

Exploring eTextbooks at the University of Washington: What We Learned and What is Next

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UW Information Technology

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INTRODUCTION

Electronic Textbooks or “eTextbooks” have garnered considerable attention in higher education, largely driven by a desire to meet the technological expectations of a new generation of students, interest in exploring the educational potential of moving books online, and concerns over increasing textbook prices. The 2011 Horizon Report (Johnson, 2011), predicted electronic books would begin to see increased adoption at colleges and universities within one year or less.

The University of Washington (UW) has been an early evaluator of eTextbooks. In 2009, the Computer Science and Engineering department and the Foster School of Business piloted the delivery of course readings on Kindle devices (Hickey, 2010). That pilot found limitations in the reading and note taking experience offered on that device at that time. A 2010 pilot at Indiana University (Chen, 2012) focused on Courseload, an eTextbook platform that aggregates content from a variety of major publishers. This study demonstrated that Courseload had the potential to address some of the limitations found in UW’s earlier pilot and warranted a new exploration of eTextbooks. In addition, the Courseload pilot introduced shared annotation features, and claimed statistically significant improvements in student learning and engagement.

Prompted in part by these earlier studies, between Spring Quarter 2012 and Spring Quarter 2013 the UW piloted two popular eTextbook platforms, Courseload and CourseSmart, in a range of courses on all three campuses. This effort was lead by UW Information Technology (UW-IT), with assistance from the University Book Store, UW Libraries, and the Teaching and Learning Technology Oversight Committee.

Pilot Questions

- What role do textbooks/eTextbooks play in the experience of UW students? (Pg. 8-9)
- Do eTextbooks enhance students’ learning experience? (Pg. 10-13)
- Are eTextbooks a productive site for collaborative learning? (Pg. 14-16)
- Are eTextbooks a viable solution to the rising costs of textbooks? (Pg. 17-19)
- What role should IT play in eTextbook adoption? (Pg. 20-22)
- Should the UW adopt a single eTextbook platform at this time? (Pg. 23-26)

This report answers these questions with evaluation findings and lessons learned by the pilot team. **The overall finding is that despite important improvements in eTextbook technology, both platforms still present significant limitations, such that adoption of either Courseload or CourseSmart is not recommended at this time.**

Current Limitations of eTextbook Platforms

- Neither enhanced students' learning experience in a substantial way.
- Collaboration features were seldom utilized by instructors or students.
- eTextbook availability and accessibility remain problematic.
- UW instructors and students want to be able to assemble and access a greater variety of resources in an integrated platform.

The eTextbook market is changing rapidly, as new options arise and as technology is enhanced. Without a doubt, the future of textbooks and course readings will be digital. As the eTextbook market continues to evolve, it is important to watch for new developments in the following areas:

Desired eTextbook Enhancements

- Thinking of the eTextbook as part of a larger learning ecosystem.
- Moving beyond a focus on page fidelity.
- Paying more attention to anytime, from any device, for everyone.
- Improved market saturation and eTextbook availability.
- More competitive pricing.

As these enhancements are addressed, eTextbooks will become more a desirable alternative to traditional textbooks. In the meantime, we recommend that the UW focus on promoting student choice in selecting digital options and exploring faculty interest in options for online readings and resources that extend beyond eTextbooks.

PILOT OVERVIEW

eTextbook Platform Selection

The choice to pilot both Courseload and CourseSmart was driven by fundamental differences between the two platforms. Courseload emphasizes collaborative reading features, with all students buying the eTextbook as part of the course. This course-based adoption model allows for note and highlight sharing among students and the course instructor, making the textbook a locus of interaction. In contrast, CourseSmart does not require all students in a course to purchase the eTextbook and emphasizes student choice in their rental length. This system tends to treat the textbook as an information resource rather than a setting for collaborative engagement. To determine which approach the UW community would find most useful, the pilot team decided to explore both platforms and compare student and faculty views of these options.

Direct comparison of the platforms is made possible by substantial similarities between Courseload and CourseSmart: both provide similar digital reading experiences and user interfaces, both use Web-based, device-agnostic access, and both products claim strong relationships with a diverse array of publishers. Their interfaces are strikingly similar, both providing note taking and highlighting through click and drag action on the page, and a “browsing” function that displays several pages of the text at once. Based on these characteristics, the pilot team scored them very similarly in our initial selection process.

Pilot Logistics

For the pilot, UW-IT provided access to both eTextbook platforms through integration with the Canvas learning management system (which was also being piloted). Though this integration made it relatively easy to provide student access to eTextbooks, it also resulted in several courses using Canvas for access to their eTextbooks when they were not using Canvas for other course activities.

In the initial stages of the pilot, the team explored options to charge students for their eTextbooks, but integrating with price and charging systems would require significant work and increase the technical requirements and timeline of the pilot. As a result, UW-IT decided to cover the cost of the student eTextbooks, making them free to students in pilot courses.

Evaluation Description

Recruitment

Instructors

The opportunity for instructors to participate in the pilot was announced at faculty council meetings, during technology-related events, and through a notification in a UW online newsletter. The 17 instructors participating in the pilot taught 15 unique courses. A few courses were taught multiple quarters, for a total of 20 courses in the pilot. Courses represented a broad range of academic areas, with no two courses in the same department, and only two shared a school or college. All three UW campuses (Seattle, Bothell, and Tacoma) were represented.

Courses and instructors were selected for the pilot based on availability of their desired eTextbook. Instructors continued to use the same textbook they had used previously, but in an online version. If an eTextbook was available from both Courseload and CourseSmart, instructors selected the platform they preferred after consultation with UW-IT support staff. Targeted recruitment was carried out during the last

quarter of the pilot (Winter 2013) to ensure a balanced sample of courses using each reader. One instructor offered the same course using CourseLoad in one quarter and CourseSmart in a later quarter to allow for a direct comparison between the two platforms.

Students

At the beginning of each quarter an email from instructors informed their students that the course was a part of an eTextbook pilot, UW-IT would pay for their eTextbook for the quarter, and that they would receive an online survey about their experience. Invitations to participate in an online survey were distributed via the instructor with two email reminders sent directly from research staff to non-responsive students. Participating students were offered the incentive of entering a drawing to win one of several \$20 to \$30 credits to their Husky Card account. A total of 728 students responded out of 1859 invited, an overall response rate of 39.2%.

Data Collection

Instructor Interviews

Structured interviews with participating instructors were conducted after each quarter. Questions centered on the instructor's use of the eTextbook and her or his experience teaching with the new resource. Thirteen of the 17 instructors participating in the pilot responded to requests for interviews.

Student Surveys

Students were surveyed during the final weeks of each course. The survey questions were informed by previous eTextbook research at Indiana University and tested for comprehension by a group of UW students. Surveys contained six sections:

- Section 1 asked participants about their textbook purchasing/selling habits.
- Section 2 explored reading habits.
- Section 3 asked about subjects' experiences using the eTextbook, their preferences using an eTextbook versus a hard copy text for various tasks, and the impact the eTextbook had on interactions with classmates and the instructor.
- Section 4 asked questions about obstacles participants may have encountered using the eTextbook and if they required support.
- Section 5 assayed preferred length of access of the eTextbook, level of preferred discount of the eTextbooks (compared to price of the hard copy version), and factors the UW should consider when determining the future of eTextbooks.
- Section 6 included a series of demographic items.

Two different versions of the survey were developed, with certain questions tailored for each platform. Slight modifications were made after the first two quarters of the pilot to reflect new avenues for purchasing textbooks and to add response options that had been mentioned in write-in comments.

Analysis

Student survey responses are summarized descriptively for the entire cohort of participants. Inferential statistical testing was carried out to investigate differences in student responses according to a variety of characteristics. Analyses focused on comparison of student experiences using the CourseSmart and CourseLoad platforms and attempts to identify commonalities among students who reported a perceived increase in course grade as a result of the eTextbook, those who chose not to use the eTextbook provided, and those who reported completing the greatest amount of reading. Qualitative responses from interviews with instructors were compiled and reviewed by members of the pilot team. Recurrent themes were coded and profiles of diverse styles of eTextbook use in teaching were described. These data provided context for interpreting student survey responses and informed the recommendations for future eTextbook improvements offered in this report.

Limitations

The majority of respondents were female (63%), differing considerably from the overall UW population (52%). There were only a few items that showed gender differences in user experience, and in preference for the eTextbook versus a hard copy. Consequently, overrepresentation of women in the sample most likely has minimal bias on the results reported below.

PARTICIPANT DEMOGRAPHICS

This project involved instructors and courses at many levels and representing several disciplines (Table 1). Courses ranged from small discussion courses to large lecture courses with several hundred enrolled students. Undergraduate, graduate, and professional courses were all included.

Table 1: Participants

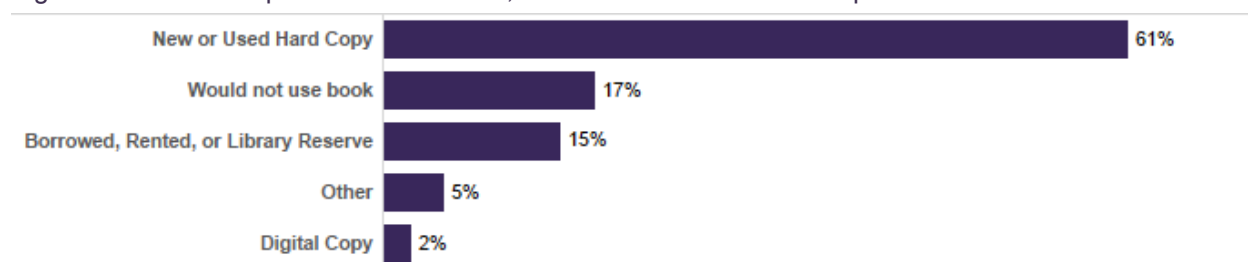
	Lower Division (100 & 200)	Upper Division (300 & 400)	Graduate and Professional	Total
<u>CourseSmart</u>				
Courses	3	4	2	9
Participants (Enrollment)	177 (486)	83 (170)	41 (170)	301 (826)
Response Rate	36.4%	48.8%	24.1%	36.4%
<u>Courseload</u>				
Courses	5	2	4	11
Participants (Enrollment)	160 (518)	103 (179)	164 (336)	427 (1033)
Response Rate	30.1%	57.5%	48.8%	41.3%
<u>Total</u>				
Courses	8	6	6	20
Participants (Enrollment)	337 (1004)	186 (349)	205 (506)	728 (1859)
Response Rate	33.6%	53.3%	40.5%	39.2%

Respondents' academic levels were evenly distributed, with students of 1st or 2nd year class standing representing 31.5% of respondents, compared to 34.7% with 3rd or 4th year standing and 33.8% in a masters, doctoral, or professional program. More than half of students (59%) were using the eTextbook in a course that was required for their major.

Student Textbook Purchasing Habits in General

Students were asked, "If an eTextbook had not been provided to you as part of this pilot, which of the following would have been your most likely means of accessing the textbook for this class?" The majority (60.7%) of students reported they would have purchased a new or used hard copy, either online or from the University Book Store. A large minority (31.9%) responded they would have not purchased a textbook. These students either would have not used the book (17.3%) or borrowed, rented, or used library reserves (14.6%) (Figure 1).

Figure 1. Students' reported choice of text, had an eTextbook not been provided for their course



Student Reading Style

In order to better understand how students use eTextbooks, and if they would employ the collaborative tools Courseload offers, we asked students about their reading styles. Students were asked to rate their reading style on two different scales. The first was a Likert scale where (5) indicated an *active reader* (defined as reading that involves highlighting, note taking, and outlining) and (1) indicated a *passive reader* (defined as reading without highlighting, note taking, or outlining). A second, similar rating scale was used to evaluate students' reading in terms of collaboration with others, where (5) indicated a *social reader* (defined as discussing and sharing readings with others; sharing observations and ideas acquired through reading), (1) is defined as doing the reading without discussing it with others.

The active/non-active reader question returned a mean rating of 3.09 indicating that students tend to see themselves as intermediate readers. For social/individual reading, the average rating was 2.38, indicating that students tended to view themselves as intermediate to non-social readers.

Students' responses were influenced by the design of the course and the reading requirements put forth by the instructor. For example, in some courses the instructor added highlights and annotations to the eTextbook and encouraged students to do the same, whereas in others students received no additional encouragement to read actively or explore the social reading features available in the eTextbook.

FINDINGS

QUESTION 1: What role do textbooks/eTextbooks play in the experience of UW students?

Key Points

- Student and instructor use of the eTextbook varied substantially across courses.
- A quarter of students bought a hard copy of the textbook, even though an eTextbook was provided to them for free. Many did so because they disliked the eTextbook.
- 11% of respondents reported not using either the eTextbook or a hard copy of the textbook assigned for their class.
- Students reported reading about the same amount as they felt was necessary for success in the course.
- Student's beliefs regarding how much reading was necessary for success in the course regularly differed from faculty expectations.

Role of eTextbook in the Course

Instructors participating in the pilot varied in their reliance on the eTextbook. Some instructors used the eTextbook extensively, adding notes and highlights or requiring that assignments include quotes and citations from the text. More often the eTextbook was one component of a larger set of resources, with lecture notes, slides, and other readings. Courses varied in the importance of reading the eTextbook and its necessity for success in the course. While some instructors required their students to complete weekly reading assignments and comprehension quizzes, others created their own course materials or used the eTextbook solely as an optional reference.

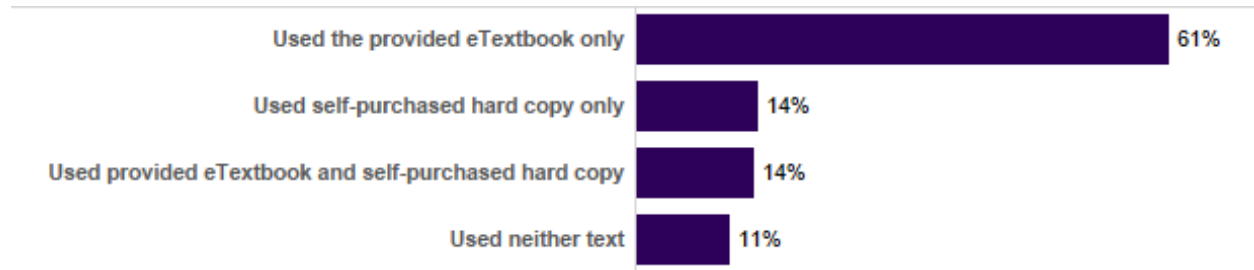
Student Textbook Purchasing Habits during the Pilot

Despite the free eTextbook offered through the pilot, over a quarter of students said that they still purchased a hard copy of the textbook. Some of these students purchased a book before being aware of the course's free eTextbook and then decided to keep their hard copy. However 57% of students that purchased a hard copy wrote responses indicating that they made this choice because they disliked the eTextbook. A considerably greater percentage of Courseload users (34.7%) bought the hard copy of the text than did CourseSmart users (16.7%).

Use of eTextbook vs. Hard copy

Of those who participated in the study, a majority only used the eTextbook that was provided to them but a surprisingly large minority, given concerns about price, purchased a hard copy to use instead of or alongside the eTextbook (Figure 2).

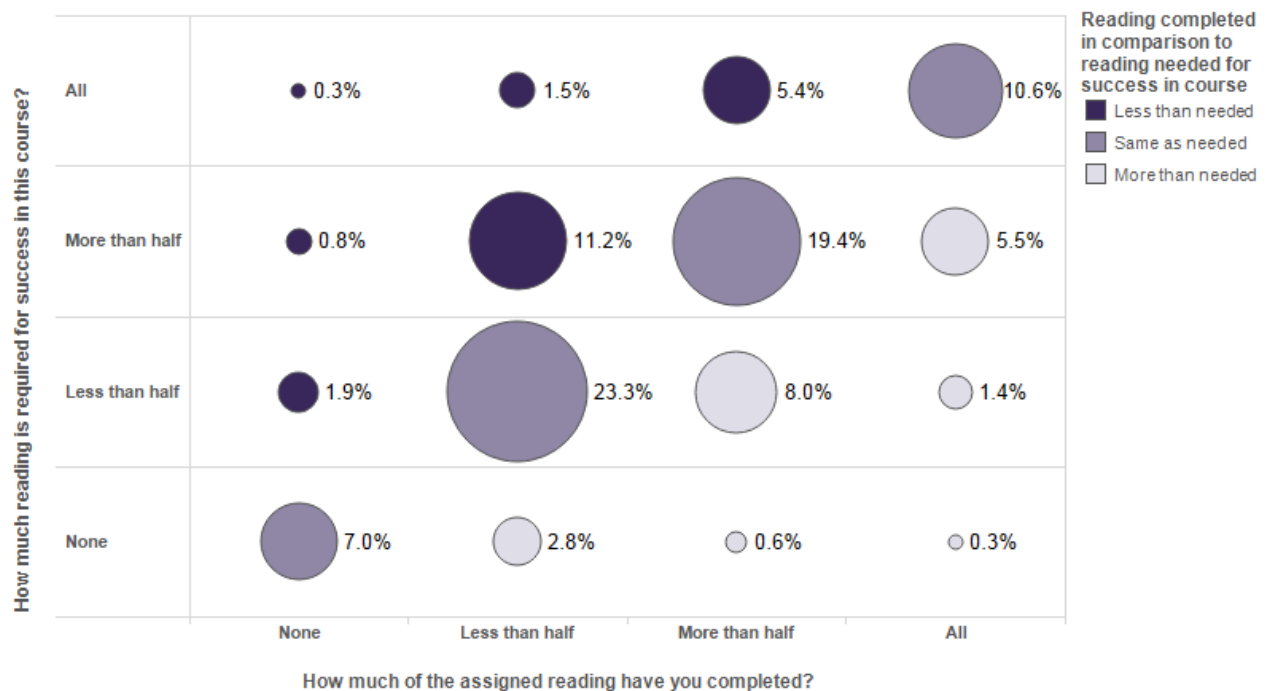
Figure 2. What type of textbook did the pilot participants use?



Reading Completed by Students

Students were asked how much of the assigned reading they completed for their course. Those responses were compared with students' reports of the amount reading necessary for success in the course. On average, students reported reading about the same amount as they felt was needed for success in the course (Figure 3). Generally, the amount of reading completed was less than the amount expected by the instructor, or thought by the instructor to be necessary for success in the course.

Figure 3. Students' reported completion of assigned reading and the reported amount of assigned reading needed for success.



QUESTION 2: Do eTextbooks enhance students' learning experience?

Key Points

- The introduction of eTextbooks did not significantly impact the learning experience.
- Overall, students found both eTextbook platforms easy to access and use from a Web browser, but reported difficulties reading on mobile devices and while offline.
- Students preferred using hard copy textbooks for personal reading and note taking, but gave eTextbooks an edge in areas that took advantage of the digital format for searching and sharing.
- A substantial majority of students reported that use of the eTextbook had no effect on their performance in the course.

Overall Impact

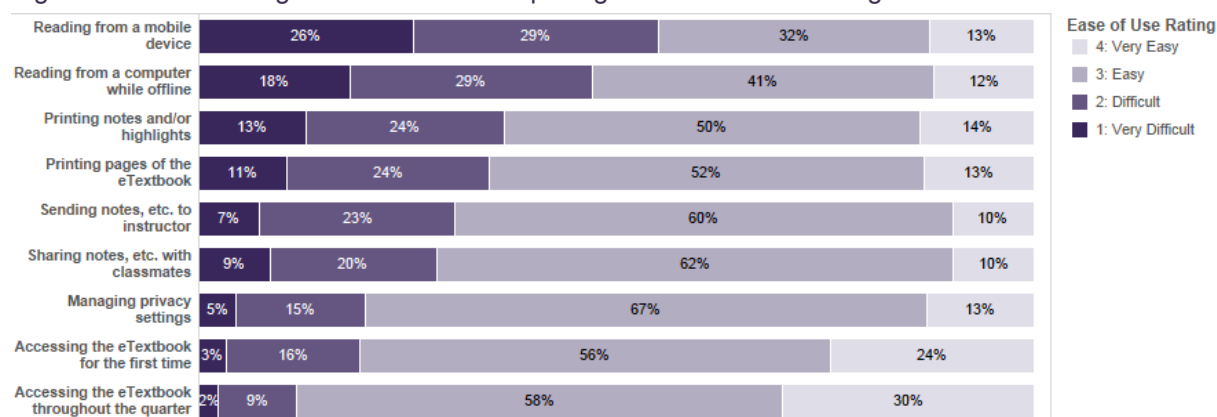
Pilot findings suggest that eTextbooks had minimal impact on students' learning experience. It is important to note that both eTextbook platforms focused on providing a direct replacement for a printed book, and a publisher focus on "page fidelity" rather than on optimizing the material for a digital or mobile format. This emphasis meant that the eTextbook served as a substitute, rather than an enhancement, in most pilot courses. Students found more value in particular areas where the eTextbook offered features not possible in a printed book.

Ease of Use

How easy students found eTextbooks to use has direct bearing on their contribution to students' learning. The evaluation survey asked students to characterize the relative ease of completing several activities using the eTextbook (Figure 4). For most activities--accessing the eTextbook, managing privacy, sharing notes--students found both platforms easy to use. The two areas where students encountered difficulties, mobile use and offline reading, greatly hindered the portability of reading materials.

Courseload usage data indicate that of 76,752 pages viewed by participants during the pilot, only 107 were viewed offline. In write-in comments, students called offline access "impossible," "a nightmare," and "very difficult to set up." Reading offline with mobile devices, especially tablets, posed many challenges. One student told us, "I saw how useful the text was from the electronic version, so I purchased a copy to use when my iPad was offline." In write-in comments, students remarked on "screen fatigue" and "eye strain" from completing reading online.

Figure 4: Student ratings of the ease of completing several activities using the eTextbook.



Accessibility

Neither Courseload nor CourseSmart performed well in accessibility tests. Courseload initially offered an interface and content that was almost completely inaccessible to users with disabilities, while CourseSmart had an interface that required a student with a disability to request an accessible version which was primarily focused on screenreader (blind) users with “invisible” or remediated text. At the time of the pilot, this request process did not work smoothly for testers, requiring multiple requests. It also introduces questions of privacy and disclosure of disability to an outside entity. Over the course of the pilot, both platforms offered incremental improvements in accessibility; however, neither could come close to matching the content that students with disabilities currently receive in the form of alternate textbooks from on-campus services or off-campus repositories such as Bookshare. To ensure that all students have equal access to academic materials, the UW (through its non-discrimination policy) has a commitment to accessibility that extends to academic materials, information technology, and online resources. At the time of this pilot, neither eTextbook platform could be considered to provide this equal access to all students.

eTextbook vs. Hard Copy

The survey asked students to indicate their preferences for completing various activities with an eTextbook or a hard copy (Figure 5). Students preferred eTextbooks for activities involving searching, sharing, and cross-referencing. These activities take advantage of the digital format and offer enhancements over the printed page. However, students preferred hard copies for reading and individual note-taking activities. These data suggest that eTextbooks have the most potential to enhance the learning experience when they offer new options beyond what is available with a hard copy book.

These patterns were very similar with Courseload and CourseSmart, emphasizing the similarities of students’ experience with both platforms. The three activities where there was a statistically significant difference between the platforms were collecting notes, sharing notes, and re-reading; for all three, students using Courseload had a stronger preference for completing these activities with an eTextbook than did their peers using CourseSmart (Figure 6). In all other activities, no statistically significant difference was observed between the preferences of students who used Courseload and students who used CourseSmart.

Figure 5. Student preference for eTextbooks compared to Hard Copy Textbooks for various activities: mean rating and distribution of rating categories.

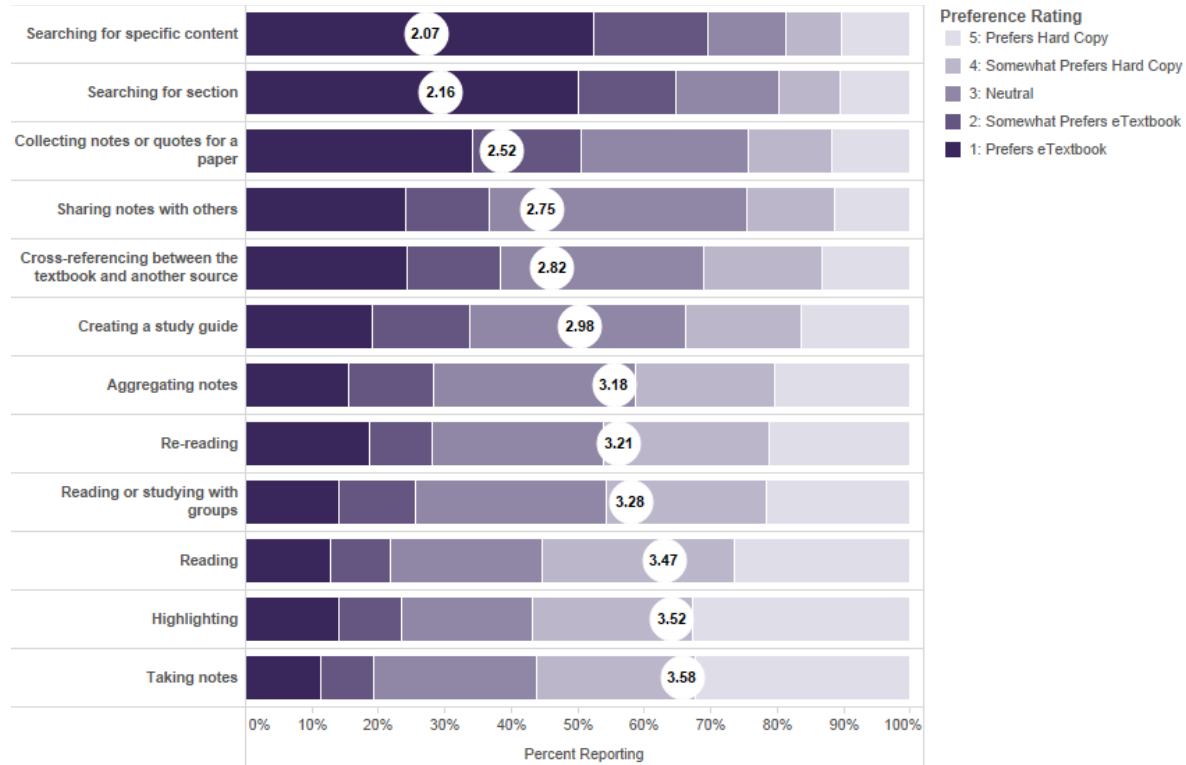
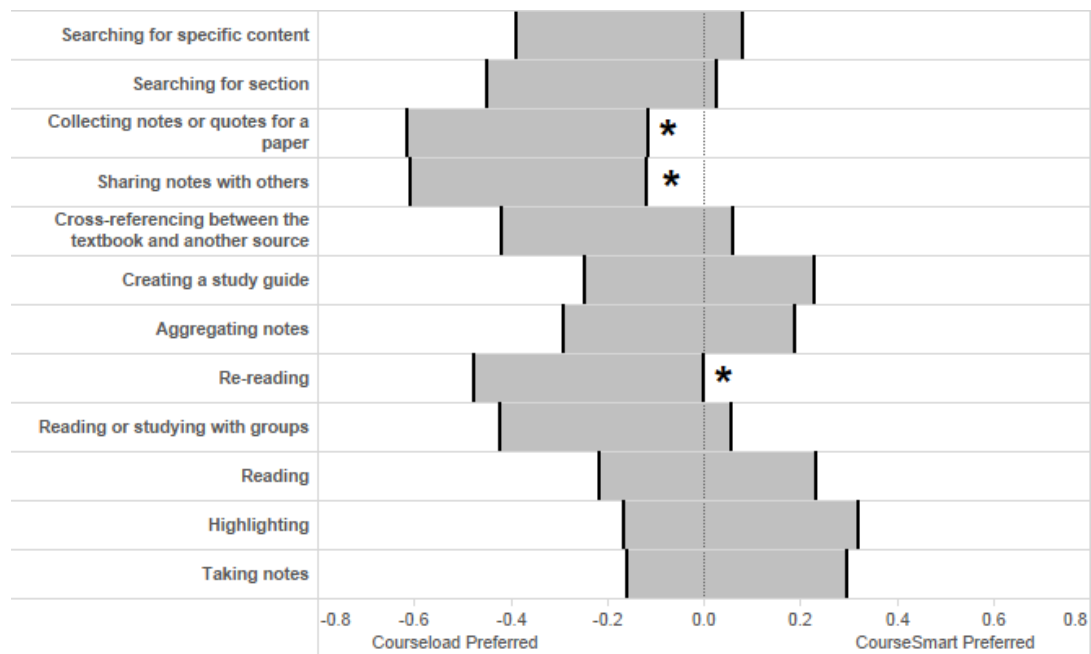


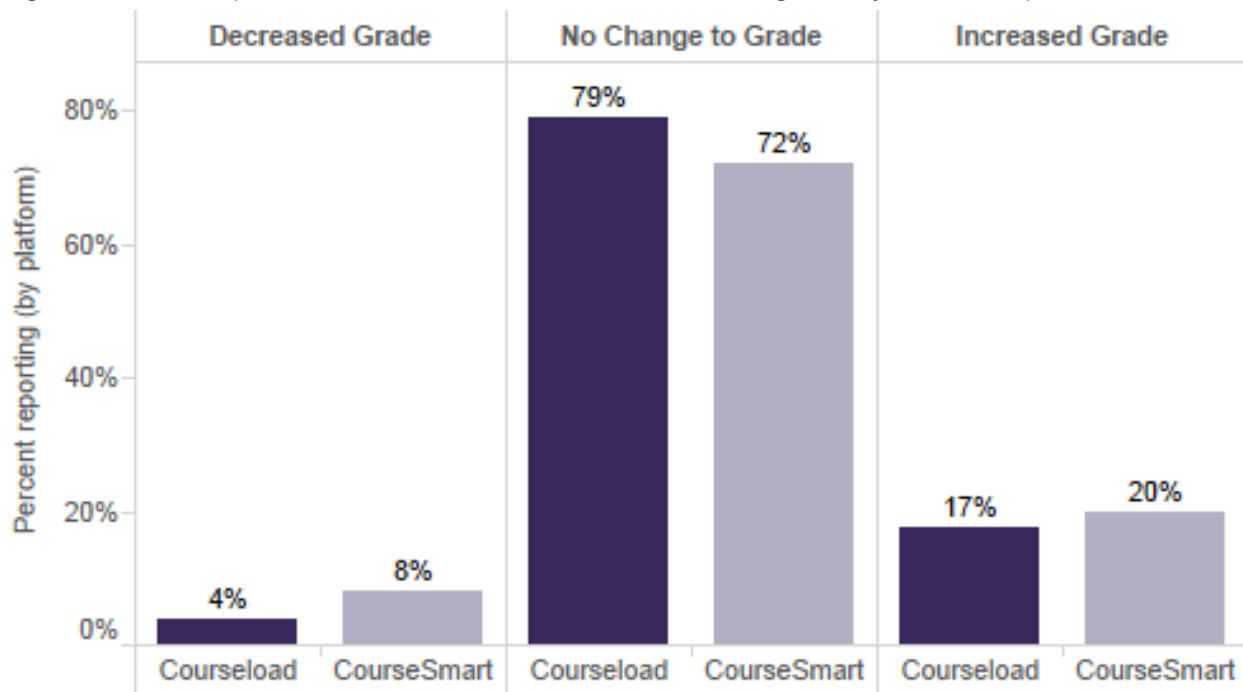
Figure 6. 95% Confidence Intervals for the difference in eTextbook vs. Hard Copy Textbook preferences for various activities. Note: 95% Confidence Intervals that include 0 denote non-statistically significant differences. An asterisk denotes a statistically significant difference between the preferences of students who used Courseload and those who used CourseSmart.



Impact of eTextbook on Performance

The majority of students using both platforms felt that the eTextbook had no impact on their performance in the course (Figure 7). A similar proportion of Courseload and CourseSmart students felt the eTextbook improved their grade (17.5% and 19.7%, respectively). Students who reported an improvement in grade were more likely to have completed at least half of the assigned reading (63% vs. 54.1%) compared to other students. Though these students were more likely to report considering an eTextbook a good value at any price (5.6% vs. 2.7%); inversely, they also had a greater proportion of students reporting that a discount of at least 51% off list price would be necessary for them to consider the eTextbook a good value (78.6% vs. 65.8%).

Figure 7. Students' perceived effect of eTextbook on their course grade, by eTextbook platform.



Students' positive comments about eTextbooks centered on the convenience of access and the search function. One student wrote, "Having the text on my phone made it easy for me to read during down time. I didn't have to carry a book with me wherever I went. I read more of the assigned reading from this book than the others that were hard copies." Another student felt that the best thing about reading with the eTextbook was "[t]he ability to search for certain passages or keywords that I needed to focus my learning on."

QUESTION 3: Are eTextbooks a productive site for collaborative learning?

Key Points

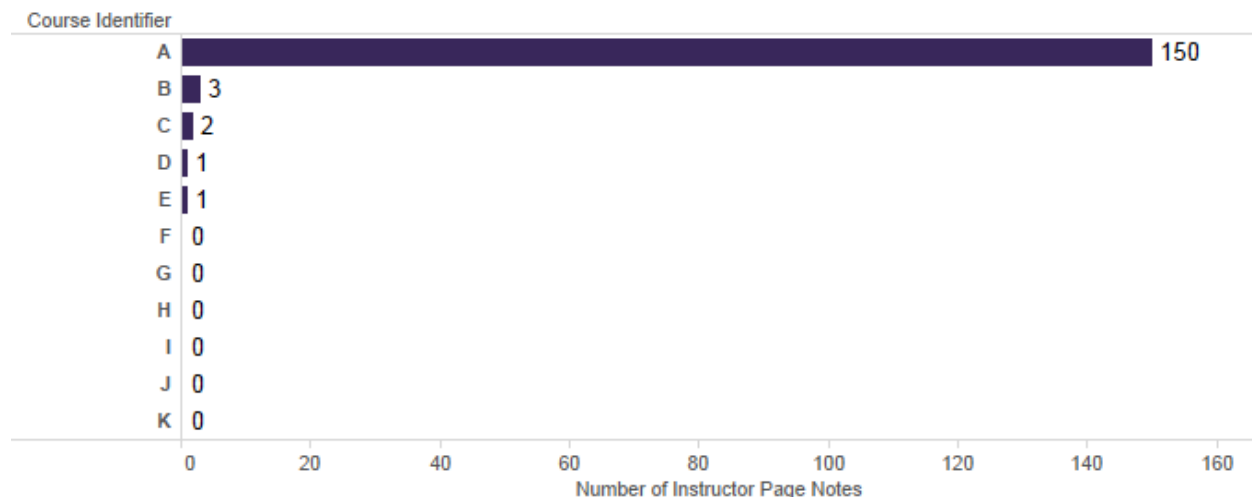
- eTextbooks were not widely utilized as a site for collaboration.
- A substantial majority of students responded that use of the eTextbook had no effect on their interaction with the instructor or their classmates.
- High instructor use of collaborative features did not significantly change students' perception of collaborative features.
- Overall, students ranked collaboration features as their lowest priority.

Use of eTextbooks for Collaboration

Collaboration was a primary motivation for piloting two platforms since Courseload offered features allowing instructors to share notes on particular pages with students and students to share their notes with the instructor and with each other. Indiana University's report on eTextbooks focused specifically on this aspect of eTextbook use. The UW pilot focused around instructor choice in platform selected and in how it was integrated into the course, as well as in student choice in how they utilized the available features. This approach meant that the pilot closely paralleled real-world adoption at the UW. While several instructors gravitated toward Courseload over CourseSmart because of these collaboration features, pilot results show these features were seldom used. Even among repeat users of these technologies, collaboration was not a priority. The main reason instructors gave for not using collaboration features was the amount of time required to mark up a text and share notes with students. They also commented on already having robust feedback and interaction mechanisms in place for their courses and that they did not need one more place to check for questions and comments.

In the 11 courses that used Courseload, only one course had more than three page notes shared by the instructor with students--while that one course had 150, six courses had zero shared notes (Figure 8).

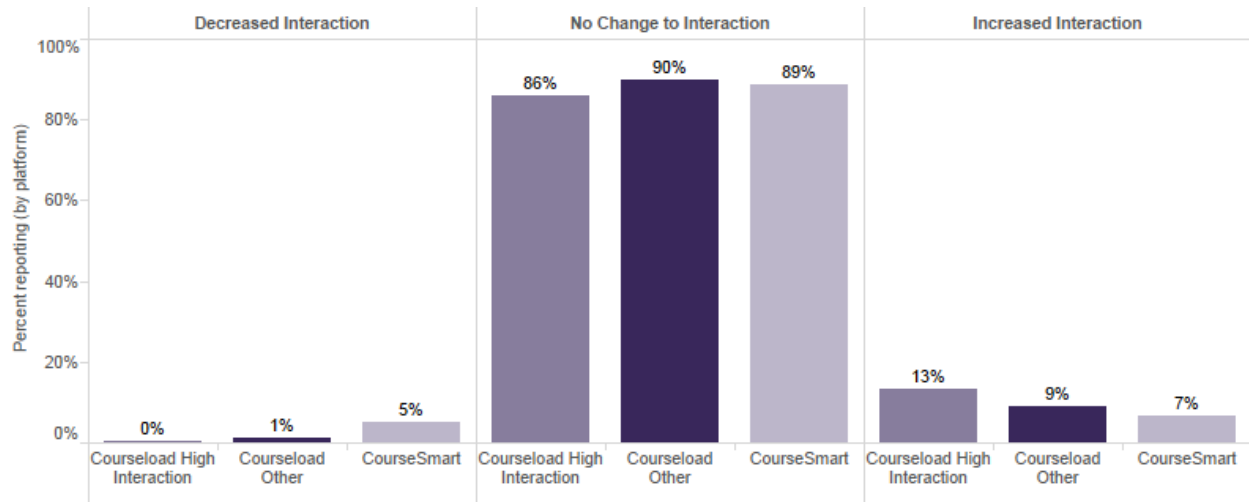
Figure 8. Number of instructor page notes for each Courseload course.



eTextbooks did not Enhance Collaboration

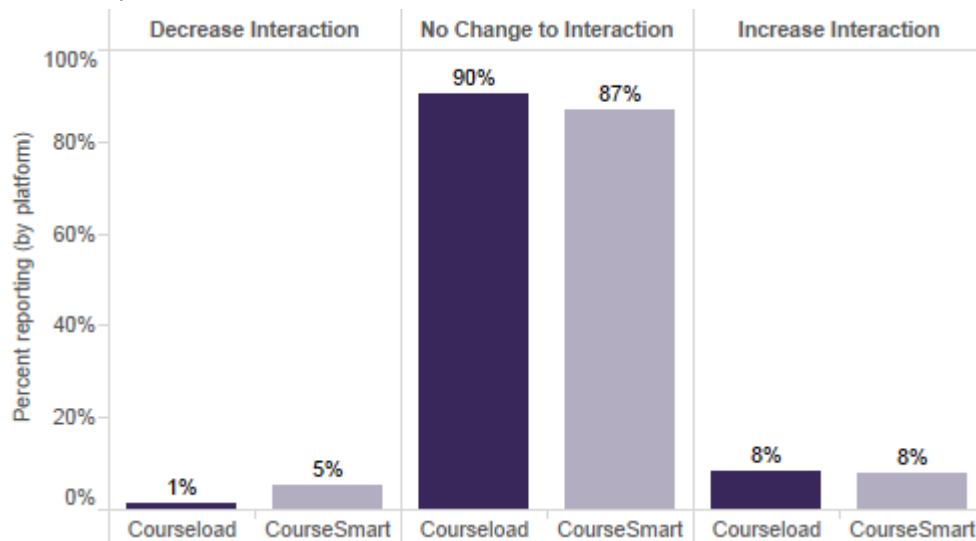
Even in the Courseload course where the instructor made 150 page notes, a substantial majority of students reported “no change to interaction.” The same was true (although to a slightly lesser extent) with other Courseload courses where the instructor made little or no use of collaborative features and in CourseSmart courses where sharing features were not prominent (Figure 9).

Figure 9. Students’ perceived effect of eTextbook on their interaction with the course instructor, according to eTextbook platform (with single high-interaction Courseload course separated from other Courseload courses).



Surveys also asked students to indicate the effect eTextbooks had on their interaction with their classmates. The response to both platforms was very similar, with an overwhelming majority of students citing “no change to interaction” regardless of the platform used, even though collaboration features were emphasized with Courseload’s model compared to CourseSmart’s (Figure 10).

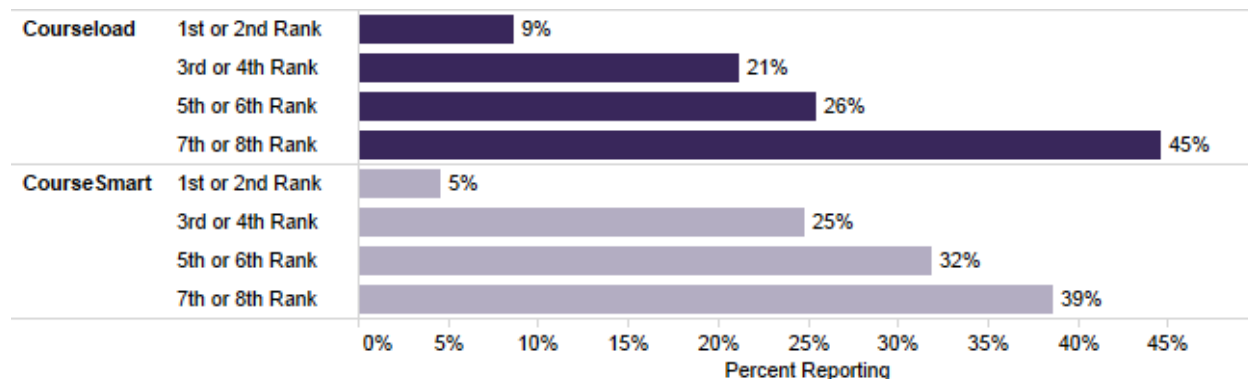
Figure 10. Students’ perceived effect of eTextbook on their interaction with each other.



Collaboration is a Low Priority

When students were asked to prioritize eight eTextbook features, collaborative features were the lowest ranked for both Courseload and CourseSmart (see Figure 11).

Figure 11. Priority rankings for collaboration features, by eTextbook platform.



The low prioritization of collaboration is not surprising given that the features were seldom used and that most participants in the pilot ranked themselves as more non-social than social in their reading habits. The role of reading in most courses did not require students to be particularly collaborative and social in their approach in order to succeed in the course. It is possible that disciplines that focus on multiple perspectives in readings, such as a reading-intensive course in the Humanities, may have utilized these features more actively. Several close-reading focused courses applied to be a part of the pilot, including a poetry course that would have made shared annotation an assignment, not a supplement. None of the texts for these courses were available in eTextbook versions in either system.

The response from the one Science instructor who used both platforms in his course during subsequent quarters summarizes the collaboration data from this pilot. He found that both platforms met the same need for him—general access to the text. He did not have time or inclination to introduce the eTextbook as another site for collaboration, since he already has a very interactive class activities: group projects, extended office hours, field excursions, online discussions, and email exchanges. This instructor did not make use of the features available in Courseload to interact with his students, but was curious if students would use them to interact with each other. In his view, students did not use the features because the type of interaction that Courseload was attempting to promote was “the wrong kind of interaction.” Instead, he indicated that eTextbooks should focus on providing rich “interactions between eTextbooks and other readings and online resources.”

QUESTION 4: Are eTextbooks a viable solution to the rising costs of textbooks?

Key Points

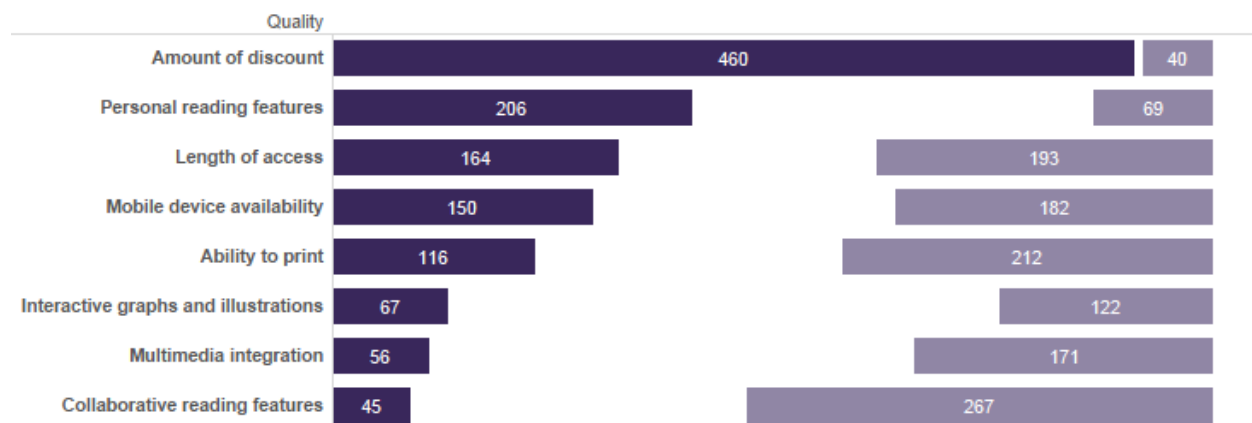
- Price is students' top priority. It was also the reason some faculty joined the pilot.
- Students expected a considerable discount for online text.
- Limited availability and length of access makes eTextbooks a poor value.
- Students did not like Courseload's course-based purchasing model.
- Discounts on eTextbooks were not as high as expected. Other programs like renting hard copies or buying used and selling back provide better savings to students.
- Paying the same price or more for features does not seem viable at this time--students who felt eTextbook improved their grade were more price-conscious than other students.

Price is Students' #1 Priority

Students were asked which factors are most important for the UW to consider when determining the future of eTextbooks on campus (Figure 12). 73% of participants ranked amount of discount as their first or second priority, while only 5.5% of participants ranked it as their lowest two priorities. These results were consistent with students' write-in comments about what they liked best about the eTextbook, which overwhelmingly cited the fact that it was provided for free.

Faculty are also concerned with the rising costs of textbooks. For one instructor, the price of a textbook is her "first consideration" when choosing a text. She also said the price of one of her favorite textbooks is so expensive that she is too "embarrassed" to ask students to purchase it. Another professor said that the rising cost of textbook is pure "greed," and a major motivator for his participation in the pilot was the fact that his students would get a free text.

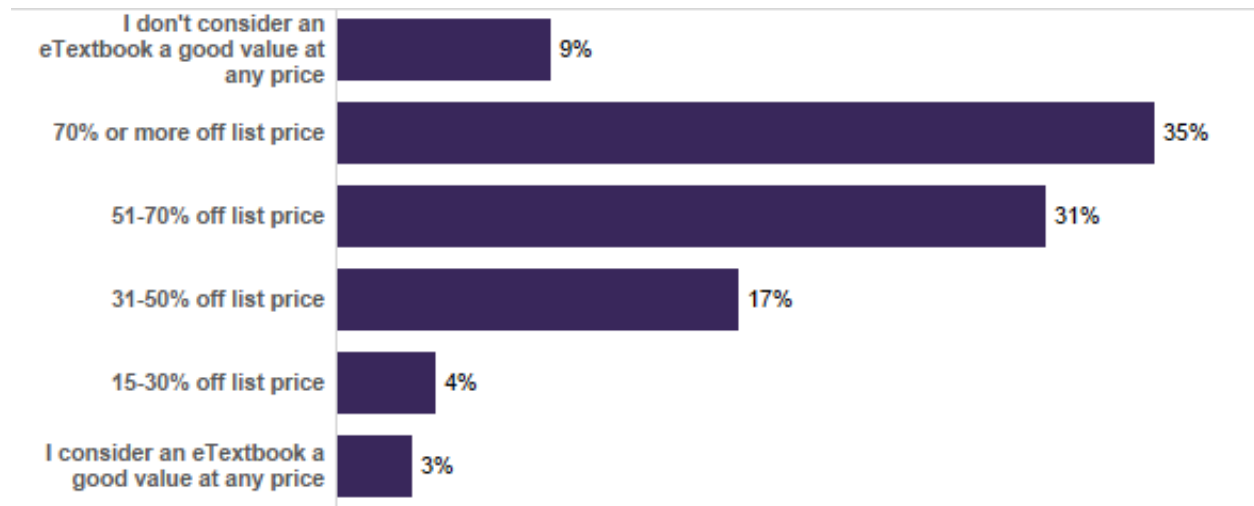
Figure 12. Student priority ratings for eTextbook qualities. Dark (left) bar indicates frequency of quality being ranked in students' top two priorities. Lighter (right) bar indicates frequency of quality being ranked in students' lowest two priorities.



The survey included an item assessing students' opinions on how much of a discount an eTextbook should be compared with the hard copy version in order for them to feel it was a good value. Their responses support the results reported above - price matters (Figure 13). While these results may be indicative of students' frustrations with the eTextbook, it also shows the importance that students place on value when choosing a textbook.

Students Expected a Considerable Discount for an Online Text

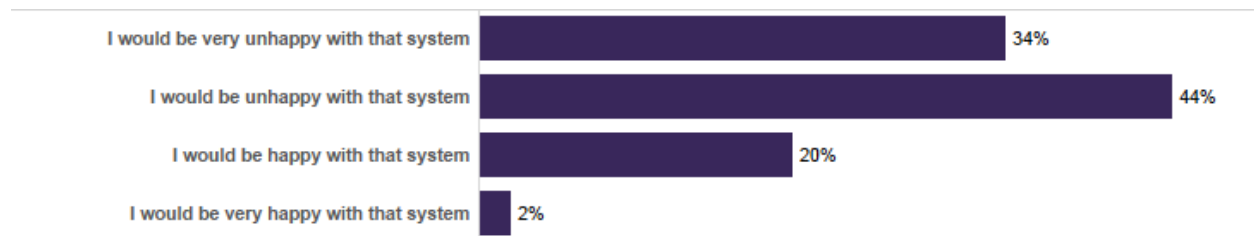
Figure 13. Student opinions on amount of discount necessary for an eTextbook to be a good value.



Students Unhappy with Courseload's Purchasing Model

Courseload's model emphasizes collaborative features, and requires that all students in the class purchase the Courseload eTextbook. The survey asked students how they felt about being required to pay for the book via a course fee. A majority of students were unhappy with this arrangement, and only 22% were happy or very happy with this system (Figure 14).

Figure 14. Student opinions of the Courseload model.



Conversion to eTextbooks Adds Costs in Faculty Time

Several instructors commented on the role of textbooks as parts of a “repository” of resources including video, lectures, assignments, and other materials. As such, a high cost was associated with changing a textbook, because of the reevaluation of other materials and the adjustment of lecture notes involved. These concerns also drive faculty adoption of course packs comprised of articles and chapters instead of whole textbooks, as adjusting any one piece of these materials has a smaller impact on the whole learning environment. Instructors made it clear they were willing to commit to the involved work, but only if the value for students was clear.

Discounts on eTextbooks Not as High as Expected

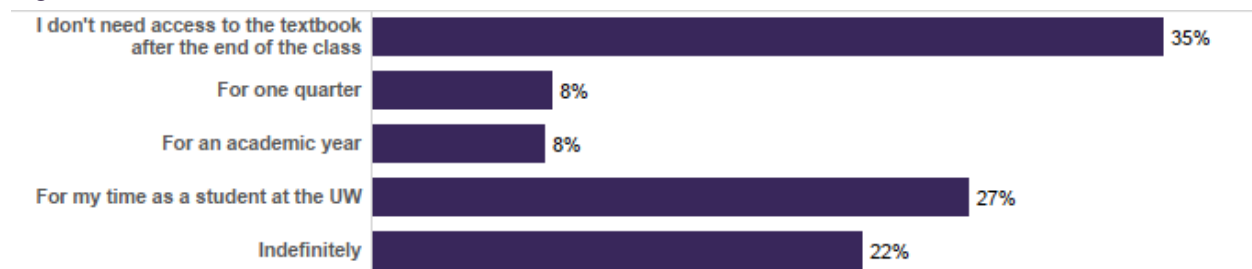
Despite the high importance students put on textbook price, both eTextbook platforms failed to provide textbook discounts exceeding those available through other options. Throughout the pilot, we found that the average textbook discount, taking into account fees, was approximately 40% off MSRP. Other studies, like those at Daytona State University (Graydon, Urbach-Buholz & Kohen, 2011), have found that eTextbook systems save students at most a dollar compared to buying the textbook new and selling it back to the book store.

At the University of Washington, though price continues to be an area of innovation in eTextbook sales, students are also finding ways to reduce costs through sharing textbooks, using library reserve systems, and through the hard copy textbook rental system offered by the UW Book Store, which currently offers significantly higher savings than the eTextbook rentals piloted. These systems continue to make current eTextbook models an unpopular investment for students.

Limited Availability and Length of Access of eTextbooks

Student preference for long-term or short-term access to the eTextbook were mixed. We included “length of access” in the list of factors that we asked students to rank-order based on what should be most important to the UW moving toward eTextbook adoption. While 26% of respondents ranked length of access as their number 1 or 2 priority, even more (31%) ranked it as their last or second-to-last priority. We also asked students how long they would like to have access to the eTextbook they used for the pilot after the class was complete. Most students said that they did not need access to the textbook after the course was complete, though 27% wanted access for their time as a student at the UW and 22% wanted indefinite access to the eTextbook (Figure 15).

Figure 15. Students’ desired duration of eTextbook access.



QUESTION 5: What role should IT play in eTextbook adoption?

Key Points

- Integration and technical support are two areas where IT can and should play a pivotal role.
- UW-IT conducted extensive examination of how each platform was meeting needs for accessibility and found both offerings had significant limitations.
- Continued evaluation and monitoring of accessibility in the eTextbook arena should be a key component of future deployment plans.
- UW-IT staff time to contact publishers, discover and clear eTextbook rights was a major cost during the pilot. IT resources can best be used in partnership with the University Book Store and UW Libraries, and their established relationships with publishers.

Limitations of the Pilot

During the eTextbook pilot, UW-IT staff handled almost all logistics, including book purchasing, publisher contacts and as faculty recruitment, LMS integration and technical support. This gave IT staff a valuable experience in understanding the logistics and complexities involved in delivering traditional textbooks as eTextbooks.

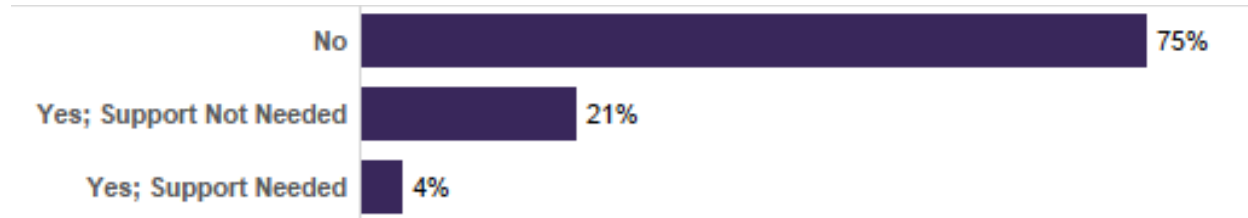
UW-IT took several measures to simplify pilot logistics. UW-IT paid for student textbooks to avoid costly purchasing and billing integrations. IT staff also spent significant time securing book rights and establishing individual course integrations. These pilot measures would not be sustainable in a system available to the whole campus. In addition, the piloted solution did not prove effective for course packs, open source textbooks, and readings added to a course ad-hoc, which have been managed in the past by the UW Libraries.

UW-IT efforts in user support, vendor relations, and integration have been effective in the past and continued to be effective here. We recommend that in future eTextbook efforts UW-IT partner more extensively with other campus groups which hold the expertise to make textbook acquisition, publisher relations, course packs, and other course readings effective and efficient. Students with disabilities should be included in future evaluation groups. This pilot also did not address an important opportunity for partnership, the role of pedagogy in textbook use, and the changes online textbooks may allow in pedagogical practices. Campus partnerships with the Center for Teaching and Learning, the Libraries, and the UW Book Store provide opportunities in the ongoing development of teaching and learning practices in textbook and online material use.

Technical Integration, Support, and Related Innovations

During the pilot, online textbooks were delivered through a Learning Tools Interoperability (LTI) integration with Canvas. LTI is a common standard of integration in educational technology. LTI allows student identities and login sessions to be passed from a product such as Canvas to the eTextbook systems through an integration that, to students, looks like a link on a course page. This integration could be set to deliver the student to any page in the assigned textbook in CourseSmart.

Figure 16. Students reporting whether a problem was encountered and if so, whether support was needed.



As shown in Figure 16, the need for technical support was generally low. The most common problems reported to UW-IT staff involved access to the text. Students experienced trouble accessing eTextbooks on both platforms. These issues regularly eliminated their access to the textbook for several days while a support staff contacted vendor engineers. The online textbook systems depended on the LTI link to make sure the student was enrolled each time they accessed the textbook, and this close watch on enrollment and digital rights led to limitations in offline reading (a major complaint of students).

In addition to improved offline functionality and access, faculty asked for improved integration with the online textbook systems. One faculty member expressed bewilderment that while a normal webpage can contain a YouTube video, a short survey, and a section of text and images, his students could not move seamlessly between learning experiences in the Canvas LMS, Tegrity Lecture Capture, and the eTextbook system. He envisioned a system where video, text, quizzes and more resources could live alongside each other, and provide information to each other. Innovations in integration would be desirable in an eTextbook platform, reflecting pressures towards interoperability in other forms of technology. In the short term, the pilot team looks forward to continued observation and conversation around eTextbooks on campus, as tools mature and more in-depth integrations become possible.

Accessibility

The pilot team tested the accessibility of the offerings from both vendors using a variety of assistive technology such as screen readers, (JAWS, NVDA, VoiceOver), screen enlargement, (iOS, ZoomText, browser-based), Speech to Text (NaturallySpeaking) and Text to Speech (ClaroRead, NaturalReader, TextHelp) as well as basic keyboard-only navigation. Perhaps the simplest and most telling evaluation method sets aside the standard mouse and attempts to access all the functions and features of these products with only the keyboard, a technique that quickly reveals the shortcomings of any vendor's product if accessibility has not been considered as a design element from an early stage of the development process.

The participating eTextbook platforms are closely wedded to not only the printed page model, but they also wish to retain close control of the content. Their approach limits the ability of common accessible technology tools to connect with content and often affect access to the functionality and features the systems wish to highlight. For example, Courseload's ability to zoom the content resulted in a reasonable enlargement for those with minor visual impairment; however, it did not enlarge any of the surrounding controls for features such as highlighting or collaboration. In the case of CourseSmart, structural information in the content in the form of heading markup is ignored and is instead used as a crude navigation technique to bring blind users into each page. Both vendors offered a reading experience that was page-at-a-time, requiring activating a link to move to the next page. This is significantly different than the types of formats students who currently receive alternate content experience. Such examples include books exported to MS Word, accessible PDF, or DAISY formats.

Future projects to evaluate and deploy eTextbooks should include accessibility as a core consideration. Vendors that do not offer an interface and content that is accessible to all students need to be informed this is a primary consideration for the UW. Evaluators with accessibility experience should continue to be involved with assessing any eTextbook solutions considered for possible deployment on campus.

eTextbook Acquisition Barriers

Throughout the pilot, UW-IT staff asked teachers for their textbook preferences, communicated those preferences to vendors, checked for the availability of electronic distribution rights, and where possible, secured rights to books which were not available electronically.

In several cases, organizational silos within publishing houses made it time consuming to discover what branch or person could approve electronic access rights. Once rights were secured, some publishers required three to four months to transmit the electronic files to CourseLoad or CourseSmart. This time delay necessitated work well in advance of the quarter, sometimes conflicting with delays in the course schedule, changes in instructor, or new textbook editions.

We also spoke with a number of instructors who used several textbooks or a collection of essays rather than a single textbook. In either case, the pilot did not fit well with their needs. Instructors who use several textbooks often select sections from each textbook, which the current pilot did not support. A number of otherwise interested faculty were unable to join the pilot, and discussed wanting to collect a course pack of essays, book chapters and other materials. A system ready for broad adoption should support students by providing a consistent and powerful reading experience across all these cases, giving students the chance to connect readings across courses.

Further supporting the idea that eTextbooks are not yet ready for broad adoption, the UW Book Store supplied the pilot team with information from their own CourseSmart integration, which makes eTextbooks available to students where publisher agreements allow. The University Book Store has found that only 578 out of the nearly 4000 titles offered across all three UW campuses were available in a digital format. Of these titles, only 912 individual eTextbooks were sold to students, accounting for less than 1% of all textbook sales. During these two quarters, the height of the eTextbook pilot, pilot eTextbook usage was greater than combined CourseSmart use through the UW Book Store.

CONCLUSION

QUESTION 6: Should the UW adopt a single eTextbook platform at this time?

Key Points

- Based on pilot results, pursuing widespread adoption of either CourseSmart or Courseload is not recommended at this time.
- It is important to continue to monitor the evolving eTextbook market, since advancements in several key areas, as described below, would warrant new engagement in this space.
- Content and quality remain vital aspects of any course resource, including textbooks.
- UW-IT should partner with other UW units to explore solutions beyond eTextbooks that provide options for online readings and other course resources.

eTextbook Adoption

Pilot data do not support pursuing widespread adoption of either CourseSmart or Courseload at this time. Rather, the UW should continue to explore eTextbooks and other online resources. The University Book Store currently provides some eTextbooks through CourseSmart to students, which students can continue to purchase as desired, when titles are available.

Monitor eTextbook Developments

The eTextbook market is evolving rapidly as providers like Courseload and CourseSmart refine their products—and as new options arise. It is important to continue to partner with instructors and departments to monitor this space. Developments in the following areas warrant additional exploration and possible renewed engagement with eTextbooks.

1) Think of the eTextbook as part of a larger learning ecosystem

Across the courses in the UW pilot, the eTextbook was one part of a larger learning ecosystem. Instructors supplemented eTextbooks with slides, lecture notes, additional readings, and/or multimedia resources. The more all of these course components work together, the more comprehensive and cohesive the system becomes. Pilot data suggest that it is important to not think of an eTextbook as a stand-alone option, but to focus on the integrations and connections possible within the learning ecosystem. It is important to consider a variety of content types: Youtube videos, pdfs, instructor/student written content, open source content, aggregated segments of textbooks from a variety of publishers, PowerPoint, multimedia, and high-quality diagrams.

The upcoming release of a new version of the LTI integration used to link the Canvas LMS to the eTextbook systems also provides one possible avenue through which connection may occur. Through extensions, saved data can be passed between the systems, opening possibilities for textbooks to tie discussions into the LMS. Likewise, a continued focus on open interoperability may increase the possibilities for communication between the LMS and eTextbook platforms.

Along with integration with other course materials, the quality and substance of resources must be high: content remains vital. One faculty member commented, “The substance of the books with all the

interactive features has to be just as good. There are interactive feature[d] books available but the substance is not as good. Material has to be solid first. But right now it is the opposite.”

2) Watch for a move beyond the page

Despite their differences in features and approach, CourseSmart and CourseLoad were both rated very similarly by students. Both platforms place a high value on page fidelity--ensuring that the reading experience of the eTextbook is as close as possible to the experience reading the printed book. Students favored eTextbooks in areas such as search, where the digital option offered easier discovery and transfer of information. These data suggest that it is essential to envision the eTextbook in a manner that takes full advantages of the features of digital format, removing the limitations imposed by tying format so closely to the printed page. The focus on printed page fidelity and digital rights management above other considerations keeps eTextbooks from taking advantage of the incredible potentials of an interconnected and responsive online world. As increasing numbers of platforms begin to offer flexible format, such as employed by the Kindle and Nook and other systems, the reliance on page fidelity (mainly to preserve page numbers) should ebb.

The popularity of Massive Open Online Courses (MOOCs), along with experiments in video, simulation and quizzing integration suggests further possibilities for enhanced individual reading. During the faculty recruitment section of the pilot, we spoke to one faculty member who had created a simulation system for his civil engineering courses, and then built a textbook around that system. He found this to be much more effective than traditional textbooks, as students learned to predict the physical effects of engineering decisions, and then understand the math and physics related to those effects. In recognition of a similar approach, the National Science Foundation gave a \$2.9 million grant to applications that teach math through simulations (Eglash, n.d.).

3) Focus on anytime, anywhere, any device, access for everyone

The two areas where students reported the biggest challenges in using either platform were in reading from a mobile device and reading from a computer while offline. Difficulties in these areas represent serious limitations for the usability of eTextbooks. In essence, a free eTextbook tied students to a computer with an Internet connection for their course reading--making eTextbooks potentially less portable than a printed textbook. In addition, being able to read more from tablets may help reduce the effects of eye strain and fatigue from reading on computer screens. eTextbooks need to embrace true anytime, anywhere reading features with an easy ability to read offline and on any device. Despite the marketing claims of both vendors, neither performed well in the area of accessibility for users with disabilities, although both are making some improvements in this area.

Other existing systems, for example Inkling and iBooks, currently limit students to iPads for access to their textbooks. These solutions move away from anytime, anywhere access to a hardware dependent solution which does not resolve the issues of access being tied to a single technology. The UW should specifically watch for future solutions which allow multiple ways of accessing the eTextbook. In this regard, the Open and Creative Commons textbook options are particularly attractive, as the lack of concern for textbook rights allow students to access their textbooks in whatever form they prefer.

4) Pay attention to market saturation and access options

During the pilot, eTextbook availability was a considerable challenge. Even though both vendors had relationships with major publishers, many textbooks simply were not available as an eTextbook. Although

the University Book Store has a long-standing arrangement with CourseSmart to offer eTextbooks as an option for students (outside of the pilot), they still account for less than 1% of total textbook sales.

The eTextbook platforms piloted also do not address many of the non-textbook options used by faculty--the course packs, essays, and variety of resources faculty offer in many courses. While CourseLoad did offer an option for instructors to add additional content, such as PowerPoint and PDFs, the upload process was challenging for instructors and, thus, seldom used. Closer attention should be paid to systems that allow unified access to all these resources, as opposed to only one or two options.

5) Price matters

Pilot data strongly indicate that price is the most important factor for instructors and students when evaluating an eTextbook. When asked what they liked most about the eTextbook, the most common response among students was that their books were “free.” Instructors’ primary reason for joining the pilot was concern over textbook prices. Students and instructors expected the eTextbook to offer substantial savings over the printed version, especially if length of access is restricted to a rental period. For many students, it would be cheaper to buy a used book and sell it after the course than to buy an eTextbook through either platform, with the level of discount the UW was able to secure during the pilot.

Clearly, whatever option the UW pursues should take price into account. Options that charge traditional textbook prices, or even substantial fractions of standard prices, will need to add very significant value for the faculty and students. Exploration of eReserve systems and open source content can also address some of the price pressures instructors and students face.

6) Explore Beyond eTextbooks

While raising awareness, supporting student choice, and monitoring the eTextbook market, there are also some areas where the UW can explore options that will meet some of the needs that emerged during the pilot. Instructors specifically stated interest in both gathering texts in a common location and increasing ease of access to course readings from the course LMS. Other faculty expressed interest in self-publishing and collaborative publishing options, especially as they were concerned about student costs. In keeping with the pedagogical attention of campus efforts, several areas of interest centered around transforming the textbook from a passive information gathering tool to an active, responsive learning environment through tools like quizzing, collaborative editing, and simulation. While CourseLoad’s collaborative note-sharing tools attempt to address this active approach to the text, it may not be the proper approach at this time. This, however, should not rule out further experimentation with active and interactive text systems and their benefits for learning and the student experience.

The eTextbook field is quickly developing and offers a broad variety of options. eTextbook systems like Inkling are offering faculty the chance to “chop up” textbooks, selecting sections for their students to read, while students only pay for the portions used. Boundless, Flatworld Knowledge, and other textbook systems are offering free textbooks, sometimes with the option to purchase supplementary videos, quizzes, flashcards, and other materials. The Washington State Board of Technical and Community Colleges is developing Creative-Commons licensed free textbooks for their hundred most popular courses.

Research projects like the Implementing New Knowledge Environments project (<http://inke.ca>) are looking at entirely new reading experiences that integrate scholarly collaboration, dynamic text, and multi-dimensional navigation. This research led by the University of Victoria looks at the history of reading and future possibilities, highlighting the need for research not only about individual readers, but further

research about reading habits, faculty choices and desires, and upcoming technologies to inform solutions in the eTextbook world.

These options may be applicable to specific departments, instructors, or fields. UW-IT should continue to work with these groups to pilot and experiment with new and enriching solutions, experimenting as the eTextbook field develops. This experimentation will require support for and from faculty who are already engaged in changing their practices towards lecture capture, active classrooms, and online engagement.

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