

The E-Textbook: An Idea whose time has not *quite* arrived

Norm Friesen, May 31, 2011

Executive Summary Points:

- *Conditions may seem ripe for e-textbooks, but closer examination shows 3 barriers, delaying adoption up to 2015:*
 - *Limited selection*
 - *Restricted access to textbook content that is valued highly by students*
 - *Limited interactivity and functionality*
- *As recent events in the music and video industries provide show, adjustments in price, access or interactivity could be “game-changing” for e-textbooks*
- *Social interaction services may be bundled with e-textbook contents, also changing adoption speed*

Many signs indicate that the e-textbook has finally arrived: The Amazon Kindle and the Apple i-Pad have been runaway successes. Students purchased ten times as many e-textbooks this year as in the previous two years – and the price of print textbooks has doubled in the last 10 years. E-books have just become the largest-selling “format in the US for the first time ever” (Flood 2011) and the 2010 Horizon Report on the subject estimates the “Time-to-Adoption Horizon” for e-textbooks as “One Year or Less.” This report explains:

The content of electronic books and the social activities they enable, rather than the device used to access them, are the keys to their popularity; nearly everyone carries some device that can function as an electronic reader, and more people are engaging with electronic books than ever before. (New Medium Consortium 2011, p. 8)

All of this is undeniable. But the matter of “content,” “social activities” and also the device used to access them all bring important questions. The widespread availability of textbooks in convenient e-formats, the inclusion of interactive and audio/visual contents in these texts, and the sharing of highlights, annotations and responses between readers are all exciting possibilities. However, they remain just that: possibilities. These potential functions would form a major comparative advantage for e-textbooks against their print counterparts, but they are all waiting for popular, technical solutions and practices to make them realities. In fact, there are many reasons to believe that most students will not be working with e-textbooks until 2015 or later.

This report addresses these and other concerns in its examination of the fate of the e-textbook in the coming years. In doing so, it focuses on a number of specific studies and reports: The recently-released findings of the E-Book Pilot at California State University (SCU), a similar study at University of Washington, and the policies of one of the largest e-textbook vendors in North America, Coursesmart.com.

First, the Good News

This section outlines the advantages of e-books and e-textbooks. The clearest advantage is currently **cost**. Benefits associated with content, technical design and social activities are less certain and in many cases, have yet to become clear.

E-textbooks generally cost about 1/2 to 2/3 less than their print counterparts. For example, the cost of the textbooks used in the CSU pilot study averaged \$173 in print format, “while the digital rentals that students could view online or download cost \$60” (Roscorla 2011). This is a significant savings, and is clearly appreciated by “students [who] say [that] cost is a huge factor,” (Roscorla 2011). A second example of cost savings is provided by the Website of Coursesmart, whose homepage tagline claims savings as its principle advantage: “Online textbooks. Half the price of printed books.”

E-textbooks are indisputably available at lower prices than print texts. Whether textbook content is available in sufficient (or superior) quantity and variety in comparison to print is more difficult to determine. But this question may be answered by looking first at print books and e-books generally. Amazon.com claims that nearly half of all books in print in the US are currently available for its Kindle reader. (Amazon puts the number at 900,000 Kindle titles, while 2 million books are currently in print in the US). Unfortunately, many of the books currently in print that are unavailable as e-books are those from university presses, which are popular textbook choices in upper-level university courses.

The number of e-textbooks available on the Coursesmart website, on the other hand, is not easy to determine. The service currently offers about 90 subject categories, and each category lists widely varying totals of available texts. Sampling from these suggests that the site offers about 8,500 textbooks available for students to rent.¹ Textbook publishers’ sites are even more evasive. Pearson, for example, does not appear to sell e-books on its website at all, and points customers with queries about e-formats to Coursesmart. While the quantity of content available from Coursesmart is impressive, it is clear that some publishers are hesitant in providing these to their customers themselves. It is also clear that the number of books in print available to instructors, designers and professors as potential textbooks still far exceeds the selection of those available as e-texts.

The *quality* of the content, rather than the number of books available, is obviously dependent on the way that content has been enhanced for presentation (and interaction) as an e-book, and on the type of device being used to access it. While the Kindle’s E-Ink technology is about as easy to read as a printed page, it cannot display video, colors, or still images over a certain size. And while the i-Pad is able to display images and videos of various size and quality, it does not display text with the same near-print readability as the Kindle. Colour illustrations and design are an important part of texts for undergraduate students, and the use of videos in conjunction with textbooks (print or e-book) also has significant potential.

¹ The first 10 categories (from accounting through anthropology to art) have an average of 92.5 texts per category. When multiplied by 90 categories (and not accounting for the possible inclusion of texts under multiple categories) a total of 8325 text results.

The possibility of making techniques like bookmarking, note-taking and highlighting shared and collaborative in nature presents the most obvious social activity that e-textbooks might offer. Already with the Kindle reader, it is possible to back up and view one's own annotations (made with the e-reader's keyboard). Kindle also currently makes it possible to see "popular highlights" in its books, allowing for a broad if anonymous type of social interaction. I-Pad's e-reader (and related apps for PDF viewing) allow for some similar functionality, and also enable readers to compare their collections of e-books.

Familiar print textbooks as well as their electronic counterparts have changed in their design over time. Recent generations of print textbooks, for example, utilize CD's and Websites for multimedia content; the most recent e-book readers and tablet devices boast anywhere between 3 to 60 Gigabytes of memory or storage or enough to easily store a few thousand books. With e-textbooks, the heavy student backpack can potentially be replaced with a single lightweight device. Books can be acquired easily and rapidly from Apple, Amazon or other services using an e-reader device. As a result, it is not surprising that the CSU study emphasizes convenience as being an advantage: 53 percent of students said it was easy to use e-textbooks, 25 percent indicated that they were as easy to use as print books, and only 22 percent described their use as difficult (Roscorla 2011). As already mentioned, students appreciated the lower cost of the e-textbooks, the keyword search and their lightweight form-factor. Also, reports from some readers indicate that the overall experience of reading text, specifically fiction, on an e-book reader is as good as or even superior to conventional print books.

the physicality of the book, having to hold it open then lift and turn each page, was a lot more exhausting than I remembered. All of that holding and lifting and turning distracted me from the act of reading, took me out of the story if you will. A few pages into it I gave up, logged in to Amazon, and bought the Kindle book. (White 2011)

This kind of description, recorded only a couple of months ago, may be a harbinger of student preferences in the future: Where text is to be used, it may well be eventually expected to have the clean convenience of a screen presentation rather than the distracting physicality of the book. However, as the next section of this report shows, this is currently clearly an exception, rather than the rule, as far as students' present-day preferences are concerned.

The Disadvantages: Student Experience, Vendor Restrictions and Cost

All of the disadvantages presented in this section are likely to change in the future. Many negative aspects of student experience can be addressed through technological innovation and other adjustments. Vendor restrictions on e-textbooks may also change (as they have in the music industry). Costs, already a competitive advantage, may become more clearly advantageous (as the music industry example also suggests). The disadvantages listed below should be understood as factors to watch, rather than as permanent barriers, since a favourable change in any one of them might tip the scales towards widespread adoption.

The first and most immediate disadvantage is the student experience. In recent months, a couple of pilot studies (other than those already mentioned) looking at student preferences show that a majority of students are unsupportive of the e-textbook format. A 2011 report of a Book Industry Study Group showed that “75% of students prefer print textbooks over eBooks” because they enjoy the “look and feel” of print (Watters 2011). Only a small minority saw e-books as superior, and the priorities they identify are instructive:

About 12% of the students surveyed prefer eBooks because they are cheaper and more convenient.... Sixty percent said they place high value on core textbooks and 65% of these students are still buying these books at their college bookstore. (Watters 2011)

The high value that students report placing on their textbooks, taken together with their objections to the “look and feel” of these books, may provide some insight into why print texts still trump questions of cost for the majority of students. Further evidence is provided by the University of Washington experiment with Kindle e-readers, which also found that two thirds of students responded negatively to e-textbooks – eventually either abandoning or making very infrequent use of their Kindle e-readers (Carr 2011). Even though they were supplied with the large-screen Kindle DX model, students were faced with “hard-to-read charts, lack of support for color illustrations [and an] inability to write notes directly on the text” (2011). Additional challenges included “the more fundamental problem [of] the e-reader's unsuitability for certain modes of reading and for shifting quickly between different modes” (Carr 2011). These modes included rapid switching between pages, color coded highlighting on pages, and the use of different bookmarking methods.

This CSU study, which used Coursesmart *online* textbook option, rather than a particular reader, reported that the student body was divided into three equal groups on the question of experience. Gerry Hanley, the senior director of CSU Academic Technology Services (and executive director of MERLOT) explains:

The e-textbooks still make students feel like they're reading a book on the Web so their responses reflected this state of affairs. [Student] satisfaction has to be significantly improved. You can't have a third dissatisfied and a third neutral and only have a third like it. (Hanley, as quoted in Roscorla, 2011)

Access restrictions are the most obvious explanation for this unsatisfactory result. The apparent majority of texts available through Coursesmart can only be accessed for a period of 180 days (enough to accommodate a thirteen week course, an exam period, and the advance purchase of the text). Other restrictions generally also apply: only 10 pages can be printed at a time, and only individual sections can be downloaded for offline availability (using software that is still in beta). Even smaller amounts of text are made available for copying and pasting. Coursesmart does not claim to have social features for any of its textbooks, such as shared annotations, discussions, or other types of collaboration.

In the light of these disadvantages, is worth revisiting the effectiveness of the one clearly offsetting factor of cost. As indicated above, the price of renting an e-textbook through Coursesmart for 180 days

(outside of the CSU pilot) is 1/2 the price of owning a printed text outright. Ownership of a text, with its “look and feel” and direct access to all of its contents, is made more attractive by the fact that it can generally be re-sold, often for ½ of the original purchase price (in other words: for the price of the e-textbook). This further weakens any overall competitive advantage of the e-textbook over printed texts. Admittedly, in exchange for flexibility in use and annotation, students get convenient searches and a lighter backpack, but with many access limitations. But instead of merely accessing a textbook online, students who are willing to pay more to have instant and permanent access to a higher quality print format. Students who want to pay less also have the option of buying a used text and keeping it for future reference, or reselling a new text. Both options leave students with as much money in their pockets as those who rented the e-text.

Analyzing the Results

The principle conclusion to be drawn from the discussion above is that there is currently no overall, clear competitive advantage for the e-textbook. There are a number of ways of interpreting this result, and a number of further conclusions that can be drawn from it:

First it is possible to analyse the evidence provided by comparing the textbook industry with others that have recently gone through significant change in platforms and delivery technologies. As indicated above, comparisons can be made based on recent developments in the music and video industries. In the case of both of these sectors, a real solution to new platforms and technologies did not appear either when the right technologies were in place, or even when consumers were eager to switch. Instead, in both cases, it was a question of the industries themselves being ready. For both video and music, this readiness was prompted by the appearance of new and powerful intermediary services. For music, this was Apple’s i-Tunes and similar services, and for movies, Netflix (at least in North American markets). In both cases, the industries were under pressure from widespread filesharing activities. The issue of controls and limits over use and re-use of content was solved differently in each sector. Competition, consumer demand, and lack of coordination eventually forced the music industry to accept a minimal level of restrictions (making content generally available as unprotected mp3 files), whereas video distribution, coordinated through a single company, has considerably more controls in place. It remains to be seen whether users who are accustomed to book ownership, and who seem clearly uncomfortable with current functional and other limitations on the e-textbook, will accept similar restrictions. It is also worth thinking of the timeframes within which change in these industries occurred. The first MP3 player was introduced in 1998. It took Amazon and Apple about 10 years before they started selling unprotected mp3s that would actually play on it. A similar transition in the film industry has only just begun, and will surely take a while longer to play out.

There are two differences that limit these comparisons between textbook and entertainment industries, however: There is little or no pressure on textbook publishers from consumers who are sharing files (although a site like library.nu might cause this to change) as was the case for music and movies. Also, while converging technologies allowed music and video to be enjoyed on existing consumer devices, there is no equivalent for textbook contents: There is no screen or platform that can represent or reproduce text and color images at or near print quality, and that can facilitate the idiosyncratic forms of

reading associated with textbook use. However, from this comparison, one can conclude that if publishers significantly lowered their prices for online textbooks (e.g. to 20% of print cost), or if they placed fewer restrictions on the use of textbook contents (e.g. made them available as copy-protected pdfs), this could easily and exponentially accelerate a transition to electronic books.

However, in all of this, **social interaction remains a wild-card factor**. In discussing this further, I rely on comments made by Murray Goldberg, an entrepreneur in the e-learning sector, who gave a keynote address at an educational technology event at Douglas College in February of 2011. In this presentation, Goldberg listed a range of new projects and start-ups seeking to break ground in unconventional ways in the fields of publishing and social networking in education. He also emphasized that innovations in Web 2.0 and social networking technology had already made an important contribution to innovation in e-learning: These technologies had shown, he explained, that the individual functions aggregated in a content management system like Blackboard or Moodle are not difficult to develop, aggregate and use. Many if not all of these functions are available at minimal cost in services provided by Google, Facebook, Dropbox, Skype, etc. Particularly suggestive in this connection are distributed Facebook services that allow personal approval, comments and basic discussions (i.e. annotations) to take place on pages or content anywhere on the web.

Goldberg's surmise is that it is by bundling discussion, chat, annotation and other services together with online versions of their content, that textbook publishers may come up with a winning formula. They would do this by providing contents enhanced specifically for Web viewing, interaction and annotation. Teachers would then ask students to read and discuss (annotate and comment on) online textbook contents (that the teachers themselves may have earlier annotated and customized); and students would accept some restrictions common to online content in return for being thus engaged with the content and (above all) with their peers. Publishers would protect (and also possibly enhance) their business models by licensing content thus enhanced to classes of students. Goldberg summarizes these visions by simply identifying *content* as "the Trojan horse that will probably disrupt education in the next few years."

However, for this to happen, textbook authors and publishers would have to continue to adapt and enhance content, and integrate it with features earlier associated with systems like WebCT, Moodle and possibly Facebook as well. Teachers, for their part, would have to recognize the value of these combinations of contents and services, and (perhaps most importantly) students would have to accept the associated restrictions and possibilities as acceptable and even desirable. Like most wildcards, this possibility is a bit of a long shot, but it is full of game-changing possibilities.

Revisiting the opening arguments

In concluding, it is valuable to revisit the arguments from the first paragraph of this report. These arguments, used to show that the time of the e-textbook has *apparently* arrived, are flawed in a number of ways. These flaws are typical of many arguments related to educational technology. For example, argument, that "more people are engaging with electronic books than ever before" is typical. It identifies a relative increase ("more than ever before") in an area outside of education as a basis for an

absolute claim in education (presumably widespread e-textbook adoption in a year or less). Like the related claim that 10% more students are using e-textbooks than earlier, any reference to a relative increase begs the question: More people or students compared to what? Increasing 0.2% of students by 10% still leaves one with a negligible number, and does not indicate a clear trend. Without a clear idea of a baseline for comparison, the value of any comparative claim (although it may initially sound impressive) is of questionable value. The other claims in the quote from the Horizon report illustrate further problems. Generally, they confuse what is possible (in theory) with what is actual (or likely) in practice. For example, they draw attention to “electronic books and the social activities they *enable*” as well as the fact that “nearly everyone carries some device that *can* function as an electronic reader” (emphases added). As this report has shown, just because electronic books enable social activities *in theory* doesn’t mean that they are currently designed and marketed to do so, or that they even integrate features that actually make this kind of activity possible. In addition, the availability of these features does not mean that people actually *would* put them to use. For example, the fact that smartphones that *can* function as e-readers does not mean that people actually use them in this way. (Indeed, Amazon’s Kindle e-reader does not rank among the top ten applications for either Android or iPhone). Finally, this limitation applies doubly to education: History has shown that education has a different technological dynamic than other sectors: it is internally very differentiated in types and levels of technology used, and is much more technologically conservative than the entertainment sector (as one example). This makes it particularly important to look carefully at actual and trending preferences and uses by students and teachers, rather than extrapolating developments from other domains.

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