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Textbook Affordability and Student Acceptance of eTextbooks: An Institutional Case-study

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Abstract
There is significant interest among institutions of higher education in the potential of digital textbooks to enhance student learning and to address issues arising from textbook affordability. Innovations in digital textbook design and delivery infrastructure and the emergence of exemplary practices from early adopters signal that digital reading may be a practical alternative to print. Less well understood, however, is students’ experience of textbook affordability, their experience of print and digital textbook utilization, and factors that might influence their acceptance of digital textbooks. This paper explores the results of a semester-long eTextbook research project at a Canadian college and shares six suggestions grounded in student feedback.

Les établissements d’enseignement supérieur s’intéressent considérablement au potentiel des manuels numériques pour améliorer l’apprentissage des étudiants et pour répondre au problème du coût élevé des manuels. Les innovations dans le domaine de la conception des manuels numériques et de l’infrastructure de leur distribution, ainsi que l’émergence de pratiques exemplaires de la part des premières personnes qui ont adopté ces manuels, signalent que la lecture numérique peut être considérée comme une alternative pratique à la page imprimée. Toutefois, ce que l’on connait moins, ce sont l’expérience des étudiants face au coût des manuels, leur expérience à utiliser des manuels imprimés ou des manuels numériques, ainsi que les facteurs qui pourraient influencer leur acceptation des manuels numériques. Cet article explore les résultats d’un projet de recherche portant sur l’utilisation d’un manuel numérique pendant tout un semestre dans un collège canadien et présente six suggestions basées sur les rétroactions des étudiants.

Keywords
digital textbooks, eTextbooks, open textbooks, textbook affordability, digital learning, higher education

Cover Page Footnote
This research project was generously supported by Pearson Canada and Kivuto Technology Solutions Inc. We also thank all participating faculty, students, and staff who shared their experience and insights, although not all may agree with the interpretations and suggestions outlined in this paper.

This research paper/rapport de recherche is available in The Canadian Journal for the Scholarship of Teaching and Learning: https://ir.lib.uwo.ca/cjsotl_rcea/vol9/iss2/3
The issue of textbook affordability has received considerable attention in both Canadian (Davison, 2015; Martin, 2016; Taylor, 2012) and US media (Weisbaum, 2014; Weissmann, 2013). High costs of course textbooks are found to influence students’ purchasing behavior in myriad ways (e.g., not purchasing, not registering for courses, taking fewer courses), with associated impacts on their success, including dropping, withdrawing from or failing a course (Florida Virtual Campus 2012, 2016). Senack and Donoghue (2016) argue that students are facing a “lose-lose” situation: they can either purchase the textbook and increase debt; work more, resulting in less time available for study; or go without the textbook and accept the implications. Faculty, likewise, are hard-pressed to teach when students lack required educational materials.

Two approaches in Canada are demonstrating that digital textbooks can either eliminate or alleviate the burden of cost and at the same time contribute to innovative teaching and learning practices. BC Campus (2018), a pioneer in the development of open textbooks, commenced an open textbook initiative in 2012 with an expressed goal of making higher education more accessible by providing textbooks to students at no charge. The effort now boasts a growing catalog of over 260 freely available titles. As digital content, open textbooks enable educators to create, modify, and share materials (Diener, Diener, & Biswas-Diener, 2017), creating new opportunities to customize and personalize learning. Other post-secondary institutions, most notably Algonquin College, located in Ontario, have focused their efforts on engaging publishers and vendors specializing in digital content/resource delivery. The Algonquin eTextbook initiative, encompassing 140 programs, 600 courses, and 4500-course sections, is intended to ensure students have 100% access to resources with 100% availability on mobile devices, while reducing textbook fees upwards of 40 percent (Algonquin College, 2017).

The evidence suggests a sustained and focused interest across the Canadian post-secondary landscape in the potential of digital textbooks, whether as open textbooks or eTextbooks. Consistent progress in digital textbook design, associated delivery infrastructure, and lessons learned from early adopters signals that digital reading may be a viable alternative to print. Junco and Clem (2015) further note that emerging practices, such as the analysis of students’ digital textbook usage data, demonstrate promising capabilities in relation to predicting students at risk of failure.

Despite these optimistic findings, many important questions remain unanswered: (a) Is textbook affordability an issue at Lethbridge College, and if so, how? (b) Cost aside, are there other factors that influence student textbook purchasing decisions? (c) Presuming digital textbooks and the digital reading experience is satisfactory, what factors, if any, might predict acceptance of digital textbooks amongst students? (d) Given a well-established preference for printed text, what is the relative impact of price point on student adoption of digital textbooks? And (e) What are students’ experiences of digital reading using apps and personal devices and its impact on their learning? This paper will address each of these questions by describing an eTextbook research project at Lethbridge College conducted from January to April 2016.

**Literature Review**

This concise literature review focusing on higher education explores two themes. It begins with a scan of student acceptance of digital solutions, which reveals a range of variables that can explain students’ acceptance of technology. It then turns to digital reading and learning,
which draws attention to variables associated with the technology mediated reading experience that can affect learning processes.

**Student Acceptance of Digital Solutions**

Positive attitudes and inclinations towards technology, in addition to high rates of device ownership, appear insufficient to predict whether students will accept digital solutions in the context of academics (Dahlstrom & Bichsel, 2014). Age, likewise, seems to be an inadequate predictor. For instance, many scholars now dispute the idea of a generational cohort (e.g., digital natives (Prensky, 2001) having a greater aptitude for and capability with technology, including a more favorable predisposition towards it (Gallardo-Echenique, Marqués-Molías, Bullen, & Strijbos, 2015; Jones & Shao, 2011; Lai & Hong, 2015).

Efforts to predict student acceptance of digital textbooks in higher education prove equally complex. Millar, Nutting, and Baker-Eveleth (2013) have noted that joint eText experience and technological competence increased student use of eTextbooks. However, Woody, Daniel, and Baker (2010) and Terpend (2014), respectively, identified computer use and proficiency in addition to internet self-efficacy as insignificant predictors of student preference. With respect to age, Baek and Monaghan’s (2013) study suggested that older, not younger, students have more positive attitudes toward eTextbooks.

Investigating factors other than age and technology, Baek and Monaghan (2013) emphasized students’ level of comfort when reading longer texts on screen. Millar and Schrier (2015) also highlighted personal choice, noting students’ preference for print is mostly influenced by perceptions of convenience. Meanwhile, Chulkov and VanAlstine (2013) drew attention to ease of use, ease of purchase, and learning style in addition to students’ intent to keep the textbook post-course as influential factors. These findings appear congruent with literature on technology acceptance, which show that perceived ease of use and perceived usefulness are significant factors predicting technology acceptance (Davis, Bagozzi, Warshaw, 1989; Marangunic & Granic, 2015; Venkatesh & Davis, 2000).

**Digital Textbooks and Learning**

Drawing attention to the evolution of the reading experience—from the integration of page numbers and table of contents to the more recent integration of hyperlinks in digital texts—Konnikova (2014) emphasized the importance of developing medium-appropriate reading strategies. This perspective is supported by print-digital studies of reading. For example, when reading time was held constant between paper and on screen readers, Ackerman and Goldsmith (2011) observed no significant difference in encoding efficiency amongst participants. However, when participants were permitted to regulate their time spent reading, their performance reading on a screen was worse, a difference attributed to readers’ metacognitive skills.

Likewise, Connell, Bayliss, and Farmer (2012) investigated the influence of presentation format (e.g., Kindle 3 eReader, Apple iPad, printed text) on time spent reading and text comprehension among college-age students. They noted an increase in reading time on tablet devices when compared to print, though no significant difference in reading comprehension, as measured on a multiple-choice post-test with questions testing factual, conceptual, and procedural knowledge. Margolin, Driscoll, Toland, and Kegler’s (2013) research used a range of narrative and expository texts across three mediums: paper, computer, and eReader. They
similarly found no significant impacts on working memory and, by extension, the comprehension of college-age student readers. Instead, they attributed potential differences to factors such as device familiarity and competency with digital media.

Though it is challenging to predict student acceptance of digital textbooks and to ascertain the sum-total impact on learning, numerous digital textbook initiatives have arisen. Beyond this, the Ministries of Education in Alberta, Saskatchewan and British Columbia signed a Memorandum of Understanding on Open Educational Resources (OERs) with a commitment to share and collaborate on the development of OERs as one method to reduce the cost of commercial textbooks (Alberta Open Educational Resources, 2013). Given such focused efforts, this research seeks to understand students’ experience of textbook affordability, their experience of textbooks in relation to learning, and factors that might influence their adoption and utilization of digital textbooks.

**Purpose of Study**

In late 2015, Pearson Canada offered free eTextbooks and technical assistance and facilitated access to Kivuto, a company specializing in digital content delivery to support an eTextbook research project. In January 2016, Lethbridge College implemented a semester-long research study to explore student and instructor perceptions of eTextbooks. An in-house eTextbook implementation team consisting of academic support staff, bookstore staff, and technologists identified two research questions: (a) What are students’ experiences of textbooks (print and digital) concerning cost, purchasing habits, utilization, and learning? (2) What are students’ experiences of digital reading in terms of access and utilization? Pearson and Kivuto were not invited to provide input on research goals nor did they provide input on the analysis and interpretation of data.

**Method**

**Approach**

This quantitative research study has an exploratory focus and is conceptualized as a case-study. Case-study research reflects consideration for real-world context, theoretical propositions, and triangulation of multiple sources of evidence (Liamputtong, 2013). Survey methods were used exclusively for data collection. The instruments include a large quantity of questions including open type questions to help situate phenomena in context (Yin, 2018). The discussion of the post-secondary context and the in-depth description of the case, Lethbridge College, further serve to place findings in context.

**Research Contexts and Case Description**

Lethbridge College, a comprehensive community (CCI), has average annual enrollments of four thousand full-time equivalent students. It offers more than fifty career-training programs, applied degrees and apprenticeships in a variety of delivery formats (e.g., face-to-face, online, blended). A Lethbridge College profile (Benoit, 2016) of student usage of IT (Figure 1), attitudes (Figure 2), dispositions, (Figure 3), and device ownership rates (Figure 4) is available based on three consecutive years of participation (2013-2015) in the Educause Centre for Applied
Research (ECAR) longitudinal study of Undergraduate Students and Information Technology. In the context of this research study, students at Lethbridge College can be described as having a slight favorable inclination towards using technology, with generally favorably attitudes and an overall positive disposition towards its use. Lethbridge College shares a similar student technology profile with other Canadian and International post-secondary institutions that participated in the ECAR study (Benoit, 2016). This shared profile will enhance the relevance of research findings for other institutions, making Lethbridge College an ideal case.

**Figure 1.** Student usage of IT at Lethbridge College.
Attitudes Towards IT
Responses to the question: "Rate your attitude towards information technology on the following scales."
Rating on a scale of 0-100. (*Question not asked in 2013 survey)

Figure 2. Student attitudes towards IT at Lethbridge College.
Figure 3. Student disposition towards IT (read from top to bottom) at Lethbridge College.
Figure 4. Student device ownership rates at Lethbridge College.

Participants

The Lethbridge College Research Ethics Board approved the research project. Because of its exploratory purpose in highlighting a range of student experiences, this research project utilized a combination of two non-probability sampling techniques: convenience and purposive. Convenience sampling is noted as being efficient and cost effective, relying on easy to access and willing participants (Etikan, Musa, & Alkassim, 2015), while purposive sampling entails selecting information rich cases—in this context, instructors willing to share their knowledge and experience.

Thirteen instructors participated, teaching a total of twenty-three course sections (face-to-face, blended, and online), which resulted in a combined population of 698 student participants. All academic centers were represented, with participation from the following disciplines/fields: management, communications, early childhood education, mathematics, psychology, and engineering. Students’ participation was optional and those who declined to participate had the option to purchase printed textbooks from the Lethbridge College bookstore. Online versions of
the eTextbooks were made available to students for 24 months and downloaded versions will be available to students in perpetuity.

Data Collection

Given high rates of technology ownership amongst students (Figure 4), participants utilized the eReading application on their own devices during the research project, a conceivable deployment scenario for institutions considering broader adoption of digital textbooks. Uncontrolled variables, therefore, included the choice of device type (phone, tablet, dedicated eReader, laptop), device specifications (e.g., display resolution, weight, battery), and device settings (e.g., brightness). Control variables included the use of Pearson eTextbooks and the eReader application, Texidia, though not eReader application settings (e.g., text size, line-length, background color). When contrasted against the relative uniformity of the print reading experience, this broad list of factors illustrates the complexity of investigating student perceptions and the student experience of reading digital textbooks more broadly.

Data collection took place through a student and instructor survey (see Appendices A and B). Both surveys contained a mix of closed (dichotomous, multiple choice, multiple response, and scaled questions) and open-ended questions. Table 1 summarizes topic areas and question frequency. Items in the student survey related to managing cost were drawn from the work of the Florida Student Textbook Survey (Florida Virtual Campus, 2012). Though not a member of the implementation team, one staff member with expertise in survey design reviewed each survey and provided input to enhance the validity of the survey instruments.

Table 1
Student and Instructor Survey Topics and Question Breakdown

<table>
<thead>
<tr>
<th>Student Survey (28 questions)</th>
<th>Instructor Survey (27 questions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Demographic information: 5 questions</td>
<td>• Demographic information: 5 questions</td>
</tr>
<tr>
<td>• Device preferences: 2 questions</td>
<td>• Teaching, technology, and attitudes: 2 questions (rating scale)</td>
</tr>
<tr>
<td>• Purchasing habits: 4 questions</td>
<td>• Instructor eTextbook support: 3 questions</td>
</tr>
<tr>
<td>• Managing costs: 3 questions</td>
<td>• Teaching and learning: 3 questions</td>
</tr>
<tr>
<td>• Print vs eTexts: 3 questions</td>
<td>• Day one access: 3 questions</td>
</tr>
<tr>
<td>• Studying and learning: 6 questions</td>
<td>• Technology: 5 questions</td>
</tr>
<tr>
<td>• eTextbooks in class: 4 questions</td>
<td>• Purchasing habits: 2 questions</td>
</tr>
<tr>
<td>• Catch all question: 1 question</td>
<td>• Studying and learning: 3 questions</td>
</tr>
</tbody>
</table>

**Student survey.** Instructors were individually consulted to determine the survey medium most conducive to the course delivery model (i.e., face-to-face, blended, and online). The online survey (option one) was administered using Survey Monkey, and the print survey (option two) was distributed by instructors during class time. Surveys were available over a three-week period from March 29 to April 19, 2016 to accommodate instructor class schedules. A total of 562 students downloaded eTexts between January 1 and April 22, 2016, with approximately 92% of these users accessing the eText once downloaded. A combined total of 256 responded to the
online \((n=126)\) and print-based survey \((n=130)\) yielding a response rate of 45\%. A summary of student respondents is provided in Table 2.

Table 2

<table>
<thead>
<tr>
<th>Category</th>
<th>%</th>
</tr>
</thead>
</table>
| Student status \((n=244)\) | Full-time 92  
Part-time 8 |
| Year of study \((n=245)\) | Year 1 78  
Year 2 19  
Year 3 2  
Year 4 1 |
| Age \((n=247)\) | 18-24 76  
25-30 11  
31-35 6  
36-40 3  
40+ 4 |
| Gender \((n=251)\) | Male 50  
Female 50 |
| Devices used to support academic studies \((n=256)\) | Laptop 93  
Smartphone 60  
Desktop computer 24  
Tablet or iPad 22  
Dedicated eReader 1 |
| Relative percentage of response rate by course: | Fluid Mechanics 14  
Introduction to Management 37  
Mathematics 1 3  
Leadership & Communication 8  
Inclusion Child Special Needs 4  
Introduction to Psychology 17  
Human Development 9  
Mathematics 2 7 |

*One course not shown due to zero response rate.

Instructor survey. The instructor survey was administered online through Survey Monkey over a one-week period in May. The response rate was 85\% \((n=11)\). A summary of instructor respondents is provided in Table 3.
Table 3  
**Instructor Respondent Profile**

<table>
<thead>
<tr>
<th>Category</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factors influencing participation in eTextbook project:</td>
<td></td>
</tr>
<tr>
<td>• believe that eTextbooks will become more commonplace in the next five years</td>
<td>81.8</td>
</tr>
<tr>
<td>• interested in exploring eTexts and using enhanced functionality of eTexts</td>
<td>81.8</td>
</tr>
<tr>
<td>• have course using an expensive textbook, and are looking for ways to reduce costs for students</td>
<td>36.4</td>
</tr>
<tr>
<td>• indicated the eText was suitable for the type of course (format, enrollment, size)</td>
<td>45.5</td>
</tr>
<tr>
<td>• heard about the project from a peer/colleague</td>
<td>45.5</td>
</tr>
<tr>
<td>Teaching experience</td>
<td></td>
</tr>
<tr>
<td>Less than five years</td>
<td>9</td>
</tr>
<tr>
<td>6-10 years</td>
<td>9</td>
</tr>
<tr>
<td>11-16 years</td>
<td>27</td>
</tr>
<tr>
<td>17+ years</td>
<td>45</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>9</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>36</td>
</tr>
<tr>
<td>Female</td>
<td>55</td>
</tr>
<tr>
<td>Prefer not to say</td>
<td>9</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>25-35</td>
<td>9</td>
</tr>
<tr>
<td>36-45</td>
<td>9</td>
</tr>
<tr>
<td>46-55</td>
<td>55</td>
</tr>
<tr>
<td>55+</td>
<td>18</td>
</tr>
<tr>
<td>Use of eTextbooks in previous courses taught</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>18</td>
</tr>
<tr>
<td>No</td>
<td>82</td>
</tr>
</tbody>
</table>

**Data Analysis**

The arithmetic mean was calculated for all responses in the student and instructor surveys. Open-feedback questions, which provided participants with an opportunity to elaborate on their responses, were reviewed based on consideration for thematic coding, following Rivas (2012). The analytic procedure entailed, first, maximizing theoretical sensitivity towards feedback by reviewing the literature and research questions. Second, participant feedback was reviewed followed by grouping based on shared viewpoints. Lastly, comments considered representative and pertinent to the research questions were selected to accompany quantitative results.
Results

Purchasing Behavior and Academic Success

Feedback from the student survey reveals that students are going to great lengths to mitigate textbook fees. Over the past eight months, only 54% of students (n=251) purchased all required textbooks with 46% purchasing fewer than 75%. Not surprisingly, many respondents (n=149) are utilizing established cost-saving routes, such as purchasing used textbooks (57.4%) and older versions (27.4%) from college bookstores, sharing textbooks with classmates (25.4%), and using reserve copies from the library (2%). Students are also pursuing non-traditional avenues with 35% indicating they have bought from sources other than the campus bookstore, 8.6% buying a digital version, 2% purchasing only the necessary digital textbook chapters, 1.6% renting print or digital textbooks and 3.5% obtaining textbooks through non-authorized sources. Payment of textbooks is equally varied. In addition to personal savings, family financing, bursaries, and scholarships, 36.8% of students are relying on student loans, 36.3% are using credit cards, and 3.8% a line of credit.

Open student feedback reveals other factors that potentially exacerbate the challenge of textbook affordability. These include the number and type of required courses per term, which may limit opportunities for part-time employment, as well as program specific requirements, such as the purchase of required technology, as illustrated in this student comment:

The textbooks are fine, but should not be required. Either include it with course fee or encourage instructors to allow student's [sic] greater access to their notes (which is directly related or relevant to the course content). A course fee of $300 and then having to spend an additional $150 on a textbook (that is specifically required) is incredibly deceiving. Also, with the [courses in our program], an additional $2000 is needed for the required laptop. It's difficult for a student who can barely work a job because of the course load to find the funds needed for all the “required” textbooks. Etextbooks is [sic] a nice idea because they are at half the cost, but I shouldn't need to spend so much extra money on textbooks when the relevant information can easily be given by the instructor.

While no respondent (n=113) attributed failing a course in the past eight months to not purchasing a required textbook, 26.8% of students felt that not purchasing had resulted in a lower grade. Instructors, moreover, observed that students who do not buy required textbooks, “…are often scrambling to borrow from classmates at some point in the semester” and “…ask a lot more questions that are often obvious and redundant,” hinting at classroom level impacts.

Textbook Valuation and Utilization

The majority of instructors (n=11; 73%) considered the required course textbook in the context of the research project as an important to very important teaching resource. Almost all agreed it was also important as a resource for student learning. Despite a shared appreciation for textbook benefits, instructor feedback shows varied efforts to integrate eTextbooks on several measures (see Figure 5), for instance, incorporating the eTextbook into course assignments. Of note, students perceived comparatively lower levels of integration efforts on all measures.
Beyond the confines of the research project, almost all instructors surveyed in this study affirm that textbooks, in general, are highly valuable resources supporting student learning (see Figure 6). Student feedback, in contrast, shows overall lower valuation of textbooks concerning learning when compared to instructors. Further, a subset of students (40%) view textbooks’ contribution to their learning as non-existent to moderate.

As shown in the student comment below, students notice instructor textbook utilization efforts and they are weighing the extent of textbook utilization against costs, which in turn contribute to students’ overall valuation of textbooks as learning resources.

Too often we are told textbooks are required for courses that we don't even open once during the course. Some of the information is relevant but not required. For a student like...
myself who are [sic] trying to cut down costs as it is, this hinders the affordability of college and is rather frustrating. Instructors need to take better advantage of the "optional" and "required" options for textbook listings. Instructors should put more consideration into the costs of a textbook on students and the added financial burden we face because of it. Some of my best courses have free online text information made by the instructor. This shows care and understanding from the instructor. In other classes, the course is being taught by the textbook. This is unacceptable. Textbooks should never be more than a supplement to the lesson. We pay a large amount for the courses, and we expect hands-on, instructor taught, lessons to be covered in that cost. If an instructor is simply going to walk us through a textbook, there is no point in paying for college. I can get the same education for a fraction of the price just by reading a text on my own.

Students further demonstrate a range of post-course textbook ownership behaviors, offering additional insight into textbook valuations. 19.6% of students indicated they keep all their books; 33.9% sell all their books, and 46.5% keep some of their books after a course ends. Those selling do so to recoup costs, minimize redundancy, and address lack of fit. These motivations are illustrated in the following feedback: “I need Money to buy the books for the next semester”; “because a lot of content can be found on the internet”; and “For first-year classes all of the information is pretty general; if I enroll in a class that is more specific and I could see myself using that information later in life, then I might keep the book but other than that they just tend to take up space and gather dust.” Finally, students keep their textbooks when they envision future value, as explained by one student:

> Depending on the course, the text can have valuable information that I can reference later-on in life for social or recreation purposes, or if the text relates strongly to my major or field of education old books can be used as an efficient tool to review. For example, I decided to keep my human nutrition textbook because I know I will always have a question about my health and food and the text is a reliable source of information from educated professionals.

**Preference and Factors Influencing eText Adoption**

A notable majority (65.8%) of students expressed a strong preference for print with 15% identifying an eTextbook preference and 19.1% indicating a neutral preference. Illustrating the importance of familiarity, convenience, and ease of use, students shared the following viewpoints: “I prefer to use a textbook. I like the tactile way I can interact with the material. E-text is useless to me”; “It is easier to study with a book in hand instead of online”; “Nice that it is cheaper but hard copies are easier to use. Old school.” However, 63.8% of students did indicate that cost was an important to very important factor that would influence their decision to use an eTextbook (Figure 7).

Notably, in a situation where students could purchase digital textbooks for about half of the price of print versions, students’ preference for eTexts increased from 15% to 39.2%. As one respondent comments, “I think for myself and many other students, cost is king. So if a textbook were cheaper than an ebook, it would be the more popular option and vice-versa.” Though significant, cost savings alone, however, may prove inconsequential to students’ acceptance of
eTextbook given a broad range of additional factors or requirements that must be ensured, such as the ability to print and highlight, as listed in Figure 7.

Figure 7. Please identify whether the factors would influence your decision to use an eTextbook rather than a printed textbook (n=238-243).

Student and Digital Text interaction

Several questions in the survey were designed to assess student and digital text interaction. Student feedback in Figures 8-12 is represented as diverging stacked bar charts for each course. The total number of respondents for each course is provided on the vertical axis. Neutral values for each course, not included, represent the difference between the total percentage of responses and one-hundred percent. Comparing results on the left (disagreement) against those on the right (agreement) enables a quick visual comparison of the response distribution within each course and across all courses. Select qualitative responses from student open-ended feedback are provided with each figure to enrich understanding of quantitative results.


Figure 8. Using the eText the first few times was difficult for me (n=237).

Referring to the initial experience using the eTextbook, some students indicated they "Did not know how to use it" and consequently required some time to adjust, stating, "It was nice it just takes time getting used to it."

Figure 9. The features and navigation within the eReader application were easy to use (n=234).

Reflecting on their experience, students seemed to find the ease of page turning in printed textbooks superior to that in eTextbooks, stating, "I did not like the eText. I tried it for awhile but I found it distracted me and was not easy to navigate. I much preferred the print text and bought one full price with personal savings," and “I prefer to use a printed copy of the textbook. It was difficult to find chapters or pages in the e-text, where you can just open the book and flip to the page for the printed text.”
On the topic of studying, a subset of students appreciated features such as built in quizzes. One student stated, "eTexts are great... when they work. This eText made it much easier for me to study and had awesome little quizzes built into that greatly helped me understand the material, even if I didn't initially know the answer." In contrast, drawing attention to the time spent turning pages, another respondent stated, "...The ebook was very difficult to use, it would be slow when changing pages, and also cannot go back to cross-reference earlier material in the chapter easily. I refused to use it, and bought a used copy instead of using it."

**Figure 10.** Helped me to study more efficiently (n=224).

Figure 11. Offered greater flexibility to learn the way I wanted (n=225).
Concerning the flexibility (Figure 11) afforded by digital textbooks, one student stated, "I really enjoyed the freedom having a textbook on my phone gave me. During periods where I would normally be waiting playing games on my phone, I was able to use my time productively and study!" Other students, however, noted detrimental impacts of prolonged exposure on their engagement (Figure 12), stating, “I prefer to use textbooks more than etextbooks. It causes a headache because of the long exposure of the eyes on the electronic devices I use. Because of that, I spend less time reading and studying for this course.”

**Discussion**

Digital textbooks are at the centre of numerous initiatives across the post-secondary landscape focused on improving affordability and availability of course materials. This one-semester research project explored two broad questions: What are students’ experiences of textbooks (print and digital) concerning cost, purchasing habits, utilization, and learning? And, what are students’ experiences of digital reading regarding access and utilization?

This research project affirms that textbook affordability is a challenge for students at Lethbridge College and highlights the range of actions students are taking to mitigate costs with varied impacts on their learning and the broader student experience. That nearly half of all students have not purchased all required textbooks, with almost twenty-seven percent indicating this decision resulted in a lower grade merits additional investigation. Students conveyed their frustration with courses that under-utilize required textbooks, while 40% of participants viewed textbooks’ contribution to their learning as non-existent to moderate. This study has thus drawn attention to the associated issue of textbook under-utilization, which may exacerbate students’ frustration when they encounter textbooks perceived to be too costly.

With respect to identifying factors that might influence student acceptance and utilization of eTextbooks, this study shows that despite a young respondent population (76% of student respondents identifying as 18-24 years of age) and an institutional context demonstrating high rates of device ownership and positive attitudes and dispositions towards technology, the majority of students (65.8%) prefer print. Thus, being young, owning devices and utilizing technology does not seem to predispose students towards using digital textbooks. This affirms the work of Baek and Monaghan (2013), Woody, Daniel, and Baker (2010), and Terpend (2014).
In contrast, feedback overwhelmingly shows that students value familiarity, convenience, and ease of use when reading print, affirming the work of Chulkov and VanAlstine (2013) and Millar and Schrier (2015). Furthermore, students bring these criteria with them to their digital reading experience. On the other hand, another factor influencing student acceptance of eTextbooks is that of cost. In a situation where students could purchase an eTextbook for about half the price of print versions, notwithstanding barriers such as ease of use and convenience, a large subset of students indicated they would switch.

This research project culminates with six suggestions that may be of interest to institutions seeking to (a) address the textbook affordability issue, (b) advance digital textbooks, whether open or eTextbooks, and (c) support those students making the transition from print to digital.

**Strengthen the value proposition for “required” textbooks to inform student purchasing decisions.** Instructors and students share different views regarding the relative contribution that required course textbooks make to student learning. Moreover, given issues of textbook affordability, students' cost-related frustrations are exacerbated when they experience textbook underutilization in their courses. Establishing a more compelling value proposition, beyond simply denoting course textbooks as "required," might provide students with the information needed to make an informed purchasing decision, in turn, increasing satisfaction.

**Support students in identifying the medium that meets their needs.** Student receptivity towards digital textbooks can be viewed on a continuum bookended by a strong preference for print and digital textbooks. Students in the middle would benefit from some type of instrument (e.g., diagnostic) or resource (e.g., checklist) to inform the selection of the medium most appropriate to their needs, abilities, and circumstances.

**Provide information to ensure personal devices are conducive for eReading.** Students’ experience of digital textbooks will vary due to differences in personal devices (e.g., display size, display resolution, weight, battery life). Institutions promoting digital textbook options should outline considerations, for instance, pros vs. cons, to inform student technology purchasing decisions.

**Ensure eReader applications meet performance expectations.** The eReader application is the user-interface for digital reading. Institutions should thoroughly test eReader features (e.g., highlighting) to verify functionality and ease of use.

**Develop vendor partnerships and relationships.** Unlike the print medium, eReader application performance varies given student devices, network infrastructure, and varied technical standards amongst textbook publishers. Following the lead of Algonquin College, post-secondary institutions, publishers and eReading solution providers need to work together to develop a digital reading experience that strives to approximate the simplicity and familiarity of the print while leveraging the promise of digital capabilities.

**Support students in developing medium appropriate reading strategies and study skills.** Instructors and staff responsible for academic support services could take additional steps to increase student awareness of the differences between print and digital reading, including identifying medium appropriate reading strategies. Other related supports could include offering orientations about textbook features (e.g., self-checks), identifying supplemental resources, and providing opportunities to develop study skills.
Limitations

As an exploratory study, this research project utilized survey methods to gather feedback from a large group of instructors and students. Despite inclusion of open-ended type questions that provided participants with some opportunities to elaborate on their experience, future research projects might instead utilize methods such as interviews and focus groups, which would allow for more in-depth researcher-to-participant interaction. Future research projects might also be designed to encompass two or more academic semesters. This would create opportunities to explore how student perceptions change over time as their familiarity and experience with eReading changes. Furthermore, students’ use of eTextbooks was limited to a single course rather than a full course load. Thus, whether students might become more proficient in using the eReader app and more proficient with eReaders in general over a longer period merits future investigation.

References


Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science, 46*(2), 186-204. [https://doi.org/10.1287/mnsc.46.2.186.11926](https://doi.org/10.1287/mnsc.46.2.186.11926)


Appendix A
Student eTextbook Online Survey

1. Please select the course (s) you were enrolled in.

2. Please select all that apply: (A) I am a full-time student, (B) I am a part-time student, (C) I attended this course face to face, (D) I prefer not to answer this question.

3. Please indicate your year of study: (A) year 1, (B) year 2, (C) year 3, (D) year 4, (E) I prefer not to answer this question.

4. What is your age? (A) 18-24, (B) 25-30, (C) 31-35, (D) 36-40, (E) 41+, (F) I prefer not to answer this question.

5. Please indicate your gender: (A) male, (B) female, (C) other, (D) I prefer not to answer this question.

6. Please select all the devices that you use to support your academic studies: (A) laptop, (B) tablet, (C) smartphone, (D) dedicated eReader, (E) desktop computer, (F) I prefer not to answer.

7. Please rank the devices you prefer to use when reading eTextbooks from most to least based on consideration for the devices you own (Likert 5-point scale. Most prefer to Least prefer). One response per row only: (A) laptop, (B) tablet, (C) smartphone, (E) dedicated eReader, (F) desktop computer.

8. Students are often required to buy textbooks for courses. Please select the statement that best describes your purchasing habits in the past eight months: (A) I bought all the required textbooks, (B) I bought about 75% of required textbooks, (C) I bought about 50% of required textbooks, (D) I bought about 25% of required textbooks, (E) I did not buy any required textbooks, (F) I prefer not to answer this question.

9. As a result of not purchasing a required textbook in the last eight months (Sept-April), please select the statement that best describes your experience: (A) I have not bought a book. The result was that I failed a course, (B) I have not bought a book. The result was that I received a lower grade, (C) I have not bought a book. There has been no negative impact on my grades, (D) I prefer not to answer.

10. Please select the statement that best describes your textbook ownership habits: (A) I prefer to sell all my books back, (B) I prefer to keep some of my books, (C) I prefer to keep all my books, (D) I prefer not to answer this question. Please explain why (Items A-C).

11. Have you participated in book buy back at the College? (A) yes, (B) no, (C) I prefer not to answer this question.
12. In your academic career, have you tried to reduce textbook costs by taking any of the following actions? Select all that apply: (A) I have not attempted to reduce textbook costs, (B) not registering for a course, (C) not purchasing the required textbook, (D) taking fewer courses, (E) dropping a course, (F) withdrawing from a course, (G) I prefer not to answer this question.

13. Please select all of the measures you have taken to reduce your required textbook costs: (A) I have not attempted to reduce textbook costs, (B) I have bought a used textbook from the campus bookstore, (C) I have bought an older version of a textbook to reduce costs, (D) I have bought textbooks from a source other than the campus bookstore, (E) I have bought a digital version of the textbook, (F) I have bought only the digital textbook chapters needed for a course, (G) I have rented print textbooks or digital textbooks, (H) I have used or tried to access a reserve copy from the library, (I) I have shared textbooks with classmates, (J) I have obtained textbooks through non-authorized (E.g., photocopied) source, (K) Other (please specify).

14. How many of your books will you try to sell back to the bookstore at the end of this semester? (A) all my books, (B) most of my books, (C) some of my books, (D) none of my books, (E) I prefer not to answer this question.

15. On a scale of 1-7, please rate your preference for print textbooks versus eTextbooks (7-point scale. Strongly prefer print to strongly prefer eTextbooks).

16. On a scale of 1-7, please rate your preference for print textbooks versus eTextbooks with the consideration that you could get the digital textbooks for about half the price of the print versions (7-point scale. Strongly prefer print to strongly prefer eTextbooks).

17. Please identify whether the factors listed below would influence your decision to use an eTextbook rather than a printed textbook (5-point scale. Not important to very important): (A) The lower cost of eTextbooks, (B) the greater portability of eTextbooks, (C) the greater environmentally friendliness of eTextbooks, (D) available for entire academic career (2-3 years after course end date), (E) readability on mobile device (e.g., tablet, phone), (F) includes bonus material, (G) permits me to share notes or questions with the professor and other students, (H) options to print pages, chapters, or the whole book, (I) ability to create annotations, bookmarks, and highlights that sync across devices.

18. How important is having your required textbooks on the first day of class? (5 point Likert scale. Not at all important to very important).

19. The eTextbook I used during the project (not including MyLabs) (5 point Likert scale. Strongly disagree to strongly agree): (A) offered greater flexibility to learn the way I wanted, (B) helped me to better understand the ideas and concepts taught in the course, (C) increased my engagement with course content, (D) helped me to study more efficiently.
21. Please select all that apply regarding the MyLabs resource: (A) was not available for my course, (B) was available for my course, but I did not use it, (C) offered greater flexibility to learn the way I wanted, (D) helped me to better understand the ideas and concepts taught in the course, (E) increased my engagement with course content, (F) helped me to study more efficiently, (G) I prefer not to answer this question.

22. Please rate your level of agreement with the following items (5 point Likert scale. Strongly disagree to strongly agree): (A) using the eText(s) the first few times was difficult for me, (B) the features and navigation within the eReader application were easy to use, (C) I highlighted and/or annotated more than I normally do with print textbooks, (D) I learned more from using the eText(s) with highlighting and/or annotations (mine and others) compared to what I normally learn from print textbooks, (E) the annotation/collaborative features in the eText(s) were distracting.

23. The first time I accessed my eTextbook was: (A) Prior to the class starting, (B) within the first week of classes, (C) within the first two weeks of classes, (D) only when required to do so to complete an assignment, (E) never.

24. Please select all that apply regarding your instructor's use of the eTextbook during the project: Provided an introduction to the eTextbook; provided an orientation to the eTextbook (how to use and/or features) during class; posted assigned eTextbook readings in the course syllabus; posted an introduction to the eTextbook in the Canvas; encouraged the use of annotation, highlighting, and note sharing features of the eText(s) throughout the course; added annotations or comments to the eTextbook; incorporated the eText into assignment or projects; used the eText during class discussions; encouraged students to add their own annotations or comments to the eTextbook; incorporated the eText into group work, team activities.

25. Did you experience any technical issues accessing your course eTextbook? (A) yes, (B) no. Please explain.

26. Please select all the methods you have used to pay for course textbooks during the past academic year (Sept-April): (A) personal savings, (B) credit card, (C) student loan, (D) line of credit, (E) prefer not to answer. Other (please specify).

27. To what extent do you believe that textbooks (print or eText) contribute to your learning? (A) not at all, (B) to a very small extent, (C) to a small extent, (D) to a moderate extent, (E) to a fairly great extent, (F) to a great extent, (G) to a very great extent, (H) I prefer not to answer.

28. Is there any other feedback you would like to share about textbooks, eTextbooks or your experience in the project?
Appendix B
Instructor Survey

1. What type of course did you teach during the eText pilot? (A) face-to-face class, (B) blended class, (C) online (DL) class, (D) other.

2. What is your age? 25-35, 36-45, 46-55, 55+, I prefer not to answer this question.

3. Please indicate the number of years you have been teaching/instructing: (A) less than 5 years, (B) 6-10 years, (C) 11-16 years, (D) 17+ years, (E) I prefer not to answer this question.

4. Please indicate your gender: (A) male, (B) female, (C) other, (D) I prefer not to answer this question.

5. What factors influenced your decision to participate in the eText pilot? Check all that apply: (A) I believe that eTextbooks will become more commonplace in the next five years, (B) I'm interested in exploring eTexts and using enhanced functionality of eTexts, (C) my course uses an expensive textbook and I'm looking for ways to reduce costs for students, (D) the eText was suitable for the type of course (format, enrollment, size), (E) I've used eTexts previously in courses I've taught, (F) I heard about the pilot from a peer/colleague, (G) other (please specify).

6. What is your typical in-class policy for the following mobile devices (Smartphone, Tablet/iPad/Laptop): (A) ban students from using it, (B) discourage students from using it in class, (C) neither discourage nor encourage students about using it in class, (D) encourage students to use it in class, (E) require students to use it in class, (F) not applicable.

7. Rate yourself in terms of your disposition towards educational technology on the following scales from 1-7 or not applicable:
   Reluctant to Enthusiast
   Late adopter to Early Adopter
   Technophobe to Technophile
   Skeptic to Cheerleader
   By the Book to Experimenter
   Critic to Supporter
   Conservative to Radical
8. Please select the methods you used to integrate the eText into your class:
   I provided an orientation to the eTextbook (how to use and/or features) during class.
   I posted assigned eTextbook readings in syllabus.
   I incorporated the eText into assignment or projects.
   I incorporated the eText into class discussions.
   I encouraged students to add their own annotations or comments to the eTextbook.
   I incorporated the eText into group work, team activities.
   Other (please specify)

9. During the pilot some students opted to use the print textbook instead of the eTextbook. Did you observe any challenges in teaching a class where both eTexts and print textbooks were used? (A) yes (please explain), (B) no.

10. When compared to print, did your use of an eTextbook change your teaching in anyway? Please explain.

11. When you consider the course you taught during the eText pilot, how important is the course textbook (eText or print) for you as a TEACHING resource? (Five-point scale: Not important to important, and I prefer not to answer this question.)

12. When you consider the course you taught during this eText pilot, how important is the course textbook (eText or print) for your students as a LEARNING resource? (Five-point scale: Not important to important, and I prefer not to answer this question.)

13. On a scale of 1-7, please rate your preference for teaching with print textbooks versus eTextbooks. (Seven-point scale, and I prefer not to answer this question.)

14. As an instructor, how important to you is it that students have access to the textbooks (print or eText) on the first day of class? (Five-point scale: Not important to important, and I prefer not to answer this question.)

15. What if anything changes for STUDENTS when students have access to the course textbook (print or eText) on the first day of class? Please explain.

16. What if anything changes for the INSTRUCTOR when students have access to the course textbook (print or eText) on the first day of class? Please explain.

17. The first time I accessed the eTextbook was: (A) prior to class starting, (B) within the first week of class, (C) within the first two weeks of class, (D) after the third week of class, (E) never, (F) I prefer not to answer this question.

18. Please rank the devices you prefer to use when reading eTextbooks from most to least based on consideration for the devices you own: (A) laptop, (B) tablet/iPad, (C) smartphone, (D) dedicated eReader, (E) desktop computer.
19. Did you experience any technical issues accessing the eTextbook during the pilot? (A) yes (please explain), (B) no.

20. Please rate your level of agreement with the following items (5-point scale): (A) using the eText(s) the first few times was difficult for me, (B) the features and navigation within the eReader application were easy to use, (C) I highlighted and/or annotated more than I normally do with print textbooks, (D) other (please specify).

21. Please select all that apply regarding the MyLabs resources: (A) was not available for my course, (B) was available for my course, but I did not use it, (C) offered greater flexibility to teach the way I wanted, (D) helped students to better understand the ideas and concepts taught in the course, (E) seemed to increase student engagement with course content, (F) I prefer not to answer this question.

22. Students are usually required to buy a number of textbooks for their courses. Based on your experience as an instructor, what portion of the required textbooks do you think they buy? (A) all the required textbooks, (B) about 75% of the required textbooks, (C) about 50% of the required textbooks, (D) about 25% of the required textbooks, (E) none of them, (F) I prefer not to answer this question.

23. Do you have any personal observations to share about students that do not buy required course textbooks? (A) yes (please explain), (B) no.

24. To what extent do you believe that textbooks (print or eText) contribute to student learning? (A) not at all, (B) to a very small extent, (C) to a moderate extent, (D) to a fairly great extent, (E) to a great extent, (F) to a very great extent, (G) I prefer not to answer this question.

25. Do you have any thoughts you would like to share in relation to print vs. eTextbooks?

26. Is there any professional development or training that should be offered to support instructors use of print or eTextbooks for teaching and learning? Please share any suggestions.

27. Is there any other feedback you would like to share about textbooks, eTextbooks or your experience in the pilot project?