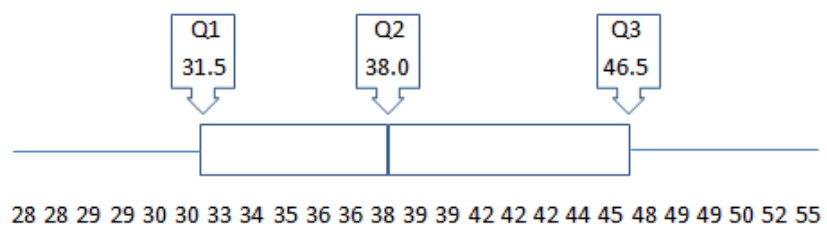
This age range fit well with the definition of mid-career learners as individuals in approximately the 30-55 age range who are already in the workforce and embrace distance learning as a means of acquiring advanced credentials or to embark on studies leading to a career change. In keeping with this definition, 13 (52%) of the respondents reported being employed full-time, 10 (40%) part-time, and only 2 (8%) were unemployed. The two who reported being unemployed were both in the youngest age range, one 28, the other 30 – although both had been employed full time as nurses before returning to school.

All respondents reported being able to read English "Well" or "Very Well," although 1 reported that English was not her first language (Chinese).

All but 2 students reported having used an e-textbook in at least one course prior to their current course, with a mean of 1.96 e-textbooks used, a median value of 2, and a maximum of 4.

In response to the question "How would you characterize your enrolment," 16 respondents (64%) reported being part-time students, and 9 (36%) reported being full-time students.

Most of the students who responded to the survey had completed a number of Master's-level courses prior to the beginning of their current course. Only two of the respondents had not previously taken a Master's-level course. On average, the respondents had taken 6.76 courses, with a median of 7.

Among the 25 respondents, e-reading device ownership was reported as follows:

Table 5

Descriptive Statistics: E-Reading Device Ownership

Device	Frequency	Percent
Laptop	23	92%
Smart phone	20	80%
Desktop	12	48%
iPad	12	48%
Other Tablet	6	24%
e-Reader	6	24%

While all but one respondent reported trying to use more than one kind of e-reading device to access their e-textbook, most said in the interviews that they tended to use only one of their devices for that purpose. Laptop computers were most often identified as the preferred platform (10 out of 23 students interviewed), with iPads and

Desktops each identified by 6 interviewees as their preferred platform. Although 20

respondents reported having a smart phone, only one indicated that it was the device used

most often to access e-textbooks.

Results from Phase 2: Attitude Survey

Answers to the Survey Questions: The results of the attitude survey were as

indicated in *Table 6: Responses to Attitude Survey Questions*.

Table 6

Responses to Attitude Survey Questions

Statement	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Total
1. I am comfortable with computer technology.	1 4%	0 0%	0 0%	1 4%	0 0%	5 20%	18 72%	25 100%
2. There is just something I like about sitting down and actually reading a physical text book.	0 0%	1 4%	0 0%	2 8%	3 12%	4 16%	15 60%	25 100%
3. I do not really see a downside to e-textbooks.	8 32%	6 24%	8 32%	1 4%	0 0%	1 4%	1 4%	25 100%
4. I do not like to read text on screen.	3 12%	1 4%	2 8%	0 0%	2 8%	7 28%	10 40%	25 100%
5. I love that I can do text searches in e-textbooks.	4 16%	0 0%	4 16%	5 20%	7 28%	3 12%	5 20%	25 100%
6. Given my preference, I would choose a paper textbook over an e-textbook.	4 16%	2 8%	0 0%	2 8%	0 0%	6 24%	14 56%	25 100%
7. Reading off a monitor is just as easy as reading off paper.	13 52%	3 12%	4 16%	0 0%	1 4%	3 12%	1 4%	25 100%
8. When I am reading material on a computer, I absorb it less.	1 4%	4 16%	0 0%	1 4%	1 4%	9 36%	9 36%	25 100%

9.	I like to print out parts of the e-textbooks for my courses and use the printed text as an ongoing reference.	4 16%	7 28%	0 0%	2 8%	2 8%	5 20%	5 20%	25 100%
10.	I find that hyperlinks to additional information help me learn.	1 4%	3 12%	3 12%	5 20%	2 8%	10 40%	1 4%	25 100%
11.	The portability of e-textbooks is a real advantage for me.	5 20%	3 12%	2 8%	3 12%	6 24%	1 4%	5 20%	25 100%
12.	I find that I learn more when I read a printed textbook.	0 0%	3 12%	0 0%	1 4%	2 8%	7 28%	12 48%	25 100%
13.	I find that hyperlinks to additional information disrupt learning.	2 8%	7 28%	5 20%	6 24%	2 8%	3 12%	0 0%	25 100%
14.	I feel I have received adequate guidance from my instructor on how to use the course e-textbook.	7 28%	7 28%	2 8%	4 16%	1 4%	2 8%	2 8%	25 100%
15.	I can't highlight text or make marginal notes in an e-textbook as easily as in a printed text.	0 0%	2 8%	1 4%	4 16%	1 4%	10 40%	7 28%	25 100%
16.	The convenience of cutting and pasting passages from an e-textbook is important to me.	4 16%	7 28%	5 20%	2 8%	2 8%	4 16%	1 4%	25 100%
17.	I am concerned that I won't have access to my e-textbook(s) if I have computer or internet problems.	1 4%	1 4%	2 8%	2 8%	2 8%	7 28%	10 40%	25 100%
18.	It was easy to access and download the e-textbook for this course.	2 8%	4 16%	4 16%	5 20%	3 12%	4 16%	3 12%	25 100%

19. My perception is that it is easy to use e-textbooks.	7 28%	5 20%	4 16%	1 4%	3 12%	4 16%	1 4%	25 100%
20. I would not hesitate to recommend e-textbooks to my friends.	8 32%	9 36%	4 16%	1 4%	0 0%	2 8%	1 4%	25 100%

To summarize key results of the survey:

- To the statement "I am comfortable with computer technology", 92% strongly agreed (72%) or agreed (20%).

- To the statement "There is just something I like about sitting down and actually reading a physical text book", 88% strongly agreed (60%), agreed (16%) or somewhat agreed (12%). The attraction to printed text books was confirmed by the responses to a second statement: "Given my preference, I would choose a paper textbook over an e-textbook". 80% strongly agreed (56%) or agreed (24%) with that statement.

- As might be expected from the strong preference expressed for printed textbooks, statements that expressed a preference for e-textbooks drew a mainly negative response. To the statement "I do not really see a downside to e-textbooks", 88% strongly disagreed (32%), disagreed (24%), or somewhat disagreed (32%). This was supported by responses to a second statement, "My perception is that it is easy to use e-textbooks", to which 64% strongly disagreed (28%), disagreed (20%), or somewhat disagreed (16%).

- 77% "do not like to read text on screen", of which 40% strongly agreed, 28% agreed, and 8% somewhat agreed. A counter-balancing statement ("Reading off a monitor is just as easy as reading off paper"), brought an almost precisely

opposite response: 80% strongly <u>dis</u>agreed (52%), disagreed (12%), or somewhat

disagreed (16%). These paired responses suggest that a key reason that the

respondents do not like e-textbooks is that they find it more difficult to read on-

screen text than text on paper due to such things as eye strain and difficulties in

understanding what is read (see next bullet).

- Another reason that respondents don't like reading on screen is indicated in

  responses to the statement "When I am reading material on a computer, I absorb it

  less." 76% strongly agreed (36%), agreed (36%), or somewhat agreed (4%) with

  that statement. A counter-balancing response confirmed the respondents'

  opinions about absorbing information read on screen. The statement "I find that I

  learn more when I read a printed textbook" found 84% in strong agreement

  (48%), agreement (28%), or agreement to some extent (8%).

- The respondents were almost equally divided in responding to the statement: "I

  like to print out parts of the e-textbooks for my courses and use the printed text as

  an ongoing reference." 48% agreed to some extent with this statement, while

  44% <u>dis</u>agreed to some extent – with 8% remaining neutral or not responding.

- Concerning affordances of e-textbooks that set them apart from print texts, the

  group was lukewarm at best and often doubtful. On the positive side:

  - *Text searching*: to the statement "I love that I can do text searches in e-

    textbooks", 60% strongly agreed (20%), agreed (12%), or somewhat

    agreed (28%);

  - *Hyperlinks*: to the statement "I find that hyperlinks to additional

    information help me learn", 52% strongly agreed (4%), agreed (40%), or

somewhat agreed (8%). This was supported by responses to the counter-
balancing statement "I find that hyperlinks to additional information
disrupt learning", to which 56% strongly <u>dis</u>agreed (8%), disagreed (28%),
or somewhat disagreed (20%). In the case of the positively-worded
statement, 20% of the respondents were neutral, compared with 24% in
the case of the negatively-worded statement;

Respondents were more negative about the following e-textbook affordances:

- *Portability*: to the statement the statement "The portability of e-textbooks
  is a real advantage for me", 52% strongly <u>dis</u>agreed (20%), disagreed
  (12%), somewhat disagreed (8%), or were neutral (12%);

- *Cutting and pasting:* to the statement "The convenience of cutting and
  pasting passages from an e-textbook is important to me", 72% strongly
  <u>dis</u>agreed (16%), disagreed (28%), somewhat disagreed (20%), or were
  neutral (8%);

- *Highlighting and mark-up*: to the statement "I can't highlight text or
  make marginal notes in an e-textbook as easily as in a printed text", 72%
  strongly agreed (28%), agreed (40%), or somewhat agreed (4%);

- *Access*: concerns about lack of connectivity was expressed by 76% of the
  respondents who responded to the statement "I am concerned that I won't
  have access to my e-textbook(s) if I have computer or internet problems"
  by strongly agreeing (40%), agreeing (28%), or somewhat agreeing (8%).

- The group had a mixed experience with the initial downloading of their e-
  textbooks. In response to the statement "It was easy to access and download the

e-textbook for this course," 40% strongly <u>dis</u>agreed (8%), disagreed (16%), or

somewhat disagreed (16%), while the same percentage – 40% – strongly agreed

(12%), agreed (16%), or somewhat agreed (12%). Twenty percent were neutral

regarding the statement.

- Regarding the statement "I feel I have received adequate guidance from my

   instructor on how to use the course e-textbook", 64% strongly <u>dis</u>agreed (28%),

   disagreed (28%), or somewhat disagreed (8%). A further 16% were neutral

   regarding the statement, which is consistent with interview results that indicate

   some students didn't know if help had been on offer or doubted that help was

   needed.

- Regarding the final statement on the Attitude Survey, "I would not hesitate to

   recommend e-textbooks to my friends", 84% strongly <u>dis</u>agreed (32%), disagreed

   (36%), or somewhat disagreed (16%), with only 12% saying they strongly agreed

   (4%) or agreed (8%). Four percent were neutral.

   Correlations among Answers to the Survey Question: To further explore

relationships that might exist between the answers to the 20 attitude questions (i.e. was

the response to one question positively or negatively correlated to the responses to other

questions), the researcher ran a Pearson correlation test, which measures how much two

variables change together. If the greater values of one variable mainly correspond with

greater values of the other variable, the covariance is positive. If greater values of one

variable mainly correspond to smaller values of the other, the covariance is negative. The

results are presented in full in *Table 7: Correlations Among Attitudes*.

Table 7: *Correlations Among Attitudes*

		Comfortable with computers	Just something about a physical book	No downsides to eTexts	Don't like to read text on screen	Love text searches	Preference for paper textbooks	Reading off monitor easy	Absorb less from a computer	I like to print parts of eTexts	Hyperlinks help me learn	eText portability is an advantage	Learn more from printed texts	Hyperlinks disrupt learning	Adequate guidance from instructor	Highlights and notes harder with eText	Cut and paste from eTextbook important	Concern about access	Access and downloading easy	Easy to use eTexts	Would recommend eTexts
Comfortable with computers	Pearson Correlation	1	-.103	.065	.229	.020	.249	-.174	.304	.030	-.190	-.009	.306	.151	-.204	-.176	-.257	.236	-.228	-.089	-.258
	Sig. (2-tailed)		.623	.758	.271	.924	.231	.407	.139	.885	.363	.967	.137	.471	.328	.400	.216	.257	.273	.673	.213
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Just something about a physical book	Pearson Correlation	-.103	1	-.572	.520	-.327	.683	-.416	.236	.323	-.327	-.326	.628	.353	-.369	.524	-.386	.197	-.144	-.280	-.579
	Sig. (2-tailed)	.623		.003	.008	.111	.000	.039	.257	.116	.111	.112	.001	.083	.070	.007	.056	.346	.493	.175	.002
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
No downsides to eTexts	Pearson Correlation	.065	-.572	1	-.603	.360	-.778	.823	-.314	-.146	.419	.611	-.770	-.480	.573	-.380	.627	-.228	.401	.746	.827
	Sig. (2-tailed)	.758	.003		.001	.077	.000	.000	.126	.485	.037	.001	.000	.015	.003	.061	.001	.274	.047	.000	.000
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Don't like to read text on screen	Pearson Correlation	.229	.520	-.603	1	-.412	.723	-.655	.301	.150	-.222	-.421	.749	.242	-.395	.085	-.424	.178	-.527	-.559	-.651
	Sig. (2-tailed)	.271	.008	.001		.041	.000	.000	.144	.476	.285	.036	.000	.244	.051	.686	.035	.396	.007	.004	.000
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Love text searches	Pearson Correlation	.020	-.327	.360	-.412	1	-.494	.300	-.037	-.097	.229	.645	-.448	-.362	.197	.072	.495	-.075	.202	.354	.458
	Sig. (2-tailed)	.924	.111	.077	.041		.012	.145	.859	.646	.270	.000	.025	.075	.345	.733	.012	.720	.334	.082	.021
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Preference for paper textbooks	Pearson Correlation	.249	.683	-.778	.723	-.494	1	-.716	.445	.327	-.443	-.684	.928	.566	-.539	.259	-.694	.422	-.346	-.612	-.911
	Sig. (2-tailed)	.231	.000	.000	.000	.012		.000	.026	.110	.027	.000	.000	.003	.005	.210	.000	.035	.091	.001	.000
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Reading off monitor easy	Pearson Correlation	-.174	-.416	.823	-.655	.300	-.716	1	-.507	-.230	.444	.482	-.776	-.292	.643	-.213	.581	-.331	.496	.812	.795
	Sig. (2-tailed)	.407	.039	.000	.000	.145	.000		.010	.268	.026	.015	.000	.157	.001	.308	.002	.106	.012	.000	.000
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Absorb less from a computer	Pearson Correlation	.304	.236	-.314	.301	-.037	.445	-.507	1	.520	-.256	-.294	.411	.379	-.226	.274	-.430	.430	.095	-.304	-.372
	Sig. (2-tailed)	.139	.257	.126	.144	.859	.026	.010		.008	.217	.153	.041	.061	.277	.185	.032	.032	.653	.140	.067
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
I like to print parts of eTexts	Pearson Correlation	.030	.323	-.146	.150	-.097	.327	-.230	.520	1	.046	-.097	.283	.059	-.220	.080	-.022	.146	.339	-.006	-.211
	Sig. (2-tailed)	.885	.116	.485	.476	.646	.110	.268	.008		.828	.643	.171	.779	.290	.705	.916	.487	.098	.979	.311
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Hyperlinks help me learn	Pearson Correlation	-.190	-.327	.419	-.222	.229	-.443	.444	-.256	.046	1	.350	-.406	-.265	.578	-.351	.675	-.300	.128	.573	.519
	Sig. (2-tailed)	.363	.111	.037	.285	.270	.027	.026	.217	.828		.087	.044	.201	.002	.085	.000	.145	.542	.003	.008
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25

eText portability is an advantage	Pearson Correlation	-.009	-.326	.611**	-.421*	.645**	-.684**	.482*	-.294	-.097	.350	1	-.564**	-.600**	.337	-.173	.647**	-.381	.235	.468*	.619**
	Sig. (2-tailed)	.967	.112	.001	.036	.000	.000	.015	.153	.643	.087		.003	.002	.100	.407	.000	.060	.257	.018	.001
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Learn more from printed texts	Pearson Correlation	.306	.628**	-.770**	.749**	-.448*	.928**	-.776**	.411*	.283	-.406*	-.564**	1	.448*	-.657**	.165	-.696**	.255	-.360	-.706**	-.927**
	Sig. (2-tailed)	.137	.001	.000	.000	.025	.000	.000	.041	.171	.044	.003		.025	.000	.432	.000	.218	.077	.000	.000
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Hyperlinks disrupt learning	Pearson Correlation	.151	.353	-.480*	.242	-.362	.566**	-.292	.379	.059	-.265	-.600**	.448*	1	-.367	.398*	-.529**	.375	-.125	-.386	-.438*
	Sig. (2-tailed)	.471	.083	.015	.244	.075	.003	.157	.061	.779	.201	.002	.025		.071	.049	.007	.065	.552	.056	.029
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Adequate guidance from instructor	Pearson Correlation	-.204	-.369	.573**	-.395	.197	-.539**	.643**	-.226	-.220	.578**	.337	-.657**	-.367	1	-.183	.607**	-.093	.127	.614**	.637**
	Sig. (2-tailed)	.328	.070	.003	.051	.345	.005	.001	.277	.290	.002	.100	.000	.071		.381	.001	.658	.545	.001	.001
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Highlights and notes harder with eText	Pearson Correlation	-.176	.524**	-.380	.085	.072	.259	-.213	.274	.080	-.351	-.173	.165	.398*	-.183	1	-.242	.280	-.036	-.269	-.234
	Sig. (2-tailed)	.400	.007	.061	.686	.733	.210	.308	.185	.705	.085	.407	.432	.049	.381		.244	.175	.866	.193	.261
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Cut and paste from eTextbook important	Pearson Correlation	-.257	-.386	.627**	-.424*	.495*	-.694**	.581**	-.430*	-.022	.675**	.647**	-.696**	-.529**	.607**	-.242	1	-.354	.209	.629**	.759**
	Sig. (2-tailed)	.216	.056	.001	.035	.012	.000	.002	.032	.916	.000	.000	.000	.007	.001	.244		.082	.316	.001	.000
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Concern about access	Pearson Correlation	.236	.197	-.228	.178	-.075	.422*	-.331	.430*	.146	-.300	-.381	.255	.375	-.093	.280	-.354	1	-.440*	-.231	-.325
	Sig. (2-tailed)	.257	.346	.274	.396	.720	.035	.106	.032	.487	.145	.060	.218	.065	.658	.175	.082		.028	.267	.112
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Access and downloading easy	Pearson Correlation	-.228	-.144	.401*	-.527**	.202	-.346	.496*	.095	.339	.128	.235	-.360	-.125	.127	-.036	.209	-.440*	1	.481*	.402*
	Sig. (2-tailed)	.273	.493	.047	.007	.334	.091	.012	.653	.098	.542	.257	.077	.552	.545	.866	.316	.028		.015	.047
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Easy to use eTexts	Pearson Correlation	-.089	-.280	.746**	-.559**	.354	-.612**	.812**	-.304	-.006	.573**	.468*	-.706**	-.386	.614**	-.269	.629**	-.231	.481*	1	.712**
	Sig. (2-tailed)	.673	.175	.000	.004	.082	.001	.000	.140	.979	.003	.018	.000	.056	.001	.193	.001	.267	.015		.000
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Would recommend eTexts	Pearson Correlation	-.258	-.579**	.827**	-.651**	.458*	-.911**	.795**	-.372	-.211	.519**	.619**	-.927**	-.436*	.637**	-.234	.759**	-.325	.402*	.712**	1
	Sig. (2-tailed)	.213	.002	.000	.000	.021	.000	.000	.067	.311	.008	.001	.000	.029	.001	.261	.000	.112	.047	.000	
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Among the highlights of the Pearson Correlations are these:

- The more students agreed with the statement *There is just something I like about sitting down and actually reading a physical text book*, the *more likely* they were to choose a paper textbook over an e-textbook ($r = .683$, $p = .000$) and the *less likely* they were to recommend e-textbooks to their friends ($r = -.579$, $p = .002$).

- The more students agreed with the statement *I do not like to read text on screen*, the *more likely* they were to report learning more when reading a printed textbook ($r = .749$, $p = .000$), and preferring paper textbooks over e-textbooks ($r = .723$, $p = .000$); and the *less likely* they were to recommend e-textbooks to their friends ($r = -.651$, $p = .000$).

- The more students agreed with the statement *Reading off a monitor is just as easy as reading off paper*, the *more likely* they were to see few downsides to e-textbooks ($r = .823$, $p = .000$), report finding it easy to use e-textbooks ($r = .812$, $p = .000$), and being prepared to recommend e-textbooks to their friends ($r = .795$, $p = .000$); and the *less likely* they were to report finding that they learn more when reading a printed textbook ($r = -.776$, $p = .000$), or to choose a paper textbook over an e-textbook if given a choice ($r = -.716$, $p = .000$).

- The more students agreed with the statement *When I am reading material on a computer, I absorb it less*, the *more likely* they were to print out parts of their e- textbooks ($r = .520$, $p = .008$), and choose a paper textbook over an e-textbook given the opportunity ($r = .445$, $p = .026$); and the *less likely* they were to agree that reading off a monitor is just as easy as reading off paper ($r = -.507$, $p = .010$).

- The more students agreed with the statement *I feel I have received adequate guidance from my instructor on how to use the course e-textbook*, the *more likely* they were to feel that reading off a monitor is easy ($r = .643$, $p = .001$), recommend e- textbooks to their friends ($r = .637$, $p = .001$), and perceive that it is easy to use textbooks ($r = .614$, $p = .001$); and the *less likely* they were to find that they learn more when reading a printed textbook ($r = -.657$, $p = .000$), or choose a paper textbook over an e- textbook ($r = -.539$, $p = .005$).

- The more students agreed with the statement *I would not hesitate to recommend e-textbooks to my friends*, the *more likely* they were to see few downsides to e-textbooks ($r = .827$, $p = .000$), find reading off a monitor as easy as reading off paper ($r = .795$, $p = .000$), and having received adequate guidance from their instructor on how to use the course e-textbook ($r = .637$, $p = .001$); and the *less likely* they were to report learning more when reading a printed textbook ($r = -.927$, $p = .000$), preferring paper textbooks over e-textbooks ($r = -.911$, $p = .000$), or not liking to read text on screen ($r = -.651$, $p = .000$).

The correlation results also indicate that students who expressed positive attitudes regarding e-textbook affordances such as hyperlinking, text searches, portability, text highlighting, or cutting and pasting were also likely to be positive about e-textbooks in general and to be more likely to recommend e-textbooks to friends.

Testing for Differences Based on Gender, Age, and Device

When data from the demographic and attitude surveys were combined, it became possible to test for differences in the ways that male and female respondents, respondents in different age groups, and respondents using different kinds of computing devices answered the questions.

Differences based on gender. In exploring the relationship between gender and the way questions were answered, both a *t*-test (parametric) and a Mann-Whitney *U* test (non-parametric) were used. Both tests identified four attitude statements for which the responses were statistically significantly different for males and females, as indicated in *Table 8: Differences Based on Gender.*

Table 8:

Differences Based on Gender.

Statement	t-test (parametric)	Mann-Whitney U
When I am reading material on a computer, I absorb it less	M (female) = 6.06 M (male) = 3.86 t = 2.313(7.728) p = .050	U = 30.0 p = .047
I like to print out parts of the e-textbooks for my courses and use the printed text as an ongoing reference	M (female) = 4.67 M (male) = 2.14 t = 2.488(11.14) p = .03	U = 30.0 p = .047
I find that hyperlinks to additional information disrupt learning	M (female) = 3.72 M (male) = 2.00 t = 3.312(22.05) p = .003	U = 24.0 p = .017
I can't highlight text or make marginal notes in an e-textbook as easily as in a printed text	M (female) = 6.06 M (male) = 4.14 t = 3.047(9.67) p = .013	U = 19.0 p = .006

Differences based on age group. To explore relationships that might exist between the age of the participants and their answers to the 20 attitude questions, a Pearson correlation test was used to measure how much the two variables change together. The statistically significant results are presented in *Table 7: Correlations Between Age and Attitudes*. The correlation test identified two statistically significant correlations. For the negatively worded statement "I do not like to read text on screen" respondents were more likely to agree with the statement as age increased. For the positively worded statement "It was easy to access and download the e-textbook for this course", respondents were also more likely to agree with the statement as age increased.

Table 9:

Significant Correlations Between Age and Attitudes

Statement	Correlation	Age
Don't like to read text on screen	Pearson Correlation Sig. (2-tailed) N	-.458[*] .021 25
Access and downloading easy	Pearson Correlation Sig. (2-tailed) N	.461[*] .020 25

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Differences based on device. To explore the relationship between the kind of computing device used and the way questions were answered, a Mann-Whitney *U* test (non-parametric) was used. Complete results are presented in *Appendix 12: Differenced based on computing device*. Significant results are summarized in *Table 10: Differences Based on Device*.

Table 10:

Differences Based on Device.

Device	Statement	Mann-Whitney *U Test*
Desktop computers	I can't highlight text or make marginal notes in an e-textbook as easily as in a printed text.	$U = 43.0$ $p = .044$
Non-iPad tablets	When I am reading material on a computer, I absorb it less.	$U = 25.5$ $p = .033$
e-Readers	I find that I learn more when I read a printed textbook.	$U = 28.5$ $p = .048$

e-Readers	I feel I have received adequate guidance from my instructor on how to use the course e-textbook.	$U = 19.0$ $p = .013$

For users of laptops, iPads, and SmartPhones, there were no statistically

significant differences in attitude scores based on device used.

Testing for Differences Based on Previous Experience

The demographic survey asked respondents to indicate how many previous

Master's-level courses they had completed and now many of their previous courses

required the use of an e-textbook. When combined with the attitude survey, these

responses helped to answer these questions: as the number of completed Master's-level

courses increases, is a learner likely to be more or less positive about e-textbooks? and, is

there a link between previous e-textbook experience and positive or negative attitudes to

e-textbooks?

Differences based on previous Master's-level courses. In exploring the relationship

between the number of previous Master's-level courses and the way questions were

answered, a Kruskal-Wallis test (non-parametric) was used because, as explained earlier,

it is the appropriate analysis tool when the independent variable is on a continuous or

ratio scale – in this case, number of previous courses. However, no statistically

significant results were identified, indicating that a student's number of previous

graduate-level courses is not a statistically significant factor in shaping their attitudes to

e-textbooks. Complete results are presented in *Appendix 13: Differences based on*

previous Master's-level courses.

Differences based on previous e-textbook use. The same analysis approach as above was used to explore the relationship between the number of previous e-textbooks used and the way questions were answered. Again, no statistically significant results were identified. Complete results are presented in *Appendix 14: Differences based on previous e-textbook use*. However, as explained in the section on results from the participant interviews, there were 71 instances in which students said that an experience with a previous e-textbook had played a role in forming their opinions, positive or negative, towards e-textbooks.

Results from Phase 3: Participant Interviews

As mentioned previously, data gathering for the qualitative phase of this research began with 23 telephone interviews in which 10 open-ended questions were used to prompt respondents to share their experiences in using course e-textbooks. Verbatim transcripts of the interviews were imported into ATLAS.ti qualitative data analysis software for coding and analysis (see *Appendix 15: Coded Document Sample*). The researcher then followed the multi-step analysis process described earlier (see pp. 51-52).

The initial coding phase resulted in 181 codes. The researcher then renamed some of the codes to better reflect their meaning, merged overlapping or similar codes, and grouped codes into thematic clusters. The result of these first two steps is captured in the charts in Appendices 6 and 9.

In step 3, the meaning of each code and cluster was clarified by writing a definition and capturing representative statements. The results are presented in *Appendix 5 – Interview Code and Cluster Descriptions*.

The consolidated code and cluster definitions provided a rich source of insights into the reasons for respondent attitudes to e-textbooks. They also formed the basis for the next analysis task, which was to identify a limited number of high-level themes meant to capture the essence of the respondents' collective experience with e-textbooks. To that end, the researcher reviewed the codes and clusters with the purpose of removing entries that appeared to play only a limited role in forming respondent attitudes, consolidating entries that fit within a more general heading, and naming the resulting themes to indicate their area of focus. The document used to work through this process is included in *Appendix 16: Identification of High-Level Themes*. The result of this process was the organization of the 58 codes and clusters into the six major themes identified and defined below.

Table 11

Theme Definition

Theme Label	Definition
1. E-reading experience	The previous use of e-textbooks and other e-texts had a positive or negative influence on the attitudes of mid-career learners to e-textbooks.
2. Predispositions	Predispositions, such as a strong liking for printed books or a concern about the environment, influenced attitudes to e-textbooks.
3. Barriers	Perceived barriers to usage, such as unreliable Internet access or ergonomic issues, played a role in determining attitudes to e-textbooks.
4. Benefits	Perceived benefits of e-textbook usage, such as portability or text search capabilities, played a role in determining attitudes to e-textbooks.
5. Gender	Women in this study had a tendency to be more negative about the use of e-textbooks than men.
6. Guidance	Advice and assistance received – or not received – on e-textbook usage from an instructor or other source influenced attitudes to e-textbooks.

More will be said about these themes in the Conclusions and Recommendations section.

Summary

In summary, the quantitative results were based on a sample of 25 mid-career learners – 18 female (72%) and 7 male (28%) – that closely approximated the percentage representation of women and men in the Faculty of Graduate Studies at Athabasca University. Respondents ranged in age from 28 to 55, which fit well with the definition of mid-career learners as individuals in the 30-55 age range who are already in the workforce, with 92% of the respondents reporting being employed full- or part-time when the study was conducted. Together, the results of the two surveys indicated that 92% of the respondents were comfortable with computer technology. However, 88% saw downsides to e-textbooks, 80% would choose a paper textbook over an e-textbook; 77% do not like to read text on screen; 76% felt that they absorb information less from e-textbooks than from printed textbooks; 64% saw e-textbooks as being difficult to use; 64% felt that they had not received adequate guidance from their instructors on how to use course e-textbooks; and, 84% would not recommend e-textbooks to their friends. Pearson correlation tests indicated that respondents who expressed the strongest liking for printed books were the most likely to be negative about virtually all aspects of e-textbooks. Conversely, respondents who found it easy to read off a monitor were likely to express positive attitudes towards e-textbooks in general. Female respondents in this sample group were more likely than males to have negative attitudes towards e-textbooks. A Pearson correlation test identified two statistically significant correlations between age and attitudes. As age increased, respondents were more likely to agree that

"I do not like to read text on screen" and that "It was easy to access and download the e-textbook for this course". There were no statistically significant relationships found between the number of previous Master's-level courses or the extent of a learner's previous e-textbook use and the learner's attitudes to e-textbooks.

Qualitative analysis, which was based on 23 interviews employing 10 open-ended questions, used a coding and analysis process assisted by the use of ATLAS.ti qualitative data analysis software to assign codes to significant statements, sentences, or quotes, define each code, group codes into thematic clusters (families), and identify several high-level themes that captured the essence of the respondents' collective experience. The six major themes identified through this process regarding the respondents' reasons for holding positive or negative attitudes to e-textbooks were: e-reading experience; predispositions; barriers; benefits; gender; and, guidance.

Chapter 5 Conclusions and Recommendations

To review, the purpose of this study was to answer this central question: For mid-career learners enrolled in online graduate courses, how are attitudes to and engagement with e-textbooks shaped by the circumstances in which e-textbook use takes place? As discussed above, five sub-questions focused attention on specific aspects of the central question.

To build on the outcomes of the quantitative and qualitative analysis reported above, the researcher reviewed the combined results with particular attention to answers the data might provide for the sub-questions asked in this thesis, as described below.

Answering the Five Sub-Questions

Sub-Question 1. *What attitudes and e-reading experience do mid-career learners bring to on-line studies?* Taken together, the three data sources provide a great deal of content from which to answer this question. Regarding the *attitudes* part of the question, 10 respondents said that they had a negative attitude to e-books before beginning to use the e-textbook assigned for their current course, 7 had a positive attitude, and 6 reported being neutral in advance. Examples of the reasons they gave for their attitudes are presented in Table 12.

Table 12

Pre-Existing Attitudes to e-textbooks

Pre-Existing Attitudes	Reasons
Negative (10 respondents)	"From the little exposure I had had, I really didn't like the idea of e-textbooks. I've never had any desire to own an e-reader. I just prefer printed books."
	"One earlier course required the use of an e-textbook, and I really disliked it."
	"I think the e-textbook is a terrible idea. It is hard enough to do this entire MBA virtually, but the textbook, too?
	"I was generally not in favor of them. My reasons were, a) I'm kind of old-school and I like to have something in my hand to look at and refer back to, and b) the ability to access a textbook at any point in time after the course ends. That was my sense of e-books in general. It's fair to say I was negative about them."
Positive (7 respondents)	"I think there is something to be said about having access to information at your fingertips. So, I was inclined to be positive about e- textbooks before I actually used them."
	"I came into the course already pretty comfortable with e-reading so I was already past that growth curve on "do I really like learning from an e-device" several years ago."
	"Overall, I would say my attitude was positive. I had already learned how portable e-books are and how easy it is to bookmark where you are and quickly look things up. I've always found the digital search function to be a really great thing."
	"Coming into the program, I would've thought that e-textbooks were a great idea. They decrease the amount of paper used, reduce shipping costs, all that kind of stuff. Potentially, you get the most up-to-date version. So, I thought it would be a good idea."
Neutral (6 respondents)	"Before beginning to use e- textbooks in the Nurse Practitioner program, I wondered how I was going to adjust my learning style to the e-textbook. So, I don't think I had a firm attitude about e-textbooks but I had a lot of open questions."
	"Before using e-textbooks at Athabasca, I would say I was just neutral about e-books. Because I had no previous experience with them, I was just waiting to find out what they were like."
	"Coming into this, I would say that my attitudes to e-textbooks were neutral. Some of my experiences with online reading materials were good and others are bad. I didn't come in with any judgment about how Athabasca's program would be run. But I would say that I was open to the idea of e- textbooks."

More to the point, was there a relationship between these pre-existing attitudes

and their tendency to be positive or negative about the e-textbook used in their current

course?

Table 13

Relationship between Pre-Existing Attitudes and E-textbook Reception

Respondent #	Attitude after using course e-textbook		
	Unchanged	**Became more negative**	**Became more positive**
Negative in Advance			
1		x	
2	x		
3		x	
8		x	
9			x
10		x	
11	x		
13			x
20		x	
22		x	
Positive in Advance			
4	x		
6	x		
12		x	
16	x		
18		x	
19	x		
23			x
Neutral in Advance			
5		x	
7		x	
14	x		
15		x	
17	x		
21	x		

As indicated in Table 13, of the 10 who had a pre-existing negative attitude to e-

books, 8 said their attitude remained negative – or worsened – after using their course e-

textbook. Of the 7 who were positive in advance, 5 remained positive or saw their

attitude improve after using their course e-textbook. The 6 who were neutral at the outset

either remained neutral (3) or reported that they became more negative about e-textbooks

(3). On the whole, these figures indicate that the respondents' pre-existing attitudes were

a good predictor of how positively or negatively they would rate their experience with

their course e-textbook.

Table 14

Relationship between e-Reading Experience and E-textbook Reception

	Attitude after using course e-textbook		
Respondent #	**Neutral**	**Negative**	**Positive**
Limited Experience			
2		x	
5		x	
7		x	
8		x	
9			x
10		x	
11		x	
12		x	
16			x
17	x		
20		x	
21	x		
Extensive Experience			
1		x	
3		x	
4			x
6			x
15		x	
18		x	
19			x
22		x	
23			x
Moderate Experience			
13		x	
14	x		

Regarding the *e-reading experience* part of Sub-Question 1, 12 respondents said

that they had limited or no e-reading experience, 9 reported extensive experience, and 2

said they had a moderate amount of experience. Was their level of experience related to

their tendency to be positive or negative about the e-textbook used in their current

course? As indicated in Table 14 (above), although respondents with extensive previous

e-Reading experience were somewhat more likely to hold positive attitudes than those

who started with limited or moderate experience, experience was generally not a good

indicator of how positive or negative respondents were likely to be about their course e-

textbook. Indeed, across all experience levels, respondents in this sample were more than

twice as likely to hold negative attitudes about their e-textbooks as positive ones.

   Sub-Question 2. *What features of e-textbooks support or hinder learning?* In

answer to this question, the respondents were much more likely to identify aspects of

their e-textbook experience that hindered rather than supported learning. Twelve of the

23 respondents expressed general frustration with e-textbooks (e.g. "I don't use the e-

textbook at all. I find it frustrating because I'm not good with it.") In other instances, the

student described a frustrating experience such as finding that page numbers cited in the

course guide didn't match the numbers in the e-textbook. Other hindrances mentioned

were those listed in Table 15 (next page). In most instances, it was clear from the context

of the interviews that respondents were comparing e-textbooks with printed texts in

making their comments.

Table 15

E-textbook Features that Hinder Learning
Note: bracketed numbers indicate the number of instances.

- Some e-textbooks require Internet access (i.e. they can't be downloaded, so students must be connected to the Internet to read the text) (9).

- Students suffer from fatigue when reading from a computer screen because of small screen or text size (8).

- Students have to deal with frequent technical glitches, such as software crashes that cause highlighting and notes to be lost (6).

- Printing is often difficult (i.e. some e-textbooks permit printing of only short passages) (5).

- It's harder to absorb information from e-textbooks (4).

- Time is wasted powering-up the computer, finding the website, logging in, searching within the text, etc.) (4)

- It's more difficult to navigate back and forth among sections of an e-textbook (3).

- Short battery life of some portable devices means frequent interruptions (2).

- e-Text often doesn't flow to accommodate the device screen (2).

- You can't bookmark passages as easily (2).

- e-textbooks can't be downloaded to all devices (2)

- Extra time is needed to figure out how to use a new e-textbook (1)

- Marked up text can be hard to find (i.e. e-textbooks don't have the equivalent of dog-eared pages or Post-It notes) (1).

- There are more distractions when using computers to read (e.g. temptations to read emails, etc.) (1).

- E-textbooks lack physical context (i.e. with a hardcopy book, you have a good visual sense of where you are within the book, while it's hard to know where you are in an e-textbook) (1).

- Adapting to a new reading style slows the reader down (1)

- Lots of planning is required (i.e. use of e-textbooks "on the road" requires advance planning regarding device charging, downloading text to the portable computer, thinking of where WiFi connections will be available, security for a high-value device, etc.) (1).

- Some e-reading software has a poor search function (1).

The meager list of e-textbooks features said by some respondents to *support*

learning is presented in Table 16:

Table 16

E-textbook Features that Support Learning
Note: bracketed numbers indicate the number of instances.

- Portability (i.e. being able to take many readings with you on a compact device) (10).

- Text search capabilities (e.g. "I do go back to the e-textbook when I need to look something up because I find the search capability helpful.") (6).

- Multimedia (i.e. some students were impressed by e-textbooks that included videos, animation, interactive exercises, and hyperlinks to supplemental materials, which were said to help "visual learners") (4).

- Bookmarking (i.e. being able to reopen an e-textbook where you last left off) (3).

- Ability to cut and paste from an e-textbook when writing papers (2).

Sub-Question 3. *In what ways is the experience of using an e-textbook different*

depending on the kind of e-reading device used? Here, the interview data added

important detail to the findings of the demographic and attitude surveys (see *Differences*

based on device, p. 64).

In the interviews, many respondents said that their e-reading experience was

unpleasant and unproductive on all devices, with some devices being only marginally

better than others. The generally sub-par e-reading experience notwithstanding,

respondents who used desktop computers said they lend themselves best to the initial

downloading of e-textbooks, reading of e-textbooks in PDF format (but not necessarily

for reading e-texts that automatically flow to fit any device being used), displaying

navigation and mark-up tools as well as reading materials (which is related to larger

screen size), typing of assignments, and ease of printing selected passages. The explicitly mentioned downsides of desktops were lack of portability, the need to sit rigidly at a table, and the need to boot up the computer and login before getting to the readings, which was seen as an irritating delay.

Laptop users cited advantages such as portability, fast processing speed, more comfortable ergonomics than desktops, and larger screen size than tablets. The downsides mentioned were eye-strain, lack of reliable connections to the Internet while moving from place to place, short battery life, and security issues when travelling with an expensive electronic device (this applied equally to tablets).

Tablet users said the advantages of such devices included excellent portability, good ergonomics when seated on a bus or in a comfortable chair, crisp text, and adaptive screens that change background colour depending on lighting levels. Downsides mentioned included limited screen size, small text, unreliable Internet connectivity, and unsuitability for writing long passages. Several respondents also mentioned that their course e-textbook could not be downloaded to a tablet running Apple or Android software.

The small number of respondents who had used a SmartPhone to access their e-textbook said they lend themselves well to e-textbook formats that flow to fit the device, reading while commuting, and unscheduled e-reading when "stranded in a dentist's office." They were seen as being unsuitable for document manipulation such as mark-up, note-taking, and printing, and could not download all e-textbook formats.

The two respondents who had used an e-Reader to access e-textbooks said e-Readers were the most book-like computing device, highly portable, easy to hold, and

easy to read without eye strain. The most serious downside mentioned is that e-Readers were often incompatible with proprietary e-textbook software.

So, the answer to question 3 appears to be that the e-reading device used is definitely a factor in the experience of using an e-textbook, but that the mixed experiences reported do not provide a basis for advice to future learners on which device provides the best outcomes when reading an e-textbook. This suggests a potentially fruitful area for future research and product development.

Sub-Question 4. *How does instructor guidance – or lack of guidance – regarding how to make best use of an e-textbook affect e-textbook reception and use?* Unfortunately, the survey and interview data did not provide a complete, fully satisfactory answer to this question, but strongly hinted at the need for increased instructor guidance in support of e-textbook use.

As described earlier (*Results from Phase 2: Attitude Survey*, p. 60), participant responses to the Attitude Survey statement "*I feel I have received adequate guidance from my instructor on how to use the course e-textbook*" indicated that 64% of the respondents disagreed with the statement to some extent, with a further 16% indicating that they were neutral. The four respondents who agreed with the statement were statistically significantly more likely to be positive about all aspects their e-textbook experience.

To build on these findings, each interview participant was asked, "*Did instructor guidance on how to make best use of an e-textbook affect your e-textbook reception and use?*" None of the 23 interviewees said that they had received guidance from the instructor in their current course – although several said that they had received help in a

previous course or that basic instructions on how to access and download the course e-textbook had been provided in the written course package. The "no help" assertion in the interviews was not entirely consistent with the findings of the Attitude Survey, in which, as mentioned above, 4 of the 25 respondents said that they strongly agreed (2), agreed (1), or somewhat agreed (1) with the statement "*I feel I have received adequate guidance from my instructor on how to use the course e-textbook*." This may be due, in part, to how the survey question was worded. As some students said in the interviews that they did not *need* instructor guidance because they encountered no difficulties in accessing or using their e-textbook, the fact that they received no guidance was perfectly "adequate" for these students.

Some students offered reasons that might explain why no instructor help had been forthcoming in their current course. For example:

"[The amount of instructor guidance] has been different from course to course. The course instructor for the textbook that had the interactive components did well in providing guidance. She encouraged use of the text and gave suggestions on how to use it. However, [my current] instructor and my last instructor have provided zero guidance. The courses in which the instructors didn't provide any help were also the ones with textbooks that had no special features. It is possible that they don't have anything more to offer. Where the textbooks had interactive modules, the instructors may have felt that students needed more guidance because they might not understand all the features." (Participant #19, telephone interview, July 16, 2014).

A sampling of other responses will help to give the flavor of the overall response:

- "I've had three e-texts at this point and none of the instructors have provided any guidance. In every class I've been in there have been complaints about the e-texts and the instructors haven't really said "well, how can I support you with it?" The response has mainly been "I understand your concerns. Provide your feedback to the Director of the Program." (Participant #1, telephone interview, July 13, 2014).

- "My instructor didn't provide any guidance on how to use the course e-textbook. I think it would've been helpful. In this course some students posted that they had problems getting it to work initially. But, even then, we received no guidance on how to use the e-textbook to its full potential." (Participant #5, telephone interview, July 17, 2014).

- "I had no instructor guidance in that regard. The instructor may not have provided me with that kind of information because I didn't ask. But there was no instructor guidance, or encouragement, or suggestions." (Participant #12, telephone interview, July 10, 2014).

- "The instructor didn't provide any guidance. Basically, we were given the password and told to go work things out." (Participant #16, telephone interview, July 16, 2014).

Two of the interviewees suggested how help could be provided in the future without necessarily involving the instructor directly:

- "I didn't receive any instructions or help regarding the functions of my e-textbook. It might've been neat to have a web-based seminar to help us learn how to use an e-textbook, especially if this is a wave of the future. This

        wouldn't have to come from the instructor necessarily." (Participant #18,

        telephone interview, July 16, 2014).

- "There was no guidance from the instructor for any of the courses I've taken

        that used e-textbooks. I think that would have been helpful, maybe in the form

        of a Word document offering some tips on how to easily navigate through the

        e-textbook. It would be good to have something like this posted so that when

        you enter the program you could go to a tips section to get advice on how to

        navigate through the various e-textbook formats." (Participant #21, telephone

        interview, July 18, 2014).

        As none of the respondents had received instructor guidance, it isn't surprising

that students focused mainly on the fact that they had received no guidance and were,

therefore, unable to say how guidance had affected their reception and use of e-textbooks.

There was a definite sense in the tone of the answers to this question that things might

have been different if more guidance had been given – that e-textbooks might have been

used more effectively and that their reception might have been more positive if

instructors had been more involved. This is very much in keeping with the findings of

earlier studies (e.g. Dennis, 2011; Doering, Pereira and Kuechler, 2012; Richards, 2013)

in which efforts by instructors to inform their students about the use of e-textbooks were

identified as key predictors of positive attitudes towards e-texts.

        Sub-Question 5. *What other factors (i.e. factors other than those identified in*

responses to questions about specific aspects of their e-textbook experience) do learners

believe play a part in shaping their attitudes and engagement strategies with respect to e-

textbooks? The researcher sought answers to this sub-question by making it one of the

interview questions. As indicated in Table 17, several factors were identified.

Table 17

Other Factors Shaping E-textbook Attitudes and Strategies

Note: results are presented from the highest to lowest number of instances.

Factor	Explanation	Instances
Additional costs	Some students were unhappy with the prospect of having to buy a new computer to accommodate e-textbook reading and storage. Other students pointed out that they have to pay twice if they also buy the hardcopy version of their e-textbook. A few mentioned that the money the University presumably saves by avoiding shipping costs, etc., are not being passed on to students (i.e. digital and printed texts cost the same)	18
E-textbook license duration	The publisher's license for some e-textbooks expires after six months, which forces students to buy a hardcopy if they want continued access. Limited-time licenses were detested by all students who encountered them.	18
Quality of the e-textbook	Qualities of the e-textbook itself lead to a positive or negative impression of e-textbooks in general. In most cases, the student mentioned poor quality (poorly written, badly organized, etc.) as a major influencer.	10
Environmental concerns	Some students were willing to use e-textbooks because they were seen as being more environmentally friendly than printed books.	8
Age of student	Three respondents mentioned their age as a reason for not being comfortable with e-textbooks. The three were 28, 49, and 50 years old.	3
Comfort with technology	Students explicitly mentioned comfort or lack of comfort with technology as a reason for holding a positive or negative attitude to e-textbooks.	2
Cost savings	Students were attracted to e-textbooks because they recognized that the University could save on printing and shipping costs, and might be able to pass on the savings to students.	2
Learning style	Students said their attitude was shaped by a personal learning style that favours hardcopy books.	2

Too much time on the computer	Students didn't want to spend any more time on a computer than they already do at work.	2
Children	Student is positive about e-textbooks because she has children who use e-Texts and are positive about them.	1
e-Texts up to date	Student said e-Texts are likely to be more up to date than printed texts because updates can be provided on the fly.	1
e-textbooks lack tangibility	Student referred to both distance education and e-textbooks as being less tangible than the bricks-and-mortar / print book education experience. This was seen as a negative.	1
Major change	Student found that moving from a print to an e-Text paradigm was disorienting.	1
Non-Canadian content	Student was reacting negatively to US-specific content in a nursing textbook that differed from Canadian practice.	1
Wish to be early adopter	Student likes to be among the first to explore technical innovations.	1
Wish to pass on hardcopy	Student likes the idea of passing her hardcopy books on to others when she has finished with them and feels she can't do the same with e-textbooks.	1

The first two items listed above – additional costs and time-limited e-textbook licenses – loomed large in the interviews. In several instances, both of these complaints were mentioned more than once in the same interview as major reasons for a student's dissatisfaction with his or her e-textbook experience. The third most often mentioned factor, e-textbook quality – meaning that the text was badly written, poorly organized, missing key information, etc. – was usually mentioned in conjunction with the short-license complaint because the e-textbook most often mentioned was seen to be poor in quality as well as time-limited.

Other Insights Arising From the Data

In addition to answers to the explicit research questions, a number of other insights arose from the demographic and attitude surveys, and the interviews.

Taken together, the results of the demographic and attitude surveys indicate that mid-career learners are:

- comfortable with computers and online navigation, indicating that computer literacy was not an issue for this group;

- much more comfortable with, and inclined to choose, printed textbooks over e-textbooks;

- more inclined than not to print out parts of their e-textbooks and work from the printed text;

- negative about most of the supposed affordances of e-textbooks such as portability, cutting and pasting, text highlighting, and on-screen note-taking;

- averse to e-textbooks because they are perceived as being:

  – hard to use (i.e. because of technical difficulties)

  – difficult to read on screen

  – more difficult to absorb (i.e. harder to learn from)

  – dependent on unreliable Internet connectivity

- dissatisfied with the amount of guidance received from instructors on how to use course e-texts.

The generally negative attitude to e-textbooks reflected in the responses to the Attitude Survey is perhaps best indicated by the 84% of respondents who would hesitate to recommend e-textbooks to their friends.

When the results of the two surveys were correlated, some particularly intriguing findings were that:

- among the mid-career learners in this sample, women were statistically significantly more likely to hold negative attitudes towards e-textbooks than men. If further study confirms that this is so, it indicates the need for additional support – and perhaps additional *kinds* of support – for e-textbook use by mid-career female learners;

- the majority of the participants (74%) felt that they learn less from e-textbooks than from printed textbooks (i.e. that there is something about e-textbooks or the circumstances of e-textbook use that interferes with the conveyance of knowledge). As reported, this has a statistically significant relationship to their likelihood of printing e-textbook passages to better absorb them. This is in contrast to the finding that students who find it easy to read off a monitor were statistically significantly less likely to report finding that they learn more when reading a printed textbook or to choose a paper textbook over an e-textbook. Further research would be helpful to determine if students do, in fact, absorb less from e-textbooks, and, if so, what factors – such as monitor size, screen resolution, distractions, etc. – may be at play;

- students who felt that they received adequate guidance from their instructors on how to use the course e-textbook were statistically significantly more likely to be positive about all aspects their e-textbook experience. This suggests that proactive, appropriate instructor support for e-textbook use could play a major role in making the mid-career learner's e-textbook experience more positive; and

- students who encountered technical issues such as difficulties in downloading their e-textbook or accessing it online, were statistically significantly more likely to be unimpressed with e-textbook affordances and to be more negative about their overall e-textbook experience. Making the technology more reliable and easier to use is fundamental to making e-textbooks an accepted academic resource.

As described earlier, the interview coding and analysis process identified six key reasons (themes) for the mainly negative attitudes to e-textbooks held by study participants. The themes reinforce and expand upon the findings of the demographic and attitude surveys.

Theme 1: e-Reading Experience. Although quantitative data analysis of this small dataset found no statistically significant links between e-reading experience and attitudes to e-textbooks, comments made in the interviews made it very clear that experiences with e-textbooks or other kinds of e-texts – positive or negative – had a definite influence on attitudes to e-textbooks. Among the participants in this study, the experience was more likely to have been negative due to factors such as poor e-textbook quality and limited-duration licenses, which resulted in resistance to using e-textbooks again in the future and often prompted the purchase of print versions of prescribed e-texts, which led to resentments about additional costs. This suggests that a deliberate strategy by universities to choose only the best available e-textbooks and to insist on perpetual licenses would go a long way towards making them more acceptable to mid-career learners.

Theme 2: Predispositions. Predispositions, such as a strong liking for printed books, an aversion to technology, or concerns about the environment loomed large in the

reasons given for disliking or liking e-textbooks. As these reasons typically have nothing to do with the inherent qualities or advantages of e-textbooks as conveyors of knowledge, they present a particular challenge to administrations eager to have e-textbooks accepted as the new norm. An effort at the university or faculty level to explain the advantages that e-textbooks offer to students, universities, and the public – with particular attention to counter-arguments for known negative predispositions – might help to make students more prepared to set negative predispositions aside long enough to give e-textbooks a fair try.

Theme 3: Barriers. On close examination, many of the barriers and hindrances identified by interviewees as reasons for disliking e-textbooks suggest obvious – if not necessarily easy – solutions. For instance, problems with downloading, incompatible operating systems, unexpected loss of data, etc., suggest a global solution such as the selection of course e-textbooks based only on an industry-standard markup language such as HTML5. This would make it possible to deliver e-textbooks to a wide range of e-reading devices with a high level of technical confidence. If this is not possible in the short term – this is a publishing industry issue as much as a university issue – it could become a key objective for the longer term. Problems arising from student unfamiliarity with e-textbook functions (e.g. bookmarking, highlighting, searching, printing, etc.), suggest training or coaching solutions. Similarly, perceived barriers arising from causes such as distractions, eye fatigue, or poor ergonomics suggests advice on best practices for planning and conducting e-reading sessions. For more challenging barriers such as difficulties in absorbing information from e-textbooks reported by some students, further research might help to identify the cause(s) and suggest solutions.

Theme 4: Benefits. Even respondents who were predominantly negative about e-textbooks were usually able to identify at least one benefit, with portability being the most often mentioned, followed by text search capabilities. Earlier studies (e.g. Gregory, 2006; Percival and Muirhead, 2009) have found that, as students become more familiar with the benefits of digital resources through personal experience and university promotional activities, they are likely to become more comfortable with e-textbooks and to use them in preference to printed texts. This does not necessarily mean that they will become comfortable with all aspects of e-textbooks. As Noorhidawati and Gibb (2008) have noted, a student who likes to use e-textbooks to quickly find relevant content may not wish to use them for extended reading.

Theme 5: Gender. Women in this study had a statistically significant tendency to be more negative about certain aspects of e-textbook usage than men. As this finding is based on a small convenience sample with a high representation of mid-career women in the same program (nursing) who, in a number of cases, had encountered e-textbooks of questionable quality, it suggests that a study with a larger, more diverse, sample group would be useful to replicate – or refute – this finding. If the finding stands up to further scrutiny, it is indeed significant. Why do women react more negatively to e-textbooks than men – and what can be done to make the e-textbook experience more positive for them?

Theme 6: Guidance. As discussed in addressing Sub-Question 4, none of the interview participants reported receiving instructor guidance on how to make best use of their current e-textbook, but the majority would have welcomed such help. A few participants reported finding and using e-textbook downloading instructions in their

written course package, and three students said they contacted the University Help Desk

for assistance in solving e-textbook technical issues (e-textbooks were found to be

outside of the Help Desk's area of knowledge). The value of proactive University and

instructor support for e-textbook use has been reported in a number of studies of

undergraduate student e-textbook attitudes (e.g. Percival and Muirhead, 2009; Denis,

2011; Doering, Pereira, and Kuechler, 2012; Richards, 2013). As the result of this study,

there is strong reason to extend these findings to include mid-career graduate learners.

The key message is that University and instructor interventions to familiarize students

with e-textbooks and promote their benefits can be very influential in improving attitudes

and encouraging use.

It is important to keep in mind that the use of e-textbooks in graduate-level

courses at Athabasca University (AU) was not widespread at the time this study was

conducted. The few graduate courses using e-textbooks can be considered early adopters,

which presented the researcher with both an opportunity and a challenge – the

opportunity to explore relatively uncharted territory, and the challenge of detecting

patterns and drawing conclusions that might provide guidance for more widespread and

successful e-textbook usage in the future. As pointed out by an AU administrator close to

the *eText Initiative*, it is also important to point out that this study was undertaken at a

time when a pilot project was ongoing at the undergraduate level, and that there was

much negative feedback, especially in social media, within in the AU community about

cost issues at the time that may have influenced some opinions (C. Ives, personal

communication, February 17, 2015).

Is the small sample size (25 survey respondents, 23 interview participants) a major concern? Clearly, a larger sample size for quantitative data gathering would have been preferable. However, in an exploratory study such as this, even this small number of respondents is helpful in identifying the basic facts, settings, and concerns of the target population, establishing the size the direction of key relationships among study variables, creating a general mental picture of conditions, generating new ideas, and sharpening the focus for future research (Neuman, 2011).

Further, the use of a mixed-methods approach meant that quantitative results could be further explored by means of interviews, which confirmed the quantitative findings. The number of interviews was more than adequate to reach a point of saturation. Indeed, the last few interviews conducted for this study added virtually no new information or themes.

Overall, the e-textbook experience of this sample group was unsatisfactory from their perspective for a wide range of reasons, with the result that many plan to avoid using e-textbooks again in the future by purchasing print versions of their textbooks even if this means paying twice for the same material. As a gradual transition to e-textbooks for all students is a stated direction for Athabasca University – and many other universities and colleges around the world – this is a serious problem that must be addressed as quickly and effectively as possible.

Future Research

This exploratory mixed-methods study has provided a number of insights into the e-textbook-related attitudes and practices of a particular demographic – mid-career graduate students – that has received little previous attention. Follow-up studies

involving additional participants across a broader range of graduate courses would be helpful in confirming and adding depth to the findings.

For instance, the results raise the possibility that gender is a factor in determining attitudes to e-textbooks, with the possibility that mid-career females are more negative toward e-textbooks than males. As the result is based on a limited sample size, research based on a larger sample may help to clarify this finding.

In addition, further research could help to:

- establish to what extent age is a factor in determining graduate student attitudes to e-textbooks;

- determine if students do, in fact, absorb less from e-textbooks than from printed texts, and, if so, what factors – online distractions, ergonomics, monitor size, screen resolution, etc. – may be at play;

- clarify what role, if any, the type of e-reading device used to access e-textbooks has on user attitudes, usage patterns, and outcomes;

- test the efficacy of different kinds of institutional support for e-textbook users – such as online tutorials, printed help texts, proactive instructor guidance, informed Help Desk support, or promotional materials – in improving e-textbook reception and use; and

- explore how e-textbooks employing different hypertext typologies (Landow, 2006) and navigation / markup features affect user attitudes, usage patterns, and outcomes.

Conclusion

The attitudes of mid-career learners in Masters-level courses to e-textbooks were found, on the whole, to be quite negative. However, as the previous discussion underlines, there are reasons to hope that many of the factors that contribute to negative attitudes can be overcome by means of corrective actions such as:

- selecting only top-quality e-textbooks for student use (and developing a set of criteria to help in making those choices);

- choosing e-textbooks based on software and markup languages that make them accessible to a wide range of e-reading devices;

- negotiating with publishers to provide perpetual licenses to course e-textbooks;

- passing on reduced printing and shipping costs to students;

- explaining the affordances and benefits of e-textbooks – and addressing negative attitudes known to exist;

- providing instruction on e-textbook and e-reading best practices;

- making instructors active agents in providing direct guidance to their students with respect to e-textbook usage; and

- making knowledgeable institutional support (e.g. through the Library or Help Desk) continuously available.

Interventions such as these promise to make the use of e-textbooks a positive, productive experience for mid-career graduate students in online programs everywhere.

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Appendices

Appendix 1: Letter of Invitation

Dear Student:

This email is an invitation to participate in a thesis research study to investigate how mid-career learners enrolled in an online graduate course view and engage with e-textbooks assigned as required course readings. The study will also explore how attitudes and engagement practices are shaped by the circumstances in which e-textbook use takes place. Review and analysis of the data will provide insights into e-textbook usage and will help to shape policies and practices regarding e-textbook use at Athabasca University and elsewhere.

I am seeking your participation because you are currently engaged in a graduate course that makes use of an e-textbook. Your experiences are important because you are in the vanguard of a multi-year transition to e-textbook use by all students at Athabasca University known as the *e-Text Initiative*. As few previous studies have looked specifically at what mid-career learners in graduate courses think about e-textbooks and how they make use of them, your participation is especially important.

Your participation would require the completion of two surveys – a *Demographic Questionnaire* and an *Attitudinal Survey* – conducted early in the term, and may also entail a recorded telephone interview toward the end of the term to capture your experience as an e-textbook user. The time commitment for each survey will be 10 minutes or less and, if you are invited to participate in an interview, it will require about 30 minutes of your time.

If you are interested in volunteering for this study, please complete the *Demographic Questionnaire and Consent to Participate* form hyperlinked to this email.

Please be assured that your involvement in this study is completely voluntary and there are no known or anticipated risks to participation. You have the right to refuse to participate and to withdraw at any time during the survey and interview process. In this case you can simply email the researcher and inform him that you wish to withdraw from the research. You may also skip questions or refuse to answer any question posed to you in an interview or in a survey.

All information collected from you will be stored in a secure location that can be accessed only by the researcher and all information will be held confidential. The data collected will be coded so that no identifying information remains. The confidentiality and anonymity of participants will be protected at all times. On completion of the data analysis, a summary of the results of this research will be made available to all interested participants upon request.

If you have any questions about this study or would like additional information to assist you in reaching a decision about participation, please feel free to contact the researcher, Ken Desson, by email at kdesson@androcom.com.

Thank you in advance for your interest in this project.

Yours sincerely,
Ken Desson
M.Ed. (DE) Student
Centre for Distance Education
Athabasca University

If you would like to participate in this study, please proceed to the *Demographic Questionnaire and Consent to Participate* form by clicking on the link below.

Demographic Questionnaire and Consent to Participate

You are not obligated to participate in this research. However, if you ***do not*** want to participate, it would be helpful for study validation purposes if you would briefly provide your reason(s) for not participating by sending an email to the researcher at kdesson@androcom.com.

Appendix 2: Demographic Questionnaire and Consent to Participate

E-textbook Study Demographic Questionnaire

Thank you for taking the time to participate in this research project!
This questionnaire captures information about participants in a Master's thesis research study on how mid-career learners enrolled in online graduate courses engage with e-textbooks assigned as required course readings.

You have the right to refuse to participate in this questionnaire. If you continue, you may choose not to answer specific questions. You are also free to discontinue your participation in this study at any time, for any reason. However, if you *do not* want to participate, it would be helpful for study validation purposes if you would briefly provide your reason(s) for not participating by sending an email to the researcher at kdesson@androcom.com.

Please note: This study has been reviewed by the Athabasca University Research Ethics Board. Should you have any comments or concerns regarding your treatment as a participant in this study, please contact the Office of Research Ethics at 1-800-788-9041 ext. 6718, or by email to rebsec@athabascau.ca.

1) Please indicate your agreement to participate in this study by filling in your name. Providing your name indicates agreement to complete this questionnaire as well as a 10-minute online attitude survey that will be sent to you in about a week. You may also be asked to participate in a 30-minute telephone interview designed to explore your experience in using e-textbooks.

2) My email address:

3) My gender: __ Female   __ Male

4) My age: _____

5) What course that you are enrolled in right now requires the use of an e-textbook? If more than one, please list them all.

6) What is your first language? If "Other", please specify.

[ ] English

[ ] Other: _____

_____

7) On a 5-point scale, how well would you say you read English?

Not at all well   Very well
             1   2   3   4   5

8)   Please indicate your student status:
__ Canadian student
__ International student
__ Other (please specify): _____

9)   How many previous Master's-level courses have you completed? _____

10)   How many of your previous courses have required the use of an e-textbook? _____

11)   How would you characterize your enrolment?

[ ]   Full-time

[ ]   Part-time

12)   Please indicate your employment status (check one):
__ Employed full-time
__ Employed part-time
__ Not currently employed

13)   Which of the following e-reading devices do you own? Mark all that apply.
__ Desktop computer
__ Laptop computer
__ iPad
__ Other tablet computer (e.g. Microsoft Surface, Samsung Galaxy Tab, etc.)
__ E-reader (e.g. Kindle, Kobo, etc.)
__ Smart phone
__ Other _____

[SUBMIT]

You will be contacted again in about a week to complete a short attitude survey.

Thank you for your assistance!

Appendix 3: Attitude Survey

E-textbook Study Attitude Survey

Thank you for taking the time to participate in this research project!
The purpose of this survey is to record your attitudes to printed and digital textbooks (e-textbooks) based on your experience in using both formats.

You have the right to refuse to participate in this survey. If you continue, you may choose not to answer specific questions. You are also free to discontinue your participation in this study at any time, for any reason. However, if you *do not* want to participate, it would be helpful for study validation purposes if you would briefly provide your reason(s) for not participating by sending an email to the researcher at kdesson@androcom.com.

Please note: This study has been reviewed by the Athabasca University Research Ethics Board. Should you have any comments or concerns regarding your treatment as a participant in this study, please contact the Office of Research Ethics at 1-800-788-9041 ext. 6718, or by email to rebsec@athabascau.ca.

1. Please enter your first and last name:

2. My email address:

3. Using the 8-point scale, indicate the extent to which you agree or disagree with the following statements as they relate to you. Answer "No Reply" if the question is not applicable to you.

Item	Statement	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	No Reply
1.	I am comfortable with computer technology.								
2.	There is just something I like about sitting down and actually reading a physical text book.								
3.	I do not really see a downside to e-textbooks.								
4.	I do not like to read text on screen.								

5.	I love that I can do text searches in e-textbooks.								
6.	Given my preference, I would choose a paper textbook over an e-textbook.								
7.	Reading off a monitor is just as easy as reading off paper.								
8.	When I am reading material on a computer, I absorb it less.								
9.	I like to print out parts of the e-textbooks for my courses and use the printed text as an ongoing reference.								
10.	I find that hyperlinks to additional information help me learn.								
11.	The portability of e-textbooks is a real advantage for me.								
12.	I find that I learn more when I read a printed textbook.								
13.	I find that hyperlinks to additional information disrupt learning.								
14.	I feel I have received adequate guidance from my instructor on how to use the course e-textbook.								

15.	I can't highlight text or make marginal notes in an e-textbook as easily as in a printed text.								
16.	The convenience of cutting and pasting passages from an e-textbook is important to me.								
17.	I am concerned that I won't have access to my e-textbook(s) if I have computer or internet problems.								
18.	It was easy to access and download the e-textbook for this course.								
19.	My perception is that it is easy to use e-textbooks.								
20.	I would not hesitate to recommend e-textbooks to my friends.								

4. If you would like to comment on any of your answers, please do so here.

```
[                                                                    ]
```

[SUBMIT]

Thank you for your participation in this survey.
You may be contacted again before the end of term to invite your participation in a 30-minute telephone interview.

All the best!

Appendix 4: Interview Questions

Informed consent pre-amble:
I want to remind you that you are not obligated to participate in this interview. If you continue, you may chose not to answer specific questions. You are also free to discontinue your participation in the interview at any time, for any reason. Would you still like to proceed?

1. Can you tell me about the Program and Course you are enrolled in right now?

2. What e-reading experience did you have before beginning your program at Athabasca?

3. What was your attitude to e-books before you began using an e-textbook in your coursework?

4. How do you go about reading an e-textbook? (e.g. do you read it sequentially from cover to cover? Jump from section to section in no particular order? Use it mainly as a quick-reference resource? Do you explore hyperlinks, if provided? Do you use the Table of Contents and Index? Do you print excerpts from the e-textbook and read from the printed text?)

5. What features of e-textbooks would you say supported or hindered your learning? (e.g. text-only format vs. rich-text that includes illustrations, animation and/or video clips; fixed-format PDF texts vs. free-flowing HTML text; availability of mark-up tools; a closed environment vs. one that provides links to outside resources)

6. Is the experience of using an e-textbook different depending on the kind of e-reading device that you are using? (e.g. desktop, laptop, tablet, e-reader, smart phone)

7. Did instructor guidance – or lack of guidance – on how to make best use of an e-textbook affect your e-textbook reception and use?

8. Were the opinions and strategies of fellow learners influential in forming your attitudes to e-textbooks and your approach to their use?

9. What other factors played a part in shaping your attitudes and engagement strategies with respect to e-textbooks?

10. Did your attitudes to e-books change – for better or worse – as a result of using the e-textbook in your current course?

Appendix 5: Interview Code and Cluster Descriptions

Codes	Definition	Representative Statements
1. Age: 25-30	Age grouping	N/A
2. Age: 31-40	Age grouping	N/A
3. Age: 41-50	Age grouping	N/A
4. Age: 51 and older	Age grouping	N/A
5. Dissatisfaction with the University	*Instances: 5* University policies were cited by students as a reason for an unsatisfactory e-textbook experience, especially in regard to restrictive licensing and lack of choice between digital and paper versions of the course textbook.	"Based on the reputation of Athabasca University, I would've expected that they would have selected e-textbooks that were more user-friendly and with higher levels of compatibility and ease-of-use." "The other thing that freaked me out when I learned about it was that this book is only available for six months. In my course, I have another two years to go. I might want to refer to it. What am I going to do in six months? I thought "this is ridiculous", and so I paid the $54 to buy the hardcopy. Given the low price of this text, why didn't Athabasca just give us the hardcopy?"
6. Employed: Full-time	Employment grouping	N/A
7. Employed: Part-time	Employment grouping	N/A
8. Employed: Unemployed	Employment grouping	N/A
9. Enrolled: Full-time	Enrolment grouping	N/A
10. Enrolled: Part-time	Enrolment grouping	N/A
11. e-Reading experience: extensive	*Instances: 9* The student reports having lots of e-text reading experience.	"I've been a nurse for a number of years, and we certainly rely heavily on electronic resources. Our policy and practice manuals are located online. We generally access those using desktop computers. So, I had had quite a bit of experience with e-texts before beginning my studies."
12. e-Reading experience: limited or none	*Instances: 12* The student reports having little or no e-text reading experience before beginning to use an e-textbook.	"I have never read e-books for pleasure and I haven't had to use e-texts in my work." "I didn't have a lot of e-text reading experience before beginning the program. I've always done my coursework the old-fashioned way."

Codes	Definition	Representative Statements
13. e-Reading experience: moderate	*Instances: 2* The student reports having only a moderate amount of e-text reading experience before beginning to use an e-textbook.	"I had some experience with e-Reading before beginning my current course. I had one previous course when I was taking my initial nursing degree, an ethics course, which had components of e-Reading."
14. Gender: Female	Gender grouping	N/A
15. Gender: Male	Gender grouping	N/A
16. Guidance from instructor: NO	*Instances: 24[11]* Student reports that his/her instructor provided no guidance regarding how to use the course e-textbook. Some students noted that instructor guidance wasn't needed to figure out how to use a particular e-textbook.	"My instructor didn't provide any guidance on how to use the course e-textbook. I think it would've been helpful. In this course some students posted that they had problems getting it to work initially. But, even then, we received no guidance on how to use the e-textbook to its full potential." "I received no guidance whatsoever. However, I'm not sure that guidance would've been helpful. I didn't have any problems in downloading it. I just didn't like it very much."
17. Helpdesk used? NO	*Instances: 20* Student didn't use the Help Desk or other institutional resources to solve e-textbook issues.	"I didn't call the Help Desk. I figured it out myself as I usually do. I played around with it." "I usually find that the help desk is more there for technical support as opposed to strategies for using an e-textbook. I'm fairly computer savvy so I haven't really needed technical help." "I wasn't aware of any other sources of guidance from the University."
18. Other tablet users	*Instances: 8* These students said that they own non-iPad tablet computers, which they may use in specific circumstances to read e-textbooks.	"I prefer using my tablet if the e-textbook is in the right format. It is more portable, I can travel with it, and I can sit on my couch and read it." "I'm using an Android tablet when I commute and desktops at home and at work."
19. Preference for print books	*Instances: 14* Student expressed a personal preference for print books over e-textbooks.	"I just like the feel of the book and the smell of a book." "Maybe that's it. I'm just used to opening a textbook and I like being able to highlight a real book. I like being able to write my notes in the book itself and you can't do any of those things – at least not that I'm aware of – with the e-Texts."

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[11] Reported instances may exceed the number of respondents because some topics were brought up more than once in an interview.

Codes	Definition	Representative Statements
		"I'm a visual and tactile learner. I like to have a book in front of me and pen in my hand and I haven't been able yet to switch that in my brain to the screen and keyboard. I'm trying, but I'm not there yet."
20. Previous courses: 0	Course grouping	N/A
21. Previous courses: 1-2	Course grouping	N/A
22. Previous courses: 3-4	Course grouping	N/A
23. Previous courses: 5 or more	Course grouping	N/A
24. Previous e-textbooks: 0	e-Text experience grouping	N/A
25. Previous e-textbooks: 1-2	e-Text experience grouping	N/A
26. Previous e-textbooks: 3-4	e-Text experience grouping	N/A
27. Print e-Text articles? YES	*Instances: 6* Student reports printing articles found online.	"If I need an article, I usually download it and then print it." "I have a fear that I will have downtime because of connectivity issues, so I tend to print things out and bring the printouts with me in a binder I use to organize my printouts."
28. Print e-textbook? NO	*Instances: 10* Student does not print the e-textbook as a whole and restricts the number of excerpts printed. This is sometimes because the student has purchased a hardcopy version of the e-textbook.	"I don't like to print out excerpts from the e-textbook. I don't like to waste paper." "Because I have purchased a paper copy of the book, I don't make any printouts from the e-textbook." "I almost never print out pages from the e-textbook in order to read them in hard copy. I see that is just a waste of paper. If you're going to print the textbook, the school is, in effect, transferring the cost of creating a hard copy to the student."
29. Print e-textbook? YES	*Instances: 9* Student reports printing the e-textbook in whole or in part (generally tables or short passages).	"I look at the study guide to see what I have to read, and then I print it out." "Because I don't enjoy reading on screen, I won't read more than the minimum. I printed out the entire text of the e-textbook I was assigned." "I do print things such as tables or very short summaries of things that I would like to reflect back on when I do my practicum."

Codes	Definition	Representative Statements
30. Purchased hardcopy-NO	*Instances: 6* This code identifies people who had specific reasons for not purchasing a hardcopy.	"Some of my fellow students have bought a paper copy of the textbook. I haven't done that. I feel I'm paying enough for the course without the additional cost – $100 – for a paper version of the same book." "I thought about getting a hardcopy version of the textbook, but decided against it. This e-textbook is permanently available, so I don't worry about not having access to it after the course is over."
31. Purchased hardcopy-YES	*Instances: 21* Student purchased a hardcopy version of the e-textbook provided for use in the course.	"I have had to go out and purchase my own texts – a huge additional cost to me – because I hate using the e-texts so much!" "Because of the way I learn, I always purchase the paper textbook. They send me the e-textbook, but I go online to find the paper textbook. From what I understand, the majority of students in my current course do the same."
32. Software: Elsevier PageBurst	*Instances: 4* Students reported that their course e-textbook used *Elsevier PageBurst* software	"I really liked the earlier e-textbook I used in my pathology course and I really disliked the e-textbook in this course. I would still be open to using an e-textbook if it was more like the PageBurst example."
33. Software: VitalSource Bookshelf	*Instances: 3* Students reported that their course e-textbook used *VitalSource Bookshelf* software	"I loved the e-text in last semester's course which was through VitalSource Bookshelf, never had trouble accessing it and still have access to it as a reference as it was a purchase."
34. Software: VitalSource CourseSmart	*Instances: 5* Students reported that their course e-textbook used *VitalSource CourseSmart* software	"The e-textbook for the course is entitled *Women's Health: A Primary Care Critical Guide*. It doesn't have any special features. It is purely text on the computer. It uses CourseSmart reader software. I can't copy text and transfer it to another program. I have to print the screen as a graphic. The CourseSmart reader is not user-friendly. "

(continued on next page)

Note: Highlighted rows below indicate clusters (ATLAS.ti "families") of several related codes.

Clusters	Definition	Representative Statements
35. Attitude: Negative Attitude: changed for worse {14-0}~ Attitude: Negative in advance {12-0}~ Attitude: stayed the same-negative {3-0} Benefits: none {1-0}~ Computer: no device suitable {2-0}~	*Instances: 32* This cluster groups respondent comments that indicated a negative attitude to e-textbooks before, during or after their use.	"I would say my attitudes have changed for the worse. I didn't even download it, mostly because of the restricted access time frame, but also because of my experience with e-textbooks in my last two courses. E-textbooks didn't meet my expectations." "I am highly disappointed with this whole e-textbook initiative. I'm disappointed that they are switching from print textbooks to e-Texts. My attitudes have definitely changed for the worse since beginning to use e-textbooks. Now, I wouldn't recommend them. If there were a choice, I would opt not to use them." "I would be considered more of a resistant e-text user. I would be more negative towards e-textbooks and more positive towards printed textbooks." "I have a huge problem with the use of e-textbooks. This is despite the fact that I use technology every day, very capably, and do the majority of my research on the internet/databases. I am even more upset by the fact that my current course's e-textbook has only a 6-month rental, meaning I will not have access to it for reference later in my practice/career."

Clusters	Definition	Representative Statements
36. Attitude: Neutral Attitude: Neutral in advance {6-0}~ Attitude: stayed the same-neutral {2-0} Benefits: uncertain {1-0}~	*Instances: 9* This cluster groups respondent comments that indicated a neutral attitude to e-textbooks before, during or after their use.	"Before using e-textbooks at Athabasca, I would say I was just neutral about e-books. Because I had no previous experience with them, I was just waiting to find out what they were like." "Coming into this, I would say that my attitudes to e-textbooks were neutral. Some of my experiences with online reading materials were good and others are bad. I didn't come in with any judgment about how Athabasca's program would be run. " "Overall, I'm lukewarm towards e-textbooks right now. I really see the potential and in that way I am positive. The new formats are great, but I haven't seen enough e-textbooks in the new formats to be super positive about them."
37. Attitude: Positive Attitude: improved {5-0}~ Attitude: Positive in advance {10-0}~ Attitude: stayed the same-positive {5-0}	*Instances: 20* This cluster groups respondent comments that indicated a positive attitude to e-textbooks before, during or after their use.	"I would say that my attitude to e-books was really positive. They were my preference." "If I had an attitude, I guess it was more towards the positive, thinking an e-textbook would be great because it's something you could take with you wherever you are and, if you have a few spare moments, open it up and read it. I would say I was pretty open-minded." "I came into the course already pretty comfortable with e-reading so I was already past that growth curve on "do I really like learning from an e-device" several years ago."

Clusters	Definition	Representative Statements
38. Attitudes shaped by e-textbook usage Attitude shaped by: positive experience {4-0}~ Attitude shaped by: quality of eTextbook {10-0}~ Attitude shaped by: technical problems {5-0}~ Barriers: absorb less {4-0}~ Barriers: can't bookmark {2-0}~ Barriers: distractions {1-0}~ Barriers: eTextbooks less efficient {1-0}~ Barriers: frustration with eTextbook {12-0}~ Barriers: hard to navigate {3-0} Barriers: hard to print {5-0} Barriers: hard to read {6-0} Barriers: lack of context {1-0}~ Barriers: markups hard to find {1-0}~ Barriers: Non-flowing text {2-0}~ Barriers: poor search function {1-0} Benefits: bookmarking {3-0} Benefits: multimedia supplements learning {4-0}~ Benefits: text search {6-0}	*Instances: 71* This cluster groups responses shaped by the respondent's direct experience – positive and negative – in using a particular e-textbook or e-textbooks. The majority of the experiences mentioned were negative.	**Positive** "I started to experiment with e-books one summer when the price of a Kobo e-reader suddenly dropped. I could have two or three books on it, so it made my backpack lighter. It was incredibly convenient, which was probably the biggest reason for continuing to use it. I thought to myself that that was pretty much the future." "In some previous e-textbooks I've used, the text is supplemented with interactive activities. That was fantastic. It was very supportive because it facilitated learning." **Negative** "I use an iPad tablet and an iPhone. It wasn't possible for me to download my textbooks to those platforms. Being in a clinical program, I need materials in my hands and available in different areas as a reference. Being able to download the text to my iPad would've been really helpful, but that seemed not to be possible." "When I do screen read, for instance legal documents, which is part of my job, it doesn't stick with me as well as it does when I have something more tangible in front of me." "Online learning is difficult for some people and if you have to fight to find material in an online text it just makes it that much more difficult." "High-lighting is a major part of my study habit and I find this function in the e-textbook very cumbersome. I find the index and table of contents annoying."

Clusters	Definition	Representative Statements
39. Attitudes unrelated to particular e-textbook Attitude shaped by: additional costs {18-0}~ Attitude shaped by: age {4-0}~ Attitude shaped by: children {1-0}~ Attitude shaped by: comfort with technology {2-0}~ Attitude shaped by: cost savings {2-0}~ Attitude shaped by: environmental concerns {8-0}~ Attitude shaped by: eTextbook portability {5-0}~ Attitude shaped by: eTextbooks are up to date {1-0}~ Attitude shaped by: eTextbooks lack tangibility {1-0}~ Attitude shaped by: learning style {2-0}~ Attitude shaped by: license duration {18-0}~ Attitude shaped by: major change {1-0}~ Attitude shaped by: other students-Validation {7-0}~ Attitude shaped by: Platform {16-0} Attitude shaped by: too much time on computer {2-0}~ Attitude shaped by: wish to be early adopter {1-0} Attitude shaped by: wish to pass on hardcopy {1-0}~ Barriers: lack of time {3-0}~ Barriers: lots of planning required {1-0}~ Barriers: need to adapt {1-0}~ Ergonomics: eye strain {12-0} Ergonomics: physical discomfort {5-0} Ergonomics: tiring {1-0}~	*Instances: 113* This cluster groups a wide variety of factors unrelated to the experience of using a particular e-textbook (or e-textbooks) that shaped the respondent's attitudes.	"I mentioned that in this course I bought the print version of the book. But, for me, that's another source of frustration. Now I have to pay extra money to buy the book." "By and large, I'm just getting old and just don't care for e-textbooks at all." "For me, the environmental reasons for using e-textbooks are pretty big. I also find e-textbooks easy to carry. If I have my iPhone with me I can have 1000 books with me." "We got access to the e-textbook through Athabasca that is limited to 180 days. Which is frustrating, because by the time I'm finished my program and I need to review the material to study for my final NP exam, I will no longer have access to this e-textbook." "I don't think what I heard from other students shaped my thinking on the topic, but what I had to say seem to confirm in their mind that they would be much better off spending some extra money to get the hardcopy."

Clusters	Definition	Representative Statements
40. Barriers Barriers: absorb less {4-0}~ Barriers: can't bookmark {2-0}~ Barriers: distractions {1-0}~ Barriers: eTextbooks less efficient {1-0}~ Barriers: frustration with eTextbook {12-0}~ Barriers: hard to navigate {3-0} Barriers: hard to print {5-0} Barriers: hard to read {6-0} Barriers: lack of context {1-0}~ Barriers: lack of time {3-0}~ Barriers: limited to some devices {2-0}~ Barriers: lots of planning required {1-0}~ Barriers: markups hard to find {1-0}~ Barriers: need to adapt {1-0}~ Barriers: need to charge {2-0}~ Barriers: Non-flowing text {2-0}~ Barriers: poor search function {1-0} Barriers: require Internet access {9-0}~ Barriers: small screen {2-0}~ Barriers: technical problems {6-0}~	*Instances: 65* This cluster groups responses that identified perceived barriers to using e-textbooks effectively.	"Online learning is difficult for some people and if you have to fight to find material in an online text it just makes it that much more difficult." "The difficulty of reading on a laptop also hinders learning. I would much rather look stuff up in a print book because I find a print textbook easier to read. I'm sure that people five years in younger than me would disagree." "One of the big hindrances is having to boot up your computer and login before getting to your readings. That really slows you down." "Something that really hindered learning was a technical glitch I ran into. I rebooted my computer and the e-textbook closed and I couldn't download it again because I had already used my access code. I had to contact the company and get them to issue me another one. When I got it back, all my notes and highlights were gone. That is a definite disadvantage to e-texts."
41. Benefits Benefits: bookmarking {3-0} Benefits: multimedia supplements learning {4-0}~ Benefits: portability {10-0} Benefits: text search {6-0}	*Instances: 23* This cluster groups responses that identified perceived benefits of e-textbooks compared with print books.	"The other thing I like is being able to take the e-Text with you and access it from wherever you are without having to lug the printed textbook around. As I'm out of town a lot, that has been somewhat helpful." "If I come across a hyperlink I usually go to it. I have also come across things like videos in my e-textbooks, which I think is great. I think that is the future of educational books, or they should be." "The things I like are the word search – beyond using the index you can quickly search a word and go quickly through the whole thing to find out what you're looking for. This makes it easy to find particular passages that you might be looking for. For me, that's the greatest advantage."

Clusters	Definition	Representative Statements
42. Chatroom participation Chatroom discussion? NO {4-0}~ Chatroom discussion? YES {15-0}~	*Instances: 19* This cluster groups comments on whether or not respondents participated in course chatroom discussions and what influence that might have had on their attitudes to e-textbooks.	"We have a page on which we can comment about anything called the Coffee Room. There are 17 people in this class, and at least 15 have said that they have bought the hardcopy textbook." "I wanted to ask everybody what they thought about the e-textbook when we started, but for some reason I didn't. However, at the end of the course, the wrap-up forum was just full of people saying that they hated the textbook." "When classmates were having trouble with the current textbook, at least six of my classmates immediately posted that they only use the physical textbook themselves." "I've had no contact with my fellow learners regarding e-textbooks."
43. Desktop users Computer: Desktop-YES {7-0} Computer: Desktop Primary {6-0} Computer: Desktop secondary {1-0}	*Instances: 14* This cluster groups all respondents who said that they own a desktop computer. It includes respondents who said that they use their desktop as their primary or secondary means of accessing course e-textbooks.	"For school, I rely mostly on my desktop – probably 95% on my desktop. I have two larger screens that I use. My husband is my technological support and we've tried to make it as easy as possible because I spend a lot of time in front of the computer." "I'm using an Android tablet when I commute and desktops at home and at work."
44. e-Reader users Computer: eReader-Primary {2-0} Computer: eReader-Yes {4-0}	*Instances: 6* This cluster groups all respondents who said that they own an e-Reader. It includes respondents who said that they use their e-Reader as their primary means of accessing course e-textbooks.	"I mainly use my Kobo e-reader to read the e-textbook because I find it lighter, easier to work with, and easier to see."

Clusters	Definition	Representative Statements
45. Ergonomic issues Ergonomics: eye strain {12-0} Ergonomics: physical discomfort {5-0} Ergonomics: tiring {1-0}~	*Instances: 18* This cluster groups responses that pinpointed ergonomic issues that interfered with e-textbook use or enjoyment.	"Because I don't enjoy reading online, I find that I don't look as deeply into a table or an illustration or anything like that because I just want to get through it before my eyeballs burn out of my face." "I would say ergonomic issues were a factor. In addition to eyestrain, I just find it uncomfortable sitting with a laptop either on a table top or on my knees." "Reading online just makes me so tired. I won't spend time that I would if I were reading a printed book."
46. e-textbook tools: did not use Use as reference source? NO {1-0}~ Uses copy & paste-NO {1-0} Uses hyperlinks-NO {7-0} Uses MARKUP tools: NO {11-0} Uses NOTES feature: NO {2-0}~ Uses search-NO {2-0}	*Instances: 24* This cluster groups responses in which a respondent said that they did not use one of the common tools available within an e-textbook such as markup tools or the search function.	"The book includes hyperlinks which lead you to additional material. However, because of time constraints, I didn't make very much use of the hyperlinks." "I have never really learned to use my current e-textbook's markup tools. I would like to have the luxury of time to be able to learn how to do that. Also, they change from book to book, so learning it once doesn't necessarily prepare you for the next e-textbook you will receive."
47. e-textbook tools: made use of Use as reference source? YES {7-0} Uses copy & paste-YES {2-0} Uses FONT tools: Yes {1-0} Uses hyperlinks-YES {7-0} Uses MARKUP tools: YES {5-0} Uses NOTES feature: YES {2-0} Uses search-YES {8-0} Uses TOC & Index-YES {5-0}~	*Instances: 37* This cluster groups responses that indicated that a respondent had made use of one or more of the tools built into an e-textbook, such as copy and paste, the search function, or markup tools.	"I also use the e-textbook when I want to search for something quickly. When I'm writing a paper, I also find the e-textbook useful for quickly referencing information that I need." "I find that e-textbook features such as markup tools in the search function support my learning for sure." "I do use the search function and I find that aspect of e-textbooks really useful compared to the old-fashioned paper books."

Clusters	Definition	Representative Statements
48. Guidance provided Guidance from instructor: YES {1-0} Guidance online: Yes {3-0} Helpdesk used? YES {3-0}	*Instances: 7* This cluster groups responses that indicated that the respondent had received some kind of guidance in using a course e-textbook.	"The course instructor for the textbook that had the interactive components did well in providing guidance. They encouraged use of the text and gave suggestions on how to use it." "A bit of information was provided on the download website. There were some instructions there on how to download the reading application as well as the textbook. That was about it." "I have only had to contact the helpdesk once, and that was when I was having trouble connecting to the Athabasca website. They helped me sort that issue out."
49. Influence of fellow students Attitude shaped by: other students-NO {15-0}~ Attitude shaped by: other students-Validation {7-0}~	*Instances: 22* This cluster groups responses in which respondents commented on the influence – or lack of influence – that other students had on the respondent's attitudes to e-textbooks.	"I had no discussions with my fellow learners. I don't recall hearing any opinions about e-textbooks from my classmates." "I don't think their opinions influenced me very much because they were very similar to my own thinking. It just validated some of the pros and cons that I had already identified."
50. iPad users Computer: iPad-YES {9-0}~ Computer: iPad Primary {6-0} Computer: iPad Secondary {3-0}	*Instances: 18* This cluster groups all respondents who said that they own an iPad. It includes respondents who said that they use their iPad as their primary or secondary means of accessing course e-textbooks.	"My preference is the iPad. I find the iPad easier to hold than the laptop so I find it's more comfortable to read with it. I find the iPad is easy to read in daylight or at night because you can change the background to make it easier to read the words in whatever condition you are in." "I have the e-textbook downloaded on my iPad, but I've only used it a couple times on the iPad. Mainly I use my Mac laptop."

Clusters	Definition	Representative Statements
51. Laptop users Computer: Laptop-YES {9-0}~ Computer: Laptop Primary {10-0} Computer: Laptop Secondary {3-0}	*Instances: 22* This cluster groups all respondents who said that they own a laptop computer. It includes respondents who said that they use their laptop as their primary or secondary means of accessing course e-textbooks.	"I was using a laptop computer with a mouse. It's a fairly new laptop – a good one with a fairly large screen. I probably would use a laptop most of the time." "I have a laptop and that's what I used to download the e-textbook."
52. Students in non-nursing courses Course: AU 518 {2-0} Course: Comp 684 {1-0} Course: ETIM-686 {4-0} Course: MDDE 602 {1-0} Course: MDDE 603 {1-0}	*Instances: 9* This cluster groups comments by all students enrolled in non-nursing courses. The cluster was created mainly to conduct co-occurrence analysis	N/A: comments by this group relate to all of the topics touched on in this study.
53. Students in nursing courses Course: NURS 518 {1-0} Course: NURS 521 {1-0} Course: NURS 522 {13-0} Course: NURS 524 {2-0}	*Instances: 17* This cluster groups comments by all the respondents who were enrolled in nursing courses. The cluster was created mainly to conduct co-occurrence analysis.	N/A: comments by this group relate to all of the topics touched on in this study.
54. Reading approach Reading approach: followed course outline {16-0} Reading approach: practiced in advance {1-0} Reading approach: skim text {1-0} Reading approach: use both eText and print text {6-0} Reading approach: uses laptop & iPad {1-0}~	*Instances: 25* This cluster groups respondent comments on how they went about reading from their assigned e-textbook.	"I read anything that is pertinent to what I am studying. Certainly not cover to cover. I jumped around a little bit, reading anything that was pertinent at the time. The reading pattern is really geared to the course guide, which sets out particular readings at a particular time." "I really like reading e-textbooks on my first pass through. But, if I really want to concentrate on a couple of pages, and if I have multiple documents open at the same time, I like to have those hard copies in front of me. I find it easier to refer to them.

Clusters	Definition	Representative Statements
55. Single instance attitude factors Attitude shaped by: children {1-0}~ Attitude shaped by: eTextbooks are up to date {1-0}~ Attitude shaped by: eTextbooks lack tangibility {1-0}~ Attitude shaped by: major change {1-0}~ Attitude shaped by: non-Canadian content {1-0}~ Attitude shaped by: technical ease {1-0}~ Attitude shaped by: wish to be early adopter {1-0} Attitude shaped by: wish to pass on hardcopy {1-0}~ Barriers: distractions {1-0}~ Barriers: eTextbooks less efficient {1-0}~	*Instances: 10* This cluster groups reasons given by only one respondent for his or her attitudes to e-textbooks. This is a group of "outliers".	"I still have children in University and they have used e-textbooks in some of their programs. So, that has shaped my understanding that this is the direction that we are moving. If you're going to go to school at this point, then e-textbooks will be part of your reality." "I'm definitely more distracted with e-textbooks because you have access to so many different things on your computer. So, you see i-messages coming up on your computer. Or, something will pop into my head and I think "I should go and look that up." That can sometimes be helpful if I'm looking something up that I don't understand. But most of the time, I just get off-topic and lose focus on what I should be doing. With a paper textbook and a piece of paper, there just aren't many distractions."
56. Smartphone users Computer: Smartphone-Primary {1-0} Computer: Smartphone-YES {26-0}~	*Instances: 27* This cluster groups all respondents who said that they own a smartphone One of the respondents said that she uses her smartphone as her primary means of accessing course e-textbooks.	"The experience is definitely different between a laptop and a smart phone. For reasons of convenience, I used the smart phone more often than the laptop. " "Sometimes I read from my iPhone, too. I do that mainly when I'm on the train. I actually find that it's not too bad on my iPhone. It's not an issue for me. But it has to be truly an e-book and not just a PDF for it to work on my phone."

Clusters	Definition	Representative Statements
57. Technical/computer issues Attitude shaped by: eTextbook portability {5-0}~ Attitude shaped by: technical ease {1-0}~ Attitude shaped by: technical problems {5-0}~ Barriers: hard to print {5-0} Barriers: limited to some devices {2-0}~ Barriers: lots of planning required {1-0}~ Barriers: need to charge {2-0}~ Barriers: require Internet access {9-0}~ Barriers: small screen {2-0}~ Barriers: technical problems {6-0}~ Benefits: portability {10-0}	*Instances: 48* This cluster groups responses – positive and negative – concerning technical or computer factors that helped to shape attitudes.	"I use an iPad tablet and I use an iPhone. It wasn't possible for me to download my textbooks to those platforms." "When you first hear about e-textbooks, you don't always realize how much planning they require. They are heavily Wi-Fi dependent, so you need to think about where you will be able to make a connection. You have to make sure that your device is fully charged. If you are going to work off-line, you have to plan what chapters are going to copy to your hard drive. You are also dragging around the device that has a high value, so you don't want to leave it out and need to have some place where you can lock it up. So, there are security worries that you don't have to the same extent with a hard copy textbook."
58. Want list Want list: assistance from instructor {4-0} Want list: control over text display {1-0}~ Want list: course or written guide {5-0}~ Want list: demonstration webinars {2-0} Want list: download to computer {1-0}~ Want list: eliminate eTextbooks {1-0} Want list: good search engine {2-0} Want list: local support groups {1-0} Want list: more interactive eTextbooks {3-0}~ Want list: options {9-0}~ Want list: perpetual licences {1-0}	*Instances: 30* This cluster groups all of the responses in which respondents itemized features that they would like to see incorporated in e-textbooks of the future.	"The instructor didn't provide any guidance. For a student who had no background in computer technology, some kind of assistance right at the start would've been helpful." "It would also be nice to have a course that you could take – something that might take an hour of your time – on how to use an e-text. They already have that for other topics." "Books with hyperlinks and interactive features that enhance the features of the textbook might be a good idea, but most of the texts I've encountered have none of those extra features. They are just straight text." "I would really like to see Athabasca University offer students the option of either a printed text or e-text."

Appendix 6: Merging of Codes

	Original Codes	Instances	Remove or Merge With…	Change Name To…
1.	1st Lang: Chinese	1	Remove	
2.	1st language: English	22	Remove	
3.	Age: 25-30	6		
4.	Age: 31-40	6		
5.	Age: 41-50	9		
6.	Age: 51 and older	2		
7.	Attitude shaped by: age	1		
8.	Attitude shaped by: children	1		
9.	Attitude shaped by: comfort with technology	2		
10.	Attitude shaped by: cost of new technology	18	Merge with: Cost	Attitude shaped by: additional costs
11.	Attitude shaped by: cost savings	2		
12.	Attitude shaped by: environmental concerns	8		
13.	Attitude shaped by: e-textbook portability	5		
14.	Attitude shaped by: e-textbooks are up to date	1		
15.	Attitude shaped by: e-textbooks lack tangibility	1		
16.	Attitude shaped by: learning style	2		
17.	Attitude shaped by: licence duration	18		
18.	Attitude shaped by: major change	1		
19.	Attitude shaped by: non-Canadian content	1		
20.	Attitude shaped by: other students-NO	15		
21.	Attitude shaped by: other students – VALIDATION	7		
22.	Attitude shaped by: positive experience	4		
23.	Attitude shaped by: quality of e-textbook	10		
24.	Attitude shaped by: technical ease	1		
25.	Attitude shaped by: technical problems	5		
26.	Attitude shaped by: too much time on computer	2		
27.	Attitude shaped by: wish to be early adopter	1		
28.	Attitude shaped by: wish to pass on hardcopy	1		

	Original Codes	Instances	Remove or Merge With…	Change Name To…
29.	Attitude: changed for worse	14		
30.	Attitude: improved	5		
31.	Attitude: Negative	5	Merge with Negative in Advance; Remove after merge	
32.	Attitude: Negative in advance	12		
33.	Attitude: Neutral in advance	6		
34.	Attitude: Positive in advance	10		
35.	Attitude: stayed the same-negative	3		
36.	Attitude: stayed the same-neutral	2		
37.	Attitude: stayed the same-positive	5		
38.	Barriers: absorb less	4		
39.	Barriers: can't bookmark	2		
40.	Barriers: distractions	1		
41.	Barriers: e-textbooks less efficient	1		
42.	Barriers: frustration with e-textbook	12		
43.	Barriers: hard to navigate	3		
44.	Barriers: hard to print	5		
45.	Barriers: hard to read	6		
46.	Barriers: lack of context	1		
47.	Barriers: lack of time	3		
48.	Barriers: limited to some devices	2		
49.	Barriers: lots of planning required	1		
50.	Barriers: markups hard to find	1		
51.	Barriers: need to adapt	1		
52.	Barriers: need to charge	2		
53.	Barriers: Non-flowing text	2		
54.	Barriers: poor search function	1		
55.	Barriers: require Internet access	9		
56.	Barriers: small screen	2		
57.	Barriers: technical problems	6		
58.	Benefits: bookmarking	3		Benefits: bookmarking

Original Codes	Instances	Remove or Merge With…	Change Name To…
59. Benefits: multimedia supplements learning	4		
60. Benefits: none	1		
61. Benefits: portability	10		
62. Benefits: text search	6		
63. Benefits: uncertain	1		
64. Computer: Desktop Primary	6		
65. Computer: Desktop secondary	1		
66. Computer: Desktop-NO	11	Remove	
67. Computer: Desktop-YES	7	Device experience: desktop used at home and office	
68. Computer: eReader-NO	17	Remove	
69. Computer: eReader-Primary	1		
70. Computer: eReader-Yes	4		
71. Computer: iPad Primary	6		
72. Computer: iPad Secondary	3		
73. Computer: iPad-NO	11	Remove	
74. Computer: iPad-YES	9	Device experience: iPad problematic	
75. Computer: Laptop Primary	10		
76. Computer: Laptop secondary	3		
77. Computer: Laptop-NO	3	Remove	
78. Computer: Laptop-YES	9	Device experience: laptop preferred	
79. Computer: Other tablet-NO	17	Remove	
80. Computer: Other tablet-YES	8	Device experience: tablet for commuting Device experience: tablet good for reading, not creating	
81. Computer: Smartphone-NO	4	Remove	
82. Computer: Smartphone-Primary	1		

Original Codes	Instances	Remove or Merge With…	Change Name To…
83. **Computer: Smartphone-YES**	**26**	**Device experience: limited features on smartphone Device experience: smartphone not good for reading Device experience: smartphone OK for reading**	
84. **Cost (MERGE with #10)**		**Remove after merging**	
85. **Course: AU 518**	**2**		
86. **Course: Comp 684**	**1**		
87. **Course: ETIM-686**	**4**		
88. **Course: MDDE 602**	**1**		
89. **Course: MDDE 603**	**1**		
90. **Course: NURS 518**	**1**		
91. **Course: NURS 521**	**1**		
92. **Course: NURS 522**	**13**		
93. **Course: NURS 524**	**2**		
94. **Device experience: desktop used at home and office (MERGE with #65)**		**Remove after merging**	
95. **Device experience: iPad problematic (MERGE with #72)**		**Remove after merging**	
96. **Device experience: laptop preferred (MERGE with #76)**		**Remove after merging**	
97. **Device experience: limited features on smartphone (MERGE with #81)**		**Remove after merging**	
98. **Device experience: no device suitable**	**2**		
99. **Device experience: smartphone not good for reading (MERGE with #81)**		**Remove after merging**	
100. **Device experience: smartphone OK for reading (MERGE with #81)**		**Remove after merging**	
101. **Device experience: tablet for commuting (MERGE with #78)**		**Remove after merging**	

Original Codes	Instances	Remove or Merge With…	Change Name To…
102. Device experience: tablet good for reading, not creating (MERGE with #78)		Remove after merging	
103. Dissatisfaction aimed at AU	5		Dissatisfaction with University
104. Employed: Full-time	13		
105. Employed: Part-time	10		
106. Employed: Unemployed	2		
107. Enrolled: Full-time	7		
108. Enrolled: Part-time	14		
109. eReading experience: extensive	9		
110. eReading experience: limited or none	12		
111. eReading experience: moderate	2		
112. Ergonomics: eye strain	12		
113. Ergonomics: physical discomfort	5		
114. Ergonomics: tiring	1		
115. E-textbook discussed in chatroom? NO	4	Remove after renaming	Chatroom discussion: NO
116. E-textbook discussed in chatroom? YES	15	Remove after renaming	Chatroom discussion: YES
117. E-textbook experience: 0 (MERGE with #139)		Remove after merging	
118. E-textbook experience: 1-2 (MERGE with #140)		Remove after merging	
119. E-textbook features: copy & paste - NO	1	Remove after renaming	Uses copy & paste - NO
120. E-textbook features: copy & paste - YES	2	Remove after renaming	Uses copy & paste - YES
121. E-textbook features: Hyperlinks-NO (MERGE with #152)		Remove after merging	
122. E-textbook features: multimedia-NO		Remove	
123. E-textbook features: TOC & Index - YES	5	Remove after renaming	Uses TOC & index-YES
124. E-textbook: 1 of several resources	5		Reading approach: used several resources
125. Gender: Female	16		
126. Gender: Male	7		
127. Guidance from instructor: NO	24		
128. Guidance from instructor: YES	1		
129. Guidance online: Yes	3		
130. Helpdesk used? NO	20		
131. Helpdesk used? YES	3		

Original Codes	Instances	Remove or Merge With…	Change Name To…
132. License duration	18		Attitude shaped by: License duration
133. Other students influential? NO	15	Remove after renaming	Attitude shaped by: other students-NO
134. Other students influential? Validated attitudes	7	Remove after renaming	Attitude shaped by: other students-Validation
135. Platform makes a difference	16		
136. Preference for print books	14		
137. Previous courses: 0	2		
138. Previous courses: 1-2	1		
139. Previous courses: 3-4	4		
140. Previous courses: 5 or more	16		
141. Previous e-textbooks: 0	3	e-textbook experience: 0	
142. Previous e-textbooks: 1-2	13	e-textbook experience: 1-2	
143. Previous e-textbooks: 3-4	8		
144. Print e-text articles? YES	6		
145. Print e-textbook? NO	10		
146. Print e-textbook? YES	9		
147. Purchased hardcopy-NO	6		
148. Purchased hardcopy-YES	21		
149. Reading approach: followed course outline	16		
150. Reading approach: practiced in advance	1		
151. Reading approach: skim text	1		
152. Reading approach: use as reference (MERGE with #162)		Remove after merging	
153. Reading approach: use both e-Text and print text	6		
154. Reading approach: use hyperlinks-NO	7	e-textbook features: Hyperlinks-NO Remove after merge & renaming	Uses Hyperlinks-NO
155. Reading approach: use hyperlinks-YES	7	Remove after renaming	Uses Hyperlinks-YES
156. Reading approach: uses laptop & iPad	1		
157. Reading approach: uses search function - NO	2	Remove after renaming	Uses Search-NO
158. Reading approach: uses search function - YES	8	Remove after renaming	Uses Search-YES

Original Codes	Instances	Remove or Merge With…	Change Name To…
159. Student: Canadian	20	Remove	
160. Technology: Course SmartReader	3	Remove after renaming	Software: VitalSource CourseSmart
161. Technology: PageBurst	4	Remove after renaming	Software: Elsevier PageBurst
162. Technology: Vital Source Bookshelf	5	Remove after renaming	Software: VitalSource Bookshelf
163. Uses as reference source? NO	1		
164. Uses as reference source? YES	7	Reading approach: use as reference	
165. Uses FONT tools: Yes	1		
166. Uses MARKUP tools: NO	11		
167. Uses MARKUP tools: YES	5		
168. Uses NOTES feature: NO	2		
169. Uses NOTES feature: YES	2		
170. Uses TOC & index: Yes	5		
171. Want list: assistance from instructor	4		
172. Want list: control over text display	1		
173. Want list: course or written guide	5		
174. Want list: demonstration webinars	2		
175. Want list: download to computer	1		
176. Want list: eliminate e-textbooks	2		
177. Want list: good search engine	2		
178. Want list: local support groups	1		
179. Want list: more interactive e-textbooks	3		
180. Want list: options	9		
181. Want list: perpetual licences	1		

Appendix 7: Sample ATLAS.ti Coding Page

ID: 8	
Gender: Female	✿ ∎ Gender: Female
Age: 55	✿ ∎ Age: 51 and older
Course: Women's Health	✿ ∎ Course: NURS 522
1st Lang: Yes	✿ ∎ 1st language: English
Read Eng well: 5	
Student: Canadian student	✿ ∎ Student: Canadian
Prev courses: 7	✿ ∎ Previous courses: 5 or more
Used eTextbook 3	✿ ∎ Previous eTextbooks: 3-4
Enrolled: Part-time	✿ ∎ Employed: Part-time
Employed: Employed part-time	✿ ∎ Employed: Part-time
Desktop: Yes	✿ ∎ Computer: Desktop-YES
Laptop: Yes	✿ ∎ Computer: Laptop-YES~
iPad: No	
Other tablet: No	
E-Reader: No	
SmartPhone: No	

1. **Can you tell me about the Program and Course you are enrolled in right now?**
I'm in the Women's and Men's Health course, and it's part of the Masters in Nurse Practitioner program. The course number is NURS 522.

2. **What e-reading experience did you have before beginning your program at Athabasca?**
I have never read e-books for pleasure and I haven't had to use e- texts in my work. My husband has an e-reader and I could use that, but I dislike anything related to computers if I don't have to use it.

✿ ∎ eReading experience: limited or none

3. **What was your attitude to e-books before you began using an e-textbook in your coursework?**
I had no experience with e- textbooks before beginning my studies at Athabasca. One earlier course required the use of an e- textbook, and I really disliked it. I had to work online and I really did not like working online with the textbook.

✿ ∎ Attitude: Negative in advance~

4. **How do you go about reading an e-textbook?**
I did not wish to use an e- textbook. I hate spending all my time in front of the computer. So, I went to Amazon and bought the text. I have been working from the printed version of the textbook. Anytime I have the opportunity to use an e- textbook, I purchased the print version instead. Online learning is difficult for some people and if you have to fight to find material in an online text it just makes it that much more difficult.

✿ ∎ Purchased hardcopy-YES

✿ ∎ Barriers: frustration with eTextbook~

Note: The highlighted sentence in the left window and its code in the right window illustrate how coding was carried out.

Appendix 8: Sample ATLAS.ti Code Manager
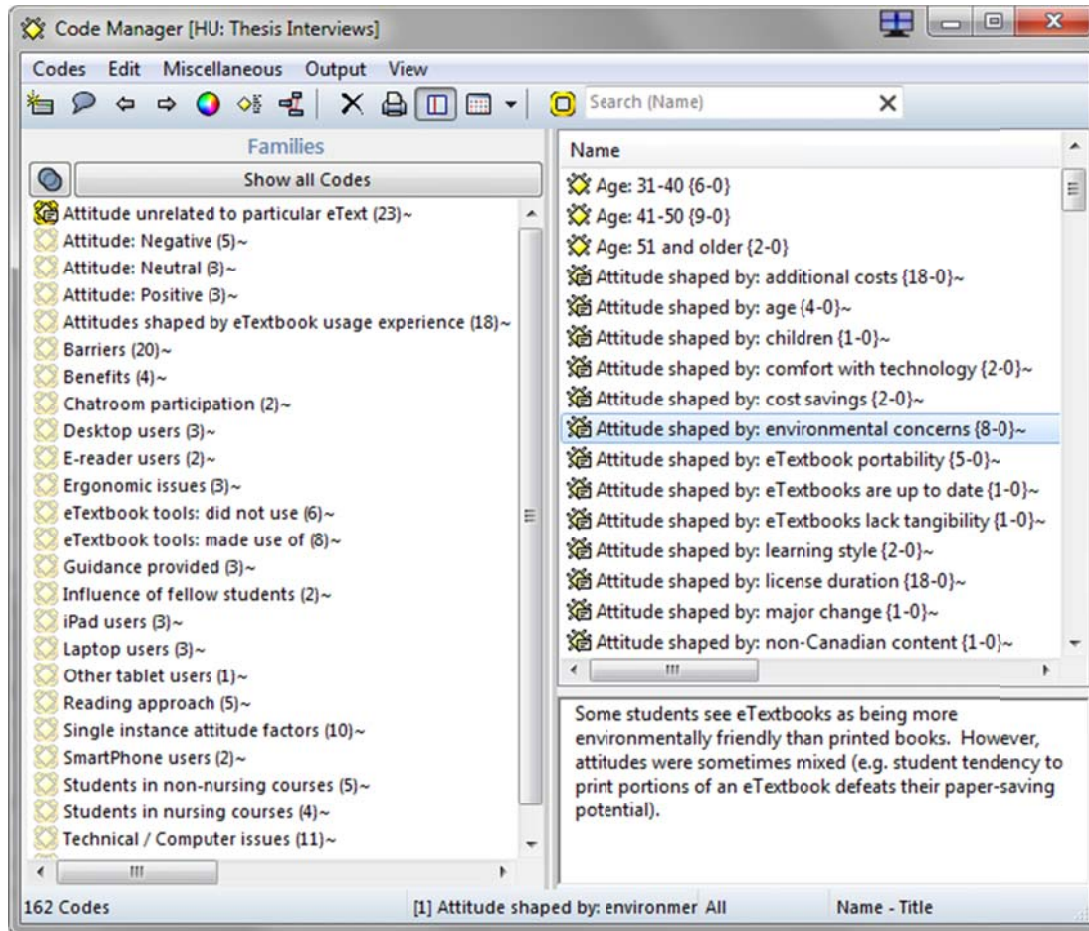
The highlighted code (upper right field) is accompanied by the researcher's "notes to self" on the code's meaning and potential issues (lower right field).

In the left field, the bracketed number (23) refers to the number of times this code appears in the interviews. The tilde (~) indicates that a comment has been written about the code.

In the upper right field, the entry (8-0) means that this code appears 8 times in the interviews. The "0" is a measure of "density", meaning, in this case, that no other codes have been linked to the "environmental concerns" code.

Appendix 9: Consolidation of Codes and Clusters

	Consolidated Codes	Instances	Include in Cluster
1.	Age: 25-30	6	
2.	Age: 31-40	6	
3.	Age: 41-50	9	
4.	Age: 51 and older	2	
5.	Attitude shaped by: additional costs	18	• Attitudes unrelated to particular e-textbook
6.	Attitude shaped by: age	1	• Single instance attitude factors • Attitudes unrelated to particular e-textbook
7.	Attitude shaped by: children	1	• Single instance attitude factors • Attitudes unrelated to particular e-textbook
8.	Attitude shaped by: comfort with technology	2	• Attitudes unrelated to particular e-textbook
9.	Attitude shaped by: cost savings	2	• Attitudes unrelated to particular e-textbook
10.	Attitude shaped by: environmental concerns	8	• Attitudes unrelated to particular e-textbook
11.	Attitude shaped by: e-textbook portability	5	• Attitudes unrelated to particular e-textbook • Technical/computer issues
12.	Attitude shaped by: e-textbooks are up to date	1	• Single instance attitude factors • Attitudes unrelated to particular e-textbook
13.	Attitude shaped by: e-textbooks lack tangibility	1	• Single instance attitude factors • Attitudes unrelated to particular e-textbook
14.	Attitude shaped by: learning style	2	• Attitudes unrelated to particular e-textbook
15.	Attitude shaped by: licence duration	18	• Attitudes unrelated to particular e-textbook
16.	Attitude shaped by: major change	1	• Single instance attitude factors • Attitudes unrelated to particular e-textbook
17.	Attitude shaped by: non-Canadian content	1	• Single instance attitude factors • Influence of fellow students
18.	Attitude shaped by: other students – NO	15	• Influence of fellow students
19.	Attitude shaped by: other students – VALIDATION	7	• Attitudes unrelated to particular e-textbook
20.	Attitude shaped by: Platform	16	• Attitudes unrelated to particular e-textbook
21.	Attitude shaped by: positive experience	4	• Single instance attitude factors

22.	Attitude shaped by: quality of e-textbook	10	• Attitudes shaped by e-textbook usage
23.	Attitude shaped by: technical ease	1	• Single instance attitude factors • Technical/computer issues
24.	Attitude shaped by: technical problems	5	• Attitudes shaped by e-textbook usage • Technical/computer issues
25.	Attitude shaped by: too much time on computer	2	• Attitudes unrelated to particular e-textbook
26.	Attitude shaped by: wish to be early adopter	1	• Single instance attitude factors • Attitudes unrelated to particular e-textbook
27.	Attitude shaped by: wish to pass on hardcopy	1	• Single instance attitude factors • Attitudes unrelated to particular e-textbook
28.	Attitude: changed for worse	14	• Attitude: Negative
29.	Attitude: improved	5	• Attitude: Positive
30.	Attitude: Negative in advance	12	• Attitude: Negative
31.	Attitude: Neutral in advance	6	• Attitude: Positive
32.	Attitude: Positive in advance	10	• Attitude: Positive
33.	Attitude: stayed the same-negative	3	• Attitude: Negative
34.	Attitude: stayed the same-neutral	2	• Attitude: Neutral
35.	Attitude: stayed the same-positive	5	• Attitude: Positive
36.	Barriers: absorb less	4	• Attitudes shaped by e-textbook usage • Barriers
37.	Barriers: can't bookmark	2	• Attitudes shaped by e-textbook usage • Barriers
38.	Barriers: distractions	1	• Single instance attitude factors • Attitudes shaped by e-textbook usage • Barriers
39.	Barriers: e-textbooks less efficient	1	• Single instance attitude factors • Attitudes shaped by e-textbook usage • Barriers
40.	Barriers: frustration with e-textbook	12	• Attitudes shaped by e-textbook usage • Barriers
41.	Barriers: hard to navigate	3	• Attitudes shaped by e-textbook usage • Barriers
42.	Barriers: hard to print	5	• Attitudes shaped by e-textbook usage • Technical/computer issues • Barriers
43.	Barriers: hard to read	6	• Attitudes shaped by e-textbook usage • Barriers
44.	Barriers: lack of context	1	• Attitudes shaped by e-textbook usage • Barriers
45.	Barriers: lack of time	3	• Attitudes shaped by e-textbook usage • Barriers
46.	Barriers: limited to some devices	2	• Technical/computer issues • Barriers

47.	Barriers: lots of planning required	1	• Attitudes unrelated to particular e-textbook • Technical/computer issues • Barriers
48.	Barriers: markups hard to find	1	• Attitudes shaped by e-textbook usage • Barriers
49.	Barriers: need to adapt	1	• Attitudes unrelated to particular e-textbook • Barriers
50.	Barriers: need to charge	2	• Technical/computer issues • Barriers
51.	Barriers: Non-flowing text	2	• Attitudes shaped by e-textbook usage • Barriers
52.	Barriers: poor search function	1	• Attitudes shaped by e-textbook usage • Barriers
53.	Barriers: require Internet access	9	• Technical/computer issues • Barriers
54.	Barriers: small screen	2	• Technical/computer issues • Barriers
55.	Barriers: technical problems	6	• Technical/computer issues • Barriers
56.	Benefits: bookmarking	3	• Attitudes shaped by e-textbook usage • Benefits
57.	Benefits: multimedia supplements learning	4	• Attitudes shaped by e-textbook usage • Benefits
58.	Benefits: none	1	• Attitude: Negative
59.	Benefits: portability	10	• Technical/computer issues • Benefits
60.	Benefits: text search	6	• Attitudes shaped by e-textbook usage • Benefits
61.	Benefits: uncertain	1	• Attitude: Neutral
62.	Chatroom discussion: NO	4	• Chatroom participation
63.	Chatroom discussion: YES	15	• Chatroom participation
64.	Computer: Desktop Primary	6	• Desktop users
65.	Computer: Desktop secondary	1	• Desktop users
66.	Computer: Desktop-YES	7	• Desktop users
67.	Computer: eReader-Primary	1	• eReader users
68.	Computer: eReader-Yes	4	• eReader users
69.	Computer: iPad Primary	6	• iPad users
70.	Computer: iPad Secondary	3	• iPad users
71.	Computer: iPad-YES	9	• iPad users
72.	Computer: Laptop Primary	10	• Laptop users
73.	Computer: Laptop secondary	3	• Laptop users
74.	Computer: Laptop-YES	9	• Laptop users
75.	Computer: Other tablet-YES	8	• Other tablet users
76.	Computer: Smartphone-Primary	1	• Smartphone users
77.	Computer: Smartphone-YES	26	• Smartphone users
78.	Computer: No device suitable	2	• Attitude: Negative
79.	Course: AU 518	2	• Non-nursing courses

80.	Course: Comp 684	1	• Non-nursing courses
81.	Course: ETIM-686	4	• Non-nursing courses
82.	Course: MDDE 602	1	• Non-nursing courses
83.	Course: MDDE 603	1	• Non-nursing courses
84.	Course: NURS 518	1	• Nursing courses
85.	Course: NURS 521	1	• Nursing courses
86.	Course: NURS 522	13	• Nursing courses
87.	Course: NURS 524	2	• Nursing courses
88.	Dissatisfaction with University	5	
89.	Employed: Full-time	13	
90.	Employed: Part-time	10	
91.	Employed: Unemployed	2	
92.	Enrolled: Full-time	7	
93.	Enrolled: Part-time	14	
94.	eReading experience: extensive	9	
95.	eReading experience: limited or none	12	
96.	eReading experience: moderate	2	
97.	Ergonomics: eye strain	12	• Attitudes unrelated to particular e-textbook • Ergonomic issues
98.	Ergonomics: physical discomfort	5	• Attitudes unrelated to particular e-textbook • Ergonomic issues
99.	Ergonomics: tiring	1	• Attitudes unrelated to particular e-textbook • Ergonomic issues
100.	Gender: Female	16	
101.	Gender: Male	7	
102.	Guidance from instructor: NO	24	
103.	Guidance from instructor: YES	1	• Guidance provided
104.	Guidance online: Yes	3	• Guidance provided
105.	Helpdesk used? NO	20	
106.	Helpdesk used? YES	3	• Guidance provided
107.	Preference for print books	14	
108.	Previous courses: 0	2	
109.	Previous courses: 1-2	1	
110.	Previous courses: 3-4	4	
111.	Previous courses: 5 or more	16	
112.	Previous e-textbooks: 0	3	
113.	Previous e-textbooks: 1-2	13	
114.	Previous e-textbooks: 3-4	8	
115.	Print eText articles? YES	6	
116.	Print e-textbook? NO	10	
117.	Print e-textbook? YES	9	
118.	Purchased hardcopy-NO	6	
119.	Purchased hardcopy-YES	21	
120.	Reading approach: followed course outline	16	• Reading approach

121.	Reading approach: practiced in advance	1	• Reading approach
122.	Reading approach: skim text	1	• Reading approach
123.	Reading approach: use both eText and print text	6	• Reading approach
124.	Reading approach: used several resources	5	• Reading approach
125.	Reading approach: uses laptop & iPad	1	• Reading approach
126.	Software: Elsevier PageBurst	4	
127.	Software: VitalSource Bookshelf	5	
128.	Software: VitalSource CourseSmart	3	
129.	Uses as reference source? NO	1	• Did not make use of eText tools
130.	Uses as reference source? YES	7	• Made use of eText tools
131.	Uses copy & paste - NO	1	• Did not make use of eText tools
132.	Uses copy & paste - YES	2	• Made use of eText tools
133.	Uses FONT tools: Yes	1	• Made use of eText tools
134.	Uses Hyperlinks-NO	7	• Did not make use of eText tools
135.	Uses Hyperlinks-YES	7	• Made use of eText tools
136.	Uses MARKUP tools: NO	11	• Did not make use of eText tools
137.	Uses MARKUP tools: YES	5	• Made use of eText tools
138.	Uses NOTES feature: NO	2	• Did not make use of eText tools
139.	Uses NOTES feature: YES	2	• Made use of eText tools
140.	Uses Search-NO	2	• Did not make use of eText tools
141.	Uses Search-YES	8	• Made use of eText tools
142.	Uses TOC & index: Yes	5	• Made use of eText tools
143.	Want list: assistance from instructor	4	• Want list
144.	Want list: control over text display	1	• Want list
145.	Want list: course or written guide	5	• Want list
146.	Want list: demonstration webinars	2	• Want list
147.	Want list: download to computer	1	• Want list
148.	Want list: eliminate e-textbooks	2	• Want list
149.	Want list: good search engine	2	• Want list
150.	Want list: local support groups	1	• Want list
151.	Want list: more interactive e-textbooks	3	• Want list
152.	Want list: options	9	• Want list
153.	Want list: perpetual licences	1	• Want list

Appendix 10: Demographic Survey Results

Table

Descriptive Statistics: Participant Sex

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	18	72.0	72.0	72.0
	Male	7	28.0	28.0	100.0
	Total	25	100.0	100.0	

Table

Descriptive Statistics: Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	28	2	8.0	8.0	8.0
	29	2	8.0	8.0	16.0
	30	2	8.0	8.0	24.0
	33	1	4.0	4.0	28.0
	34	1	4.0	4.0	32.0
	35	1	4.0	4.0	36.0
	36	2	8.0	8.0	44.0
	38	1	4.0	4.0	48.0
	39	2	8.0	8.0	56.0
	42	3	12.0	12.0	68.0
	44	1	4.0	4.0	72.0
	45	1	4.0	4.0	76.0
	48	1	4.0	4.0	80.0
	49	2	8.0	8.0	88.0
	50	1	4.0	4.0	92.0
	52	1	4.0	4.0	96.0
	55	1	4.0	4.0	100.0
	Total	25	100.0	100.0	

Table

Descriptive Statistics: Percentiles

Age

N	Valid	25
	Missing	0
Mean		39.28
Median		39.00
Percentiles	25	31.50
	50	39.00
	75	46.50

Table

Descriptive Statistics: Current Course

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	COMP 684	1	4.0	4.0	4.0
	ETIM 686	4	16.0	16.0	20.0
	MDDE 602	1	4.0	4.0	24.0
	MDDE 603	1	4.0	4.0	28.0
	NURS 518	2	8.0	8.0	36.0
	NURS 521	1	4.0	4.0	40.0
	NURS 522	13	52.0	52.0	92.0
	NURS 524	2	8.0	8.0	100.0
	Total	25	100.0	100.0	

Table

Descriptive Statistics: First Language

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	24	96.0	96.0	96.0
	No	1	4.0	4.0	100.0
	Total	25	100.0	100.0	

Yes = English

No = Other

Table

Descriptive Statistics: Previous Master's Level Courses Completed

Previous Masters courses

N	Valid	25
	Missing	0
Mean		6.76
Median		7.00
Mode		7[a]
Std. Deviation		3.897
Range		15
Minimum		0
Maximum		15

a. Multiple modes exist. The
   smallest value is shown

Previous Masters courses

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	8.0	8.0	8.0
	1	1	4.0	4.0	12.0
	3	2	8.0	8.0	20.0
	4	2	8.0	8.0	28.0
	5	1	4.0	4.0	32.0
	6	3	12.0	12.0	44.0
	7	4	16.0	16.0	60.0
	8	4	16.0	16.0	76.0
	9	2	8.0	8.0	84.0
	12	2	8.0	8.0	92.0
	14	1	4.0	4.0	96.0
	15	1	4.0	4.0	100.0
	Total	25	100.0	100.0	

Table

Descriptive Statistics: Previous Courses Requiring the Use of an E-textbook

Previous eTextbooks

N	Valid	25
	Missing	0
Mean		1.96
Median		2.00
Mode		2
Std. Deviation		1.098
Range		4
Minimum		0
Maximum		4

Previous eTextbooks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	8.0	8.0	8.0
	1	7	28.0	28.0	36.0
	2	8	32.0	32.0	68.0
	3	6	24.0	24.0	92.0
	4	2	8.0	8.0	100.0
	Total	25	100.0	100.0	

Table

Descriptive Statistics: Enrolment Status

Educ Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Full-time	9	36.0	36.0	36.0
	Part-time	16	64.0	64.0	100.0
	Total	25	100.0	100.0	

Table

Descriptive Statistics: Employment Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Employed full-time	13	52.0	52.0	52.0
	Employed part-time	10	40.0	40.0	92.0
	Not currently employed	2	8.0	8.0	100.0
	Total	25	100.0	100.0	

Table

Descriptive Statistics: Types of e-Reading Devices Owned

Desktop Computer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	13	52.0	52.0	52.0
	Yes	12	48.0	48.0	100.0
	Total	25	100.0	100.0	

Laptop computer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	2	8.0	8.0	8.0
	Yes	23	92.0	92.0	100.0
	Total	25	100.0	100.0	

iPad

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	13	52.0	52.0	52.0
	Yes	12	48.0	48.0	100.0
	Total	25	100.0	100.0	

Other tablet computer (e.g. Microsoft Surface, Samsung Galaxy Tab, etc.)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	19	76.0	76.0	76.0
	Yes	6	24.0	24.0	100.0
	Total	25	100.0	100.0	

E-reader (e.g. Kindle, Kobo, etc.)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	19	76.0	76.0	76.0
	Yes	6	24.0	24.0	100.0
	Total	25	100.0	100.0	

Smart phone

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	5	20.0	20.0	20.0
	Yes	20	80.0	80.0	100.0
	Total	25	100.0	100.0	

Appendix 11: Differences based on gender

T-Test

Group Statistics

	Participant Sex	N	Mean	Std. Deviation	Std. Error Mean
Absorb less from a computer	Female	18	6.06	1.474	.347
	Male	7	3.86	2.340	.884

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Absorb less from a computer	Equal variances assumed	7.458	.012	2.833	23	.009	2.198	.776	.593	3.804
	Equal variances not assumed			2.313	7.928	.050	2.198	.950	.004	4.393

Mann-Whitney Test

	Comfortable with computers	Just something about a physical book	No downsides to eTexts	Don't like to read text on screen	Love text searches	Preference for paper textbooks	Reading off monitor easy	Absorb less from a computer	I like to print parts of eTexts	Hyperlinks help me learn
Mann-Whitney U	54.000	43.500	42.500	56.000	51.000	35.500	47.000	30.000	30.000	52.000
Wilcoxon W	225.000	71.500	213.500	84.000	222.000	63.500	218.000	58.000	58.000	223.000
Z	-.692	-1.351	-1.292	-.449	-.758	-1.848	-1.050	-2.121	-2.054	-.708
Asymp. Sig. (2-tailed)	.489	.177	.196	.653	.448	.065	.294	.034	.040	.479
Exact Sig. [2*(1-tailed Sig.)]	.615[b]	.244[b]	.220[b]	.701[b]	.495[b]	.097[b]	.357[b]	.047[b]	.047[b]	.534[b]

	eText portability is an advantage	Learn more from printed texts	Hyperlinks disrupt learning	Adequate guidance from instructor	Highlights and notes harder with eText	Cut and paste from eTextbook important	Concern about access	Access and downloading easy	Easy to use eTexts	Would recommend eTexts
	46.000	42.000	24.000	34.500	19.000	53.500	32.500	50.000	51.500	50.000
	217.000	70.000	52.000	205.500	47.000	224.500	60.500	221.000	222.500	221.000
	-1.050	-1.385	-2.415	-1.769	-2.823	-.589	-1.942	-.803	-.716	-.821
	.294	.166	.016	.077	.005	.556	.052	.422	.474	.411
	.326[b]	.220[b]	.017[b]	.085[b]	.006[b]	.574[b]	.064[b]	.458[b]	.495[b]	.458[b]

T-Test

Group Statistics

	Participant Sex	N	Mean	Std. Deviation	Std. Error Mean
I like to print parts of eTexts	Female	18	4.67	2.301	.542
	Male	7	2.14	2.268	.857

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
							Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
I like to print parts of eTexts	Equal variances assumed	1.823	.190	2.472	23	.021	2.524	1.021	.412	4.636
	Equal variances not assumed			2.488	11.136	.030	2.524	1.014	.295	4.753

Mann-Whitney Test

	Comfortable with computers	Just something about a physical book	No downsides to eTexts	Don't like to read text on screen	Love text searches	Preference for paper textbooks	Reading off monitor easy	Absorb less from a computer	I like to print parts of eTexts	Hyperlinks help me learn
Mann-Whitney U	54.000	43.500	42.500	56.000	51.000	35.500	47.000	30.000	30.000	52.000
Wilcoxon W	225.000	71.500	213.500	84.000	222.000	63.500	218.000	58.000	58.000	223.000
Z	-.692	-1.351	-1.292	-.449	-.758	-1.848	-1.050	-2.121	-2.054	-.708
Asymp. Sig. (2-tailed)	.489	.177	.196	.653	.448	.065	.294	.034	.040	.479
Exact Sig. [2*(1-tailed Sig.)]	.615[b]	.244[b]	.220[b]	.701[b]	.495[b]	.097[b]	.357[b]	.047[b]	.047[b]	.534[b]

	eText portability is an advantage	Learn more from printed texts	Hyperlinks disrupt learning	Adequate guidance from instructor	Highlights and notes harder with eText	Cut and paste from eTextbook important	Concern about access	Access and downloading easy	Easy to use eTexts	Would recommend eTexts
	46.000	42.000	24.000	34.500	19.000	53.500	32.500	50.000	51.500	50.000
	217.000	70.000	52.000	205.500	47.000	224.500	60.500	221.000	222.500	221.000
	-1.050	-1.385	-2.415	-1.769	-2.823	-.589	-1.942	-.803	-.716	-.821
	.294	.166	.016	.077	.005	.556	.052	.422	.474	.411
	.326[b]	.220[b]	.017[b]	.085[b]	.006[b]	.574[b]	.064[b]	.458[b]	.495[b]	.458[b]

T-Test

Group Statistics

	Participant Sex	N	Mean	Std. Deviation	Std. Error Mean
Hyperlinks disrupt learning	Female	18	3.72	1.776	.419
	Male	7	2.00	.816	.309

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Hyperlinks disrupt learning	Equal variances assumed	4.381	.048	2.443	23	.023	1.722	.705	.264	3.181
	Equal variances not assumed			3.312	22.047	.003	1.722	.520	.644	2.801

Mann-Whitney Test

	Comfortable with computers	Just something about a physical book	No downsides to eTexts	Don't like to read text on screen	Love text searches	Preference for paper textbooks	Reading off monitor easy	Absorb less from a computer	I like to print parts of eTexts	Hyperlinks help me learn
Mann-Whitney U	54.000	43.500	42.500	56.000	51.000	35.500	47.000	30.000	30.000	52.000
Wilcoxon W	225.000	71.500	213.500	84.000	222.000	63.500	218.000	58.000	58.000	223.000
Z	-.692	-1.351	-1.292	-.449	-.758	-1.848	-1.050	-2.121	-2.054	-.708
Asymp. Sig. (2-tailed)	.489	.177	.196	.653	.448	.065	.294	.034	.040	.479
Exact Sig. [2*(1-tailed Sig.)]	.615[b]	.244[b]	.220[b]	.701[b]	.495[b]	.097[b]	.357[b]	.047[b]	.047[b]	.534[b]

	eText portability is an advantage	Learn more from printed texts	Hyperlinks disrupt learning	Adequate guidance from instructor	Highlights and notes harder with eText	Cut and paste from eTextbook important	Concern about access	Access and downloading easy	Easy to use eTexts	Would recommend eTexts
	46.000	42.000	24.000	34.500	19.000	53.500	32.500	50.000	51.500	50.000
	217.000	70.000	52.000	205.500	47.000	224.500	60.500	221.000	222.500	221.000
	-1.050	-1.385	-2.415	-1.769	-2.823	-.589	-1.942	-.803	-.716	-.821
	.294	.166	.016	.077	.005	.556	.052	.422	.474	.411
	.326[b]	.220[b]	.017[b]	.085[b]	.006[b]	.574[b]	.064[b]	.458[b]	.495[b]	.458[b]

T-Test

Group Statistics

	Participant Sex	N	Mean	Std. Deviation	Std. Error Mean
Highlights and notes harder with eText	Female	18	6.06	1.259	.297
	Male	7	4.14	1.464	.553

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Highlights and notes harder with eText	Equal variances assumed	.557	.463	3.264	23	.003	1.913	.586	.701	3.125
	Equal variances not assumed			3.047	9.666	.013	1.913	.628	.507	3.318

Mann-Whitney Test

	Comfortable with computers	Just something about a physical book	No downsides to eTexts	Don't like to read text on screen	Love text searches	Preference for paper textbooks	Reading off monitor easy	Absorb less from a computer	I like to print parts of eTexts	Hyperlinks help me learn
Mann-Whitney U	54.000	43.500	42.500	56.000	51.000	35.500	47.000	30.000	30.000	52.000
Wilcoxon W	225.000	71.500	213.500	84.000	222.000	63.500	218.000	58.000	58.000	223.000
Z	-.692	-1.351	-1.292	-.449	-.758	-1.848	-1.050	-2.121	-2.054	-.708
Asymp. Sig. (2-tailed)	.489	.177	.196	.653	.448	.065	.294	.034	.040	.479
Exact Sig. [2*(1-tailed Sig.)]	.615[b]	.244[b]	.220[b]	.701[b]	.495[b]	.097[b]	.357[b]	.047[b]	.047[b]	.534[b]

	eText portability is an advantage	Learn more from printed texts	Hyperlinks disrupt learning	Adequate guidance from instructor	Highlights and notes harder with eText	Cut and paste from eTextbook important	Concern about access	Access and downloading easy	Easy to use eTexts	Would recommend eTexts
	46.000	42.000	24.000	34.500	19.000	53.500	32.500	50.000	51.500	50.000
	217.000	70.000	52.000	205.500	47.000	224.500	60.500	221.000	222.500	221.000
	-1.050	-1.385	-2.415	-1.769	-2.823	-.589	-1.942	-.803	-.716	-.821
	.294	.166	.016	.077	.005	.556	.052	.422	.474	.411
	.326[b]	.220[b]	.017[b]	.085[b]	.006[b]	.574[b]	.064[b]	.458[b]	.495[b]	.458[b]

Appendix 12: Differences based on computing device
Desktop Computers

Mann-Whitney Test

Ranks

	Used?	N	Mean Rank	Sum of Ranks		Used?	N	Mean Rank	Sum of Ranks
Comfortable with computers	0	13	11.85	154.00	eText portability is an advantage	0	13	12.62	164.00
	1	12	14.25	171.00		1	12	13.42	161.00
	Total	25				Total	25		
Just something about a physical book	0	13	15.00	195.00	Learn more from printed texts	0	13	14.12	183.50
	1	12	10.83	130.00		1	12	11.79	141.50
	Total	25				Total	25		
No downsides to eTexts	0	13	10.85	141.00	Hyperlinks disrupt learning	0	13	14.62	190.00
	1	12	15.33	184.00		1	12	11.25	135.00
	Total	25				Total	25		
Don't like to read text on screen	0	13	14.12	183.50	Adequate guidance from instructor	0	13	11.08	144.00
	1	12	11.79	141.50		1	12	15.08	181.00
	Total	25				Total	25		
Love text searches	0	13	11.54	150.00	Highlights and notes harder with eText	0	13	15.69	204.00
	1	12	14.58	175.00		1	12	10.08	121.00
	Total	25				Total	25		
Preference for paper textbooks	0	13	14.19	184.50	Cut and paste from eTextbook important	0	13	11.35	147.50
	1	12	11.71	140.50		1	12	14.79	177.50
	Total	25				Total	25		
Reading off monitor easy	0	13	10.92	142.00	Concern about access	0	13	13.31	173.00
	1	12	15.25	183.00		1	12	12.67	152.00
	Total	25				Total	25		
Absorb less from a computer	0	13	14.46	188.00	Access and downloading easy	0	13	12.65	164.50
	1	12	11.42	137.00		1	12	13.38	160.50
	Total	25				Total	25		
I like to print parts of eTexts	0	13	13.85	180.00	Easy to use eTexts	0	13	11.54	150.00
	1	12	12.08	145.00		1	12	14.58	175.00
	Total	25				Total	25		
Hyperlinks help me learn	0	13	11.15	145.00	Would recommend eTexts	0	13	12.19	158.50
	1	12	15.00	180.00		1	12	13.88	166.50
	Total	25				Total	25		

0 = Desktop not Used; 1 = Desktop used

Desktop Computers (continued)

	Comfortable with computers	Just something about a physical book	No downsides to eTexts	Don't like to read text on screen	Love text searches	Preference for paper textbooks	Reading off monitor easy	Absorb less from a computer	I like to print parts of eTexts	Hyperlinks help me learn
Mann-Whitney U	63.000	52.000	50.000	63.500	59.000	62.500	51.000	59.000	67.000	54.000
Wilcoxon W	154.000	130.000	141.000	141.500	150.000	140.500	142.000	137.000	145.000	145.000
Z	-1.037	-1.619	-1.586	-.837	-1.079	-.936	-1.592	-1.098	-.615	-1.389
Asymp. Sig. (2-tailed)	.300	.105	.113	.403	.281	.349	.111	.272	.538	.165
Exact Sig. [2*(1-tailed Sig.)]	.437[b]	.168[b]	.137[b]	.437[b]	.320[b]	.406[b]	.152[b]	.320[b]	.574[b]	.205[b]

eText portability is an advantage	Learn more from printed texts	Hyperlinks disrupt learning	Adequate guidance from instructor	Highlights and notes harder with eText	Cut and paste from eTextbook important	Concern about access	Access and downloading easy	Easy to use eTexts	Would recommend eTexts
73.000	63.500	57.000	53.000	43.000	56.500	74.000	73.500	59.000	67.500
164.000	141.500	135.000	144.000	121.000	147.500	152.000	164.500	150.000	158.500
-.278	-.859	-1.169	-1.394	-2.018	-1.198	-.229	-.250	-1.063	-.596
.781	.390	.242	.163	.044	.231	.819	.803	.288	.551
.810[b]	.437[b]	.270[b]	.186[b]	.060[b]	.247[b]	.852[b]	.810[b]	.320[b]	.574[b]

Laptop Computers

Mann-Whitney Test

Ranks

	Used?	N	Mean Rank	Sum of Ranks
Comfortable with computers	0	2	16.50	33.00
	1	23	12.70	292.00
	Total	25		
Just something about a physical book	0	2	12.50	25.00
	1	23	13.04	300.00
	Total	25		
No downsides to eTexts	0	2	18.50	37.00
	1	23	12.52	288.00
	Total	25		
Don't like to read text on screen	0	2	8.25	16.50
	1	23	13.41	308.50
	Total	25		
Love text searches	0	2	19.25	38.50
	1	23	12.46	286.50
	Total	25		
Preference for paper textbooks	0	2	11.50	23.00
	1	23	13.13	302.00
	Total	25		
Reading off monitor easy	0	2	20.50	41.00
	1	23	12.35	284.00
	Total	25		
Absorb less from a computer	0	2	8.75	17.50
	1	23	13.37	307.50
	Total	25		
I like to print parts of eTexts	0	2	18.00	36.00
	1	23	12.57	289.00
	Total	25		
Hyperlinks help me learn	0	2	18.50	37.00
	1	23	12.52	288.00
	Total	25		

	Used?	N	Mean Rank	Sum of Ranks
eText portability is an advantage	0	2	16.25	32.50
	1	23	12.72	292.50
	Total	25		
Learn more from printed texts	0	2	6.50	13.00
	1	23	13.57	312.00
	Total	25		
Hyperlinks disrupt learning	0	2	15.00	30.00
	1	23	12.83	295.00
	Total	25		
Adequate guidance from instructor	0	2	17.25	34.50
	1	23	12.63	290.50
	Total	25		
Highlights and notes harder with eText	0	2	13.00	26.00
	1	23	13.00	299.00
	Total	25		
Cut and paste from eTextbook important	0	2	17.75	35.50
	1	23	12.59	289.50
	Total	25		
Concern about access	0	2	20.50	41.00
	1	23	12.35	284.00
	Total	25		
Access and downloading easy	0	2	11.75	23.50
	1	23	13.11	301.50
	Total	25		
Easy to use eTexts	0	2	21.00	42.00
	1	23	12.30	283.00
	Total	25		
Would recommend eTexts	0	2	19.50	39.00
	1	23	12.43	286.00
	Total	25		

0 = Laptop not Used; 1 = Laptop used

Laptop Computers (continued)

	Comfortable with computers	Just something about a physical book	No downsides to eTexts	Don't like to read text on screen	Love text searches	Preference for paper textbooks	Reading off monitor easy	Absorb less from a computer	I like to print parts of eTexts	Hyperlinks help me learn
Mann-Whitney U	16.000	22.000	12.000	13.500	10.500	20.000	8.000	14.500	13.000	12.000
Wilcoxon W	292.000	25.000	288.000	16.500	286.500	23.000	284.000	17.500	289.000	288.000
Z	-.891	-.115	-1.148	-1.010	-1.307	-.334	-1.629	-.904	-1.030	-1.173
Asymp. Sig. (2-tailed)	.373	.909	.251	.313	.191	.739	.103	.366	.303	.241
Exact Sig. [2*(1-tailed Sig.)]	.540[b]	.960[b]	.327[b]	.373[b]	.240[b]	.807[b]	.167[b]	.427[b]	.373[b]	.327[b]

	eText portability is an advantage	Learn more from printed texts	Hyperlinks disrupt learning	Adequate guidance from instructor	Highlights and notes harder with eText	Cut and paste from eTextbook important	Concern about access	Access and downloading easy	Easy to use eTexts	Would recommend eTexts
	16.500	10.000	19.000	14.500	23.000	13.500	8.000	20.500	7.000	10.000
	292.500	13.000	295.000	290.500	299.000	289.500	284.000	23.500	283.000	286.000
	-.665	-1.419	-.410	-.873	.000	-.975	-1.581	-.255	-1.648	-1.360
	.506	.156	.682	.383	1.000	.330	.114	.798	.099	.174
	.540[b]	.240[b]	.733[b]	.427[b]	1.000[b]	.373[b]	.167[b]	.807[b]	.133[b]	.240[b]

iPads

Mann-Whitney Test

Ranks

	Used?	N	Mean Rank	Sum of Ranks
Comfortable with computers	0	13	11.54	150.00
	1	12	14.58	175.00
	Total	25		
Just something about a physical book	0	13	13.77	179.00
	1	12	12.17	146.00
	Total	25		
No downsides to eTexts	0	13	12.04	156.50
	1	12	14.04	168.50
	Total	25		
Don't like to read text on screen	0	13	13.96	181.50
	1	12	11.96	143.50
	Total	25		
Love text searches	0	13	12.85	167.00
	1	12	13.17	158.00
	Total	25		
Preference for paper textbooks	0	13	12.35	160.50
	1	12	13.71	164.50
	Total	25		
Reading off monitor easy	0	13	11.81	153.50
	1	12	14.29	171.50
	Total	25		
Absorb less from a computer	0	13	12.38	161.00
	1	12	13.67	164.00
	Total	25		
I like to print parts of eTexts	0	13	12.77	166.00
	1	12	13.25	159.00
	Total	25		
Hyperlinks help me learn	0	13	12.92	168.00
	1	12	13.08	157.00
	Total	25		

eText portability is an advantage	0	13	13.85	180.00
	1	12	12.08	145.00
	Total	25		
Learn more from printed texts	0	13	14.92	194.00
	1	12	10.92	131.00
	Total	25		
Hyperlinks disrupt learning	0	13	12.23	159.00
	1	12	13.83	166.00
	Total	25		
Adequate guidance from instructor	0	13	10.50	136.50
	1	12	15.71	188.50
	Total	25		
Highlights and notes harder with eText	0	13	14.42	187.50
	1	12	11.46	137.50
	Total	25		
Cut and paste from eTextbook important	0	13	11.62	151.00
	1	12	14.50	174.00
	Total	25		
Concern about access	0	13	12.38	161.00
	1	12	13.67	164.00
	Total	25		
Access and downloading easy	0	13	11.92	155.00
	1	12	14.17	170.00
	Total	25		
Easy to use eTexts	0	13	11.42	148.50
	1	12	14.71	176.50
	Total	25		
Would recommend eTexts	0	13	11.73	152.50
	1	12	14.38	172.50
	Total	25		

0 = iPad not Used; 1 = iPad used

iPad Computers (continued)

	Comfortable with computers	Just something about a physical book	No downsides to eTexts	Don't like to read text on screen	Love text searches	Preference for paper textbooks	Reading off monitor easy	Absorb less from a computer	I like to print parts of eTexts	Hyperlinks help me learn
Mann-Whitney U	59.000	68.000	65.500	65.500	76.000	69.500	62.500	70.000	75.000	77.000
Wilcoxon W	150.000	146.000	156.500	143.500	167.000	160.500	153.500	161.000	166.000	168.000
Z	-1.313	-.623	-.708	-.721	-.114	-.513	-.914	-.462	-.168	-.058
Asymp. Sig. (2-tailed)	.189	.533	.479	.471	.910	.608	.361	.644	.867	.954
Exact Sig. [2*(1-tailed Sig.)]	.320[b]	.611[b]	.503[b]	.503[b]	.936[b]	.650[b]	.406[b]	.689[b]	.894[b]	.979[b]

eText portability is an advantage	Learn more from printed texts	Hyperlinks disrupt learning	Adequate guidance from instructor	Highlights and notes harder with eText	Cut and paste from eTextbook important	Concern about access	Access and downloading easy	Easy to use eTexts	Would recommend eTexts
67.000	53.000	68.000	45.500	59.500	60.000	70.000	64.000	57.500	61.500
145.000	131.000	159.000	136.500	137.500	151.000	161.000	155.000	148.500	152.500
-.611	-1.482	-.557	-1.813	-1.067	-1.003	-.458	-.777	-1.147	-.937
.541	.138	.578	.070	.286	.316	.647	.437	.251	.349
.574[b]	.186[b]	.611[b]	.077[b]	.320[b]	.347[b]	.689[b]	.470[b]	.270[b]	.376[b]

Other Tablet Computers

Mann-Whitney Test

Ranks

	Used?	N	Mean Rank	Sum of Ranks
Comfortable with computers	0	19	13.92	264.50
	1	6	10.08	60.50
	Total	25		
Just something about a physical book	0	19	13.74	261.00
	1	6	10.67	64.00
	Total	25		
No downsides to eTexts	0	19	12.37	235.00
	1	6	15.00	90.00
	Total	25		
Don't like to read text on screen	0	19	13.39	254.50
	1	6	11.75	70.50
	Total	25		
Love text searches	0	19	12.39	235.50
	1	6	14.92	89.50
	Total	25		
Preference for paper textbooks	0	19	14.11	268.00
	1	6	9.50	57.00
	Total	25		
Reading off monitor easy	0	19	12.03	228.50
	1	6	16.08	96.50
	Total	25		
Absorb less from a computer	0	19	14.66	278.50
	1	6	7.75	46.50
	Total	25		
I like to print parts of eTexts	0	19	13.47	256.00
	1	6	11.50	69.00
	Total	25		
Hyperlinks help me learn	0	19	11.53	219.00
	1	6	17.67	106.00
	Total	25		

	Used?	N	Mean Rank	Sum of Ranks
eText portability is an advantage	0	19	12.05	229.00
	1	6	16.00	96.00
	Total	25		
Learn more from printed texts	0	19	13.24	251.50
	1	6	12.25	73.50
	Total	25		
Hyperlinks disrupt learning	0	19	14.21	270.00
	1	6	9.17	55.00
	Total	25		
Adequate guidance from instructor	0	19	13.05	248.00
	1	6	12.83	77.00
	Total	25		
Highlights and notes harder with eText	0	19	13.92	264.50
	1	6	10.08	60.50
	Total	25		
Cut and paste from eTextbook important	0	19	11.76	223.50
	1	6	16.92	101.50
	Total	25		
Concern about access	0	19	13.32	253.00
	1	6	12.00	72.00
	Total	25		
Access and downloading easy	0	19	13.58	258.00
	1	6	11.17	67.00
	Total	25		
Easy to use eTexts	0	19	12.05	229.00
	1	6	16.00	96.00
	Total	25		
Would recommend eTexts	0	19	12.08	229.50
	1	6	15.92	95.50
	Total	25		

0 = Tablet not Used; 1 = Tablet used

Other Tablet Computers (continued)

	Comfortable with computers	Just something about a physical book	No downsides to eTexts	Don't like to read text on screen	Love text searches	Preference for paper textbooks	Reading off monitor easy	Absorb less from a computer	I like to print parts of eTexts	Hyperlinks help me learn
Mann-Whitney U	39.500	43.000	45.000	49.500	45.500	36.000	38.500	25.500	48.000	29.000
Wilcoxon W	60.500	64.000	235.000	70.500	235.500	57.000	228.500	46.500	69.000	219.000
Z	-1.415	-1.020	-.795	-.506	-.764	-1.484	-1.276	-2.129	-.589	-1.896
Asymp. Sig. (2-tailed)	.157	.308	.426	.613	.445	.138	.202	.033	.556	.058
Exact Sig. [2*(1-tailed Sig.)]	.274[b]	.400[b]	.475[b]	.642[b]	.475[b]	.198[b]	.246[b]	.043[b]	.598[b]	.080[b]

eText portability is an advantage	Learn more from printed texts	Hyperlinks disrupt learning	Adequate guidance from instructor	Highlights and notes harder with eText	Cut and paste from eTextbook important	Concern about access	Access and downloading easy	Easy to use eTexts	Would recommend eTexts
39.000	52.500	34.000	56.000	39.500	33.500	51.000	46.000	39.000	39.500
229.000	73.500	55.000	77.000	60.500	223.500	72.000	67.000	229.000	229.500
-1.169	-.312	-1.498	-.065	-1.181	-1.532	-.402	-.714	-1.178	-1.163
.242	.755	.134	.948	.238	.126	.688	.475	.239	.245
.274[b]	.780[b]	.156[b]	.975[b]	.274[b]	.138[b]	.733[b]	.514[b]	.274[b]	.274[b]

e-Readers

Mann-Whitney Test

Ranks

	Used?	N	Mean Rank	Sum of Ranks
Comfortable with computers	0	19	12.50	237.50
	1	6	14.58	87.50
	Total	25		
Just something about a physical book	0	19	13.74	261.00
	1	6	10.67	64.00
	Total	25		
No downsides to eTexts	0	19	14.21	270.00
	1	6	9.17	55.00
	Total	25		
Don't like to read text on screen	0	19	12.61	239.50
	1	6	14.25	85.50
	Total	25		
Love text searches	0	19	12.50	237.50
	1	6	14.58	87.50
	Total	25		
Preference for paper textbooks	0	19	13.05	248.00
	1	6	12.83	77.00
	Total	25		
Reading off monitor easy	0	19	13.87	263.50
	1	6	10.25	61.50
	Total	25		
Absorb less from a computer	0	19	12.95	246.00
	1	6	13.17	79.00
	Total	25		
I like to print parts of eTexts	0	19	13.58	258.00
	1	6	11.17	67.00
	Total	25		
Hyperlinks help me learn	0	19	13.39	254.50
	1	6	11.75	70.50
	Total	25		
eText portability is an advantage	0	19	12.89	245.00
	1	6	13.33	80.00
	Total	25		
Learn more from printed texts	0	19	11.50	218.50
	1	6	17.75	106.50
	Total	25		
Hyperlinks disrupt learning	0	19	12.55	238.50
	1	6	14.42	86.50
	Total	25		
Adequate guidance from instructor	0	19	15.00	285.00
	1	6	6.67	40.00
	Total	25		
Highlights and notes harder with eText	0	19	12.11	230.00
	1	6	15.83	95.00
	Total	25		
Cut and paste from eTextbook important	0	19	13.34	253.50
	1	6	11.92	71.50
	Total	25		
Concern about access	0	19	12.63	240.00
	1	6	14.17	85.00
	Total	25		
Access and downloading easy	0	19	13.89	264.00
	1	6	10.17	61.00
	Total	25		
Easy to use eTexts	0	19	14.42	274.00
	1	6	8.50	51.00
	Total	25		
Would recommend eTexts	0	19	14.32	272.00
	1	6	8.83	53.00
	Total	25		

0 = e-Reader not Used; 1 = e-Reader used

e-Readers (continued)

	Comfortable with computers	Just something about a physical book	No downsides to eTexts	Don't like to read text on screen	Love text searches	Preference for paper textbooks	Reading off monitor easy	Absorb less from a computer	I like to print parts of eTexts	Hyperlinks help me learn
Mann-Whitney U	47.500	43.000	34.000	49.500	47.500	56.000	40.500	56.000	46.000	49.500
Wilcoxon W	237.500	64.000	55.000	239.500	237.500	77.000	61.500	246.000	67.000	70.500
Z	-.768	-1.020	-1.524	-.506	-.631	-.071	-1.138	-.068	-.720	-.508
Asymp. Sig. (2-tailed)	.443	.308	.127	.613	.528	.944	.255	.946	.472	.612
Exact Sig. [2*(1-tailed Sig.)]	.555[b]	.400[b]	.156[b]	.642[b]	.555[b]	.975[b]	.303[b]	.975[b]	.514[b]	.642[b]

eText portability is an advantage	Learn more from printed texts	Hyperlinks disrupt learning	Adequate guidance from instructor	Highlights and notes harder with eText	Cut and paste from eTextbook important	Concern about access	Access and downloading easy	Easy to use eTexts	Would recommend eTexts
55.000	28.500	48.500	19.000	40.000	50.500	50.000	40.000	30.000	32.000
245.000	218.500	238.500	40.000	230.000	71.500	240.000	61.000	51.000	53.000
-.130	-1.976	-.553	-2.479	-1.147	-.424	-.469	-1.103	-1.767	-1.661
.897	.048	.580	.013	.251	.672	.639	.270	.077	.097
.926[b]	.069[b]	.598[b]	.014[b]	.303[b]	.687[b]	.687[b]	.303[b]	.092[b]	.121[b]

Smartphones

Mann-Whitney Test

Ranks

	Used?	N	Mean Rank	Sum of Ranks
Comfortable with computers	0	5	14.20	71.00
	1	20	12.70	254.00
	Total	25		
Just something about a physical book	0	5	14.90	74.50
	1	20	12.53	250.50
	Total	25		
No downsides to eTexts	0	5	17.00	85.00
	1	20	12.00	240.00
	Total	25		
Don't like to read text on screen	0	5	13.00	65.00
	1	20	13.00	260.00
	Total	25		
Love text searches	0	5	12.30	61.50
	1	20	13.18	263.50
	Total	25		
Preference for paper textbooks	0	5	13.00	65.00
	1	20	13.00	260.00
	Total	25		
Reading off monitor easy	0	5	16.80	84.00
	1	20	12.05	241.00
	Total	25		
Absorb less from a computer	0	5	13.40	67.00
	1	20	12.90	258.00
	Total	25		
I like to print parts of eTexts	0	5	13.40	67.00
	1	20	12.90	258.00
	Total	25		
Hyperlinks help me learn	0	5	15.30	76.50
	1	20	12.43	248.50
	Total	25		

	Used?	N	Mean Rank	Sum of Ranks
eText portability is an advantage	0	5	13.90	69.50
	1	20	12.78	255.50
	Total	25		
Learn more from printed texts	0	5	11.80	59.00
	1	20	13.30	266.00
	Total	25		
Hyperlinks disrupt learning	0	5	13.60	68.00
	1	20	12.85	257.00
	Total	25		
Adequate guidance from instructor	0	5	17.10	85.50
	1	20	11.98	239.50
	Total	25		
Highlights and notes harder with eText	0	5	14.80	74.00
	1	20	12.55	251.00
	Total	25		
Cut and paste from eTextbook important	0	5	14.70	73.50
	1	20	12.58	251.50
	Total	25		
Concern about access	0	5	11.50	57.50
	1	20	13.38	267.50
	Total	25		
Access and downloading easy	0	5	12.60	63.00
	1	20	13.10	262.00
	Total	25		
Easy to use eTexts	0	5	14.90	74.50
	1	20	12.53	250.50
	Total	25		
Would recommend eTexts	0	5	15.00	75.00
	1	20	12.50	250.00
	Total	25		

0 = SmartPhone not Used; 1 = SmartPhone used

SmartPhones (continued)

	Comfortable with computers	Just something about a physical book	No downsides to eTexts	Don't like to read text on screen	Love text searches	Preference for paper textbooks	Reading off monitor easy	Absorb less from a computer	I like to print parts of eTexts	Hyperlinks help me learn
Mann-Whitney U	44.000	40.500	30.000	50.000	46.500	50.000	31.000	48.000	48.000	38.500
Wilcoxon W	254.000	250.500	240.000	260.000	61.500	260.000	241.000	258.000	258.000	248.500
Z	-.518	-.739	-1.415	.000	-.248	.000	-1.399	-.144	-.140	-.831
Asymp. Sig. (2-tailed)	.605	.460	.157	1.000	.804	1.000	.162	.885	.889	.406
Exact Sig. [2*(1-tailed Sig.)]	.717[b]	.530[b]	.192[b]	1.000[b]	.818[b]	1.000[b]	.216[b]	.921[b]	.921[b]	.447[b]

eText portability is an advantage	Learn more from printed texts	Hyperlinks disrupt learning	Adequate guidance from instructor	Highlights and notes harder with eText	Cut and paste from eTextbook important	Concern about access	Access and downloading easy	Easy to use eTexts	Would recommend eTexts
45.500	44.000	47.000	29.500	41.000	41.500	42.500	48.000	40.500	40.000
255.500	59.000	257.000	239.500	251.000	251.500	57.500	63.000	250.500	250.000
-.312	-.444	-.209	-1.428	-.648	-.592	-.536	-.139	-.664	-.709
.755	.657	.835	.153	.517	.554	.592	.890	.507	.478
.767[b]	.717[b]	.869[b]	.169[b]	.575[b]	.575[b]	.621[b]	.921[b]	.530[b]	.530[b]

Appendix 13: Differences based on previous Master's-level courses

Kruskal-Wallis Test

Ranks

	# of previous courses	N	Mean Rank
Comfortable with computers	0	2	16.50
	1-2	1	16.50
	3-4	4	13.63
	5 or more	18	12.28
	Total	25	
Just something about a physical book	0	2	9.50
	1-2	1	18.00
	3-4	4	15.25
	5 or more	18	12.61
	Total	25	
No downsides to eTexts	0	2	23.50
	1-2	1	18.50
	3-4	4	11.50
	5 or more	18	11.86
	Total	25	
Don't like to read text on screen	0	2	4.75
	1-2	1	11.00
	3-4	4	13.38
	5 or more	18	13.94
	Total	25	
Love text searches	0	2	11.75
	1-2	1	15.50
	3-4	4	9.63
	5 or more	18	13.75
	Total	25	
Preference for paper textbooks	0	2	5.50
	1-2	1	18.50
	3-4	4	13.50
	5 or more	18	13.42
	Total	25	
Reading off monitor easy	0	2	22.50
	1-2	1	22.50
	3-4	4	11.88
	5 or more	18	11.67
	Total	25	

	# of previous courses	N	Mean Rank
Absorb less from a computer	0	2	3.50
	1-2	1	11.50
	3-4	4	18.63
	5 or more	18	12.89
	Total	25	
I like to print parts of eTexts	0	2	6.25
	1-2	1	23.00
	3-4	4	18.00
	5 or more	18	12.08
	Total	25	
Hyperlinks help me learn	0	2	12.75
	1-2	1	18.50
	3-4	4	10.50
	5 or more	18	13.28
	Total	25	
eText portability is an advantage	0	2	20.00
	1-2	1	9.50
	3-4	4	14.50
	5 or more	18	12.08
	Total	25	
Learn more from printed texts	0	2	5.50
	1-2	1	9.00
	3-4	4	14.25
	5 or more	18	13.78
	Total	25	
Hyperlinks disrupt learning	0	2	7.00
	1-2	1	23.00
	3-4	4	13.75
	5 or more	18	12.94
	Total	25	
Adequate guidance from instructor	0	2	18.50
	1-2	1	16.00
	3-4	4	12.75
	5 or more	18	12.28
	Total	25	

	# of previous courses	N	Mean Rank
Highlights and notes harder with eText	0	2	3.50
	1-2	1	13.00
	3-4	4	13.38
	5 or more	18	13.97
	Total	25	
Cut and paste from eTextbook important	0	2	17.75
	1-2	1	14.00
	3-4	4	9.50
	5 or more	18	13.19
	Total	25	
Concern about access	0	2	4.50
	1-2	1	20.50
	3-4	4	14.75
	5 or more	18	13.14
	Total	25	
Access and downloading easy	0	2	19.00
	1-2	1	19.00
	3-4	4	13.50
	5 or more	18	11.89
	Total	25	
Easy to use eTexts	0	2	21.00
	1-2	1	21.00
	3-4	4	12.38
	5 or more	18	11.81
	Total	25	
Would recommend eTexts	0	2	18.25
	1-2	1	19.50
	3-4	4	12.50
	5 or more	18	12.17
	Total	25	

(continued)

	Comfortable with computers	Just something about a physical book	No downsides to eTexts	Don't like to read text on screen	Love text searches	Preference for paper textbooks	Reading off monitor easy	Absorb less from a computer	I like to print parts of eTexts	Hyperlinks help me learn
Chi-Square	1.421	1.754	5.669	3.257	1.309	3.344	6.679	6.446	5.980	1.187
df	3	3	3	3	3	3	3	3	3	3
Asymp. Sig.	.701	.625	.129	.354	.727	.342	.083	.092	.113	.756

	eText portability is an advantage	Learn more from printed texts	Hyperlinks disrupt learning	Adequate guidance from instructor	Highlights and notes harder with eText	Cut and paste from eTextbook important	Concern about access	Access and downloading easy	Easy to use eTexts	Would recommend eTexts
	2.585	3.192	3.370	1.536	4.111	1.856	4.360	2.520	4.281	2.231
	3	3	3	3	3	3	3	3	3	3
	.460	.363	.338	.674	.250	.603	.225	.472	.233	.526

Appendix 14: Differences based on previous e-textbook use

Kruskal-Wallis Test

Ranks

	# of previous eTextbooks	N	Mean Rank
Comfortable with computers	1.00	2	16.50
	2.00	15	12.40
	3.00	8	13.25
	Total	25	
Just something about a physical book	1.00	2	9.50
	2.00	15	14.03
	3.00	8	11.94
	Total	25	
No downsides to eTexts	1.00	2	17.75
	2.00	15	11.80
	3.00	8	14.06
	Total	25	
Don't like to read text on screen	1.00	2	12.25
	2.00	15	13.47
	3.00	8	12.31
	Total	25	
Love text searches	1.00	2	9.00
	2.00	15	12.77
	3.00	8	14.44
	Total	25	
Preference for paper textbooks	1.00	2	10.50
	2.00	15	14.50
	3.00	8	10.81
	Total	25	
Reading off monitor easy	1.00	2	14.75
	2.00	15	13.23
	3.00	8	12.13
	Total	25	

		N	
Absorb less from a computer	1.00	2	12.25
	2.00	15	13.17
	3.00	8	12.88
	Total	25	
I like to print parts of eTexts	1.00	2	16.00
	2.00	15	12.57
	3.00	8	13.06
	Total	25	
Hyperlinks help me learn	1.00	2	11.25
	2.00	15	13.10
	3.00	8	13.25
	Total	25	
eText portability is an advantage	1.00	2	15.00
	2.00	15	12.67
	3.00	8	13.13
	Total	25	
Learn more from printed texts	1.00	2	10.75
	2.00	15	13.10
	3.00	8	13.38
	Total	25	
Hyperlinks disrupt learning	1.00	2	10.00
	2.00	15	13.97
	3.00	8	11.94
	Total	25	
Adequate guidance from instructor	1.00	2	15.25
	2.00	15	13.87
	3.00	8	10.81
	Total	25	

		N	
Highlights and notes harder with eText	1.00	2	3.50
	2.00	15	14.33
	3.00	8	12.88
	Total	25	
Cut and paste from eTextbook important	1.00	2	14.75
	2.00	15	13.70
	3.00	8	11.25
	Total	25	
Concern about access	1.00	2	5.50
	2.00	15	13.70
	3.00	8	13.56
	Total	25	
Access and downloading easy	1.00	2	19.00
	2.00	15	12.80
	3.00	8	11.88
	Total	25	
Easy to use eTexts	1.00	2	12.50
	2.00	15	13.50
	3.00	8	12.19
	Total	25	
Would recommend eTexts	1.00	2	14.00
	2.00	15	12.73
	3.00	8	13.25
	Total	25	

(continued)

	Comfortable with computers	Just something about a physical book	No downsides to eTexts	Don't like to read text on screen	Love text searches	Preference for paper textbooks	Reading off monitor easy	Absorb less from a computer	I like to print parts of eTexts	Hyperlinks help me learn
Chi-Square	.906	1.199	1.517	.170	.993	1.925	.284	.035	.407	.142
df	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.636	.549	.468	.919	.609	.382	.868	.983	.816	.932

eText portability is an advantage	Learn more from printed texts	Hyperlinks disrupt learning	Adequate guidance from instructor	Highlights and notes harder with eText	Cut and paste from eTextbook important	Concern about access	Access and downloading easy	Easy to use eTexts	Would recommend eTexts
.188	.250	.794	1.158	4.302	.736	2.501	1.589	.186	.072
2	2	2	2	2	2	2	2	2	2
.910	.883	.672	.560	.116	.692	.286	.452	.911	.965

Appendix 15: Coded Document Sample

July 16, 2014

ID: 18

Gender:	Female		Gender: Female
Age:	48		Age: 41-50
Course:	NURS 521		Course: NURS 521
1st Lang:	Yes		1st language: English
Read Eng well:	5		
Student:	Canadian student		Student: Canadian
Prev courses:	3		Previous courses: 3-4
Used eTextbook	3		Previous eTextbooks: 3-4
Enrolled:	Part-time		Enrolled: Part-time
Employed:	Employed full-time		Employed: Full-time
Desktop:	No		Computer: Desktop-NO
Laptop:	Yes		Computer: Laptop Primary
iPad:	No		Computer: iPad-NO
Other tablet:	No		Computer: Other tablet-NO
E-Reader:	No		Computer: eReader-NO
SmartPhone:	No		Computer: Smartphone-NO

1.   Can you tell me about the Program and
      Course you are enrolled in right now?
      I'm currently enrolled in Nursing 521. This is a   ⬥ eTextbook: 1 of several resources
      pharmacological therapeutics course. Its
      purpose is to teach me about the prescribing
      habits of nurse practitioners and the
      mechanisms of action for the drugs that may
      be prescribed. A lot of the required
      information is available in the e- textbook, but
      there are also a lot of online readings. The
      core information is in the textbook.

2.   What e-reading experience did you have
      before beginning your program at
      Athabasca?
      I didn't have a lot of you reading experience   ⬥ eReading experience: limited or none
      before beginning the program. I've always
      done my coursework the old-fashioned way.
      For instance, I will write out a bibliography in
      a WordPerfect document. I don't use
      RefWorks or programs like that to help.

      In previous courses, I've had to work with
      online articles and reference materials. I
      generally download those to my computer
      and make use of them as I need them.

3.   What was your attitude to e-books before you began using an e-textbook in your coursework?

I guess for me it comes down to whether or not I'm comprehending and internalizing the information I'm reading, be it through written text or e- text, and transfer that knowledge or not. As far as e- textbooks goes, I think that is a skill you learn as you go along. The more you are exposed to e- readings or e- textbooks, the more familiar you become with that way of reading and understanding things. I have to say that, even now, I'm not super comfortable with e- textbooks. I find I do better if I have a printed textbook in front of me. I also have a fear that I will have downtime because of connectivity issues, so I tend to print things out and bring the printouts with me in a binder I used to organize my printouts.

▯ Attitude shaped by: comfort with technology~
▯ Attitude shaped by: positive experience~

▯ Barriers: require Internet access~
▯ Print eText articles? YES
▯ Print eTextbook? YES~

4.   How do you go about reading an e-textbook?

I follow the course outline and read any suggested articles or passages from the e-textbook. In most cases I print those assigned readings so that I can make highlights and write my own notes on the hardcopy. Or, instead of printing, I will read online and make written cue cards that help me memorize the text. I do go back to the e- textbook when I need to look something up because I find the search capability helpful.

▯ Reading approach: followed course outline

▯ Benefits: text search

This is a good textbook when it comes to things like animation or videos or hyperlinks that demonstrate teaching points. I explore them as often as they are provided and I find the video clips, in particular, very helpful because I am a visual learner. I definitely use the table of contents at the beginning. But, I still don't find this comes naturally to me.

▯ Benefits: multimedia supplements learning~
▯ Uses hyperlinks-YES

I have never really learn to use my current e-textbook's markup tools. I would like to have the luxury of time to be able to learn how to do that. But, I have no spare time to play around with those tools. They change from

▯ Barriers: lack of time~
▯ Uses MARKUP tools: NO

book to book, so learning it once doesn't necessarily prepare you for the next e-textbook you will receive.

5.   What features of e-textbooks would you say supported or hindered your learning? Maybe because I'm old-fashioned, when it comes to studying for an exam, I don't find e-textbooks as user-friendly as printed textbooks.

I have sometimes encountered downloading issues, where I can't download a document I would like to have on my hard drive. If I can't download it, it may not be accessible when I need it. Then you need to find it all over again with all the wasted time that goes with that.

Barriers: require Internet access~
Barriers: technical problems~

6.   Is the experience of using an e-textbook different depending on the kind of e-reading device that you are using? (e.g. desktop, laptop, tablet, e-reader, smart phone) I have an HP laptop. That is mainly what I use. I also have a desktop which I use at home. When I am at work, I can sometimes access study materials through my desktop there. I find the experience of reading an e-textbook about the same on both platforms. I would love to have a tablet but just don't have the funds to get one right now. I've tried reading on my smart phone, but I find that doesn't work very well.

Computer: Smartphone-YES~

When I move from one location to another, I try to save things on my laptop in advance. In those circumstances, the laptop works best for me.

Things get a bit more complicated when I want to be reading e-texts and writing at the same time. That often means that you have several windows open at the same time. That is easier on a big screen.

Barriers: small screen~

7.   Did instructor guidance on how to make best use of an e-textbook affect your e-textbook reception and use?

I didn't receive any instructions or help regarding the functions of my e- textbook. It might've been neat to have a web-based seminar to help us learn how to use any textbook, especially if this is a wave of the future. This wouldn't have to come from the instructor necessarily. It could come from Library Services. I attended an Adobe session from Library Services regarding referencing your work and how to use the library. I found that very helpful.

Guidance from instructor: NO~

Want list: demonstration webinars

8. Did you make use of any institutional support resources such as the Help Desk to learn how to make best use of eTextbooks?
I have only had to contact the helpdesk once, and that was when I was having trouble connecting to the Athabasca website. They helped me sort that issue out. Mainly, I just figure things out based on my previous experiences with computers and e- texts. At work, I have a great IT department to help me. If I need an extra keyboard they will loan me one.

Helpdesk used? YES

9. Were the opinions and strategies of fellow learners influential in forming your attitudes to e-textbooks and your approach to their use?
In this course I have used the online Coffee Room to ask how everyone is keeping up with the massive amount of reading. I find it really overwhelming. Different people shared their strategies, but everybody uses e- textbooks in a different way. So, I guess you just have to figure out what works for you. Some fellow learners have suggested strategies, but I just don't have the time to try them out.

Attitude shaped by: other students-NO~
Chatroom discussion? YES~

10. What other factors played a part in shaping your attitudes and engagement strategies with respect to e-textbooks?
With my first course, I found I was suffering from eyestrain and muscle pain as a result of reading a lot on my computer. Over time, you learn how to sit properly, and I eventually discovered that I needed bifocals, which are

Ergonomics: eye strain
Ergonomics: physical discomfort

done a lot to reduce the eyestrain.

11.   Did your attitudes to e-books change –
for better or worse – as a result of using the
e-textbook in your current course?
I don't think it has changed for worse. But it
also hasn't changed for better. I think that is
probably a time factor. I may become more
accustomed to e- textbooks over time and
more aware of their benefits. Regarding my
attitude to e- textbooks, on a scale of 5 I
would say I'm about a 3. That's a way of
saying that I am kind of indifferent. I'm a
visual and tactile learner. I like to have a book
in front of me and pen in my hand and I
haven't been able yet to switch that in my
brain to the screen and keyboard. I'm trying,
but I'm not there yet.

Attitude: stayed the same-neutral

Attitude shaped by: learning style~
Preference for print books

Appendix 16: Identification of High-Level Themes

Codes/Clusters	Comment	Theme
1. Age: 25-30 2. Age: 31-40 3. Age: 41-50 4. Age: 51 and older	Not a major theme. Attitude differences among age groups was not statistically significant, although two intriguing results suggested that older mid-career learners may hold more positive attitudes to e-textbooks than younger ones.	
5. Dissatisfaction with University	Not a major theme. Rose only 5 times in the interviews, all in connection with lack of choice between e-textbooks and paper textbooks.	
6. Employed: Full-time 7. Employed: Part-time 8. Employed: Unemployed	Not a major theme. Employment status did not predict attitudes to e-textbooks.	
9. Enrolled: Full-time 10. Enrolled: Part-time	Not a major theme. Enrolment status did not predict attitudes to e-textbooks.	
11. e-Reading experience: extensive 12. e-Reading experience: limited or none 13. e-Reading experience: moderate	Together with other codes/clusters in which attitudes arise from experience (previous courses, previous e-textbook use, e-reading software, specific experiences with e-textbooks, this is a major theme.	e-Reading experience
14. Gender: Female 15. Gender: Male	Gender-based differences in attitudes identified during quantitative analysis make this a major theme.	Gender
16. Guidance from instructor: NO 17. Helpdesk used? NO	Guidance, or lack thereof, from instructors and other university sources (e.g. Help Desk, Library, online tutorials) was often mentioned by learners as a factor that played a role in forming their opinions.	Guidance
18. Other tablet users	Statistical analysis of attitude differences based on computing device used to access e-textbooks identified four statistically significant results. However, they indicated that desktop, e-Reader, and non-iPad tablet users would all rather be using printed texts.	

19. Preference for print books	Pre-existing preferences for print books, together with other predispositions such as comfort with technology, wish to be environmentally responsible, etc., expressed by many of the respondents make this a major category.	Predispositions
20. Previous courses: 0 21. Previous courses: 1-2 22. Previous courses: 3-4 23. Previous courses: 5 or more 24. Previous e-textbooks: 0 25. Previous e-textbooks: 1-2 26. Previous e-textbooks: 3-4	These codes have been merged with the e-Reading experience theme.	
27. Print e-Text articles? YES 28. Print e-textbook? NO 29. Print e-textbook? YES	A number of respondents indicated that they print all or portions of their e-textbooks, but this was a result of their attitudes, not a cause.	
30. Purchased hardcopy-NO 31. Purchased hardcopy-YES	As above. While a number of respondents said they had purchased a hardcopy version of their e-textbook, this was a result of their attitudes, not a cause.	
32. Software: Elsevier PageBurst 33. Software: VitalSource Bookshelf 34. Software: VitalSource CourseSmart	These codes have been merged with the e-Reading experience theme.	
35. Attitude: Negative Attitude: changed for worse {14-0}~ Attitude: Negative in advance {12-0}~ Attitude: stayed the same-negative {3-0}~ Benefits: none {1-0}~ Computer: no device suitable {2-0}~ 36. Attitude: Neutral Attitude: Neutral in advance {6-0}~ Attitude: stayed the same-neutral {2-0}~ Benefits: uncertain {1-0}~ 37. Attitude: Positive Attitude: improved {5-0}~ Attitude: Positive in advance {10-0}~ Attitude: stayed the same-positive {5-0}	The attitudes that respondents reported are highly relevant to the Conclusions and Recommendations section of the Thesis, but are mainly reported outcomes rather than causes.	

38. Attitudes shaped by e-textbook usage Attitude shaped by: positive experience {4-0}~ Attitude shaped by: quality of eTextbook {10-0}~ Attitude shaped by: technical problems {5-0}~ Barriers: absorb less {4-0}~ Barriers: can't bookmark {2-0}~ Barriers: distractions {1-0}~ Barriers: eTextbooks less efficient {1-0}~ Barriers: frustration with eTextbook {12-0}~ Barriers: hard to navigate {3-0} Barriers: hard to print {5-0} Barriers: hard to read {6-0} Barriers: lack of context {1-0}~ Barriers: markups hard to find {1-0}~ Barriers: Non-flowing text {2-0}~ Barriers: poor search function {1-0} Benefits: bookmarking {3-0} Benefits: multimedia supplements learning {4-0}~ Benefits: text search {6-0}	These codes have been merged with the e-Reading experience theme.	
39. Attitudes unrelated to particular e-textbook Attitude shaped by: additional costs {18-0}~ Attitude shaped by: age {4-0}~ Attitude shaped by: children {1-0}~ Attitude shaped by: comfort with technology {2-0}~ Attitude shaped by: cost savings {2-0}~ Attitude shaped by: environmental concerns {8-0}~ Attitude shaped by: eTextbook portability {5-0}~ Attitude shaped by: eTextbooks are up to date {1-0}~ Attitude shaped by: eTextbooks lack tangibility {1-0}~ Attitude shaped by: learning style {2-0}~ Attitude shaped by: license duration {18-0}~ Attitude shaped by: major change {1-0}~ Attitude shaped by: other students-Validation {7-0}~ Attitude shaped by: Platform {16-0} Attitude shaped by: too much time on computer {2-0}~ Attitude shaped by: wish to be early adopter {1-0} Attitude shaped by: wish to pass on hardcopy {1-0}~ Barriers: lack of time {3-0}~ Barriers: lots of planning required {1-0}~ Barriers: need to adapt {1-0}~ Ergonomics: eye strain {12-0} Ergonomics: physical discomfort {5-0} Ergonomics: tiring {1-0}~	This cluster groups a wide variety of factors unrelated to the experience of using a particular e-textbook (or e-textbooks) that shaped the respondent's attitudes. As such, it ranks as a group of important inputs into the forming of attitudes.	General factors

40. Barriers Barriers: absorb less {4-0}~ Barriers: can't bookmark {2-0}~ Barriers: distractions {1-0}~ Barriers: eTextbooks less efficient {1-0}~ Barriers: frustration with eTextbook {12-0}~ Barriers: hard to navigate {3-0} Barriers: hard to print {5-0} Barriers: hard to read {6-0} Barriers: lack of context {1-0}~ Barriers: lack of time {3-0}~ Barriers: limited to some devices {2-0}~ Barriers: lots of planning required {1-0}~ Barriers: markups hard to find {1-0}~ Barriers: need to adapt {1-0}~ Barriers: need to charge {2-0}~ Barriers: Non-flowing text {2-0}~ Barriers: poor search function {1-0} Barriers: require Internet access {9-0}~ Barriers: small screen {2-0}~ Barriers: technical problems {6-0}~	This cluster groups responses that identified perceived barriers to using e-textbooks effectively that helped to shape the respondents attitudes.	Barriers
41. Benefits Benefits: bookmarking {3-0} Benefits: multimedia supplements learning {4-0}~ Benefits: portability {10-0} Benefits: text search {6-0}	This cluster groups responses that identified perceived benefits of e-textbooks that helped to shape respondent attitudes	Benefits
42. Chatroom participation Chatroom discussion? NO {4-0}~ Chatroom discussion? YES {15-0}~	Not a major theme. Even when respondents participated in a chatroom, they did not find chatter about e-textbooks influential.	
43. Desktop users Computer: Desktop-YES {7-0} Computer: Desktop Primary {6-0} Computer: Desktop secondary {1-0}	Computer device used is not a significant predictor of attitudes to e-textbooks.	
44. e-Reader users Computer: eReader-Primary {2-0} Computer: eReader-Yes {4-0}	Computer device used is not a significant predictor of attitudes to e-textbooks.	
45. Ergonomic issues Ergonomics: eye strain {12-0} Ergonomics: physical discomfort {5-0} Ergonomics: tiring {1-0}~	This code has been merged with the "Barriers" theme.	
46. e-textbook tools: did not use Use as reference source? NO {1-0}~ Uses copy & paste-NO {1-0} Uses hyperlinks-NO {7-0} Uses MARKUP tools: NO {11-0} Uses NOTES feature: NO {2-0}~ Uses search-NO {2-0}	A number of respondents indicated that do not use one or more of e-textbooks' affordances, but this was generally a result of their attitudes, not a cause.	

47. e-textbook tools: made use of Use as reference source? YES {7-0} Uses copy & paste-YES {2-0} Uses FONT tools: Yes {1-0} Uses hyperlinks-YES {7-0} Uses MARKUP tools: YES {5-0} Uses NOTES feature: YES {2-0} Uses search-YES {8-0} Uses TOC & Index-YES {5-0}~	This code has been merged with the "Benefits" theme.	
48. Guidance provided Guidance from instructor: YES {1-0} Guidance online: Yes {3-0} Helpdesk used? YES {3-0}	This cluster, which includes codes 16 and 17 (see above), makes up the "Guidance" theme	Guidance
49. Influence of fellow students Attitude shaped by: other students-NO {15-0}~ Attitude shaped by: other students-Validation {7-0}~	As respondents who mentioned having had contact with fellow students generally downplayed their influence, this is not a major theme.	
50. iPad users Computer: iPad-YES {9-0}~ Computer: iPad Primary {6-0} Computer: iPad Secondary {3-0}	Computer device used is not a significant predictor of attitudes to e-textbooks.	
51. Laptop users Computer: Laptop-YES {9-0}~ Computer: Laptop Primary {10-0} Computer: Laptop Secondary {3-0}	Computer device used is not a significant predictor of attitudes to e-textbooks.	
52. Students in non-nursing courses Course: AU 518 {2-0} Course: Comp 684 {1-0} Course: ETIM-686 {4-0} Course: MDDE 602 {1-0} Course: MDDE 603 {1-0}	This cluster groups comments by all students enrolled in non-nursing courses. The cluster was created mainly to conduct co-occurrence analysis for use in the Results section.	
53. Students in nursing courses Course: NURS 518 {1-0} Course: NURS 521 {1-0} Course: NURS 522 {13-0} Course: NURS 524 {2-0}	This cluster groups comments by all the respondents who were enrolled in nursing courses. The cluster was created mainly to conduct co-occurrence analysis for use in the Results section.	
54. Reading approach Reading approach: followed course outline {16-0} Reading approach: practiced in advance {1-0} Reading approach: skim text {1-0} Reading approach: use both eText and print text {6-0} Reading approach: uses laptop & iPad {1-0}~	This cluster provides interesting insights into how students make use of their e-textbooks, but does not appear to be a factor in forming their attitudes to e-textbooks	

55. Single instance attitude factors Attitude shaped by: children {1-0}~ Attitude shaped by: eTextbooks are up to date {1-0}~ Attitude shaped by: eTextbooks lack tangibility {1-0}~ Attitude shaped by: major change {1-0}~ Attitude shaped by: non-Canadian content {1-0}~ Attitude shaped by: technical ease {1-0}~ Attitude shaped by: wish to be early adopter {1-0} Attitude shaped by: wish to pass on hardcopy {1-0}~ Barriers: distractions {1-0}~ Barriers: eTextbooks less efficient {1-0}~	This cluster groups reasons given by only one respondent for his or her attitudes to e-textbooks. This is a group of "outliers", which has been merged with the "General Factors" theme.	
56. Smartphone users Computer: Smartphone-Primary {1-0} Computer: Smartphone-YES {26-0}~	Computer device used is not a significant predictor of attitudes to e-textbooks.	
57. Technical/computer issues Attitude shaped by: eTextbook portability {5-0}~ Attitude shaped by: technical ease {1-0}~ Attitude shaped by: technical problems {5-0}~ Barriers: hard to print {5-0} Barriers: limited to some devices {2-0}~ Barriers: lots of planning required {1-0}~ Barriers: need to charge {2-0}~ Barriers: require Internet access {9-0}~ Barriers: small screen {2-0}~ Barriers: technical problems {6-0}~ Benefits: portability {10-0}	The codes included in this cluster have already been merged with the "Benefits" and "Barriers" themes	
58. Want list Want list: assistance from instructor {4-0} Want list: control over text display {1-0}~ Want list: course or written guide {5-0}~ Want list: demonstration webinars {2-0} Want list: download to computer {1-0}~ Want list: eliminate eTextbooks {1-0} Want list: good search engine {2-0} Want list: local support groups {1-0} Want list: more interactive eTextbooks {3-0}~ Want list: options {9-0}~ Want list: perpetual licences {1-0}	This cluster groups all of the responses in which respondents itemized features that they would like to see incorporated in e-textbooks of the future. While not a theme, per se, it provides useful material for the Conclusions and Recommendations section of the paper.	

Appendix 17: Ethics Approval

Athabasca University
RESEARCH CENTRE

May 15, 2014

Mr. Kenneth Desson
Other Academic Centres/Depts
Athabasca University

File No: 21430

Certification Category: Human Ethics

Expiry Date: May 14, 2015

Dear Mr. Kenneth Desson,

The Athabasca University Research Ethics Board (AUREB) has reviewed your application entitled 'Factors That Influence Attitudes To, and Engagement With, E-Textbooks Assigned as Required Course Readings Among Mid-Career Learners in Online Graduate Studies'.

Your application has been **approved** and this memorandum constitutes a *Certification of Ethics Approval.* You may begin the proposed research.

AUREB approval, dated May 15, 2014, is valid for one year less a day.

As you progress with the research, all requests for changes or modifications, renewals and serious adverse event reports must be reported to the Athabasca University Research Ethics Board via the Research Portal.

To continue your proposed research beyond , you must submit an Interim Report before .

If your research ends before , you must submit a Final Report to close our REB approval monitoring efforts.

At any time, you can login to the Research Portal to monitor the workflow status of your application.

If you encounter any issues when working in the Research Portal, please contact the system administrator at research_portal@athabascau.ca.

If you have any questions about the REB review & approval process, please contact the AUREB Office at (780) 675-6718 or rebsec@athabascau.ca.

Sincerely,

Marguerite Koole,
Chair, Centre for Distance Education, Departmental Review Committee
Research Ethics Board