# Exploring the Student E-Book Experience

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## Introduction

In 2011, the CTW Library Consortium—Connecticut College, Trinity College, and Wesleyan University, three small residential liberal arts colleges in Connecticut—piloted a collaborative collection development project for a patron driven acquisition program for e-books. In addition to monitoring quantitative use of e-books, a small committee of librarians from all three institutions met and designed a protocol for a qualitative study incorporating interviews and usability sessions to determine what undergraduate students think of, and how they use, e-books. The goal was to determine what e-books look like through students' eyes. At Wesleyan, we have repeated the study annually to gain a longitudinal view of changes over time. To supplement our qualitative data, we more recently surveyed a stratified sample of all undergraduate students to elicit additional quantitative information.

## Literature Review

Recent literature review articles on academic e-books have found that while a lot of attention has been paid to how often e-books are used, much less attention has been paid to how they are used,[1] and that researchers looking at how e-books are used have commonly found that while e-books offer new research tools and methods and users appreciate these advantages, technical and other difficulties with e-books typically result in a preference for print books over e-books, especially for extended reading.[2] Some more recent studies have directly examined users' experiences, such as one using a questionnaire, observation, and interviews to explore how students used e-books to complete a course assignment, finding that most had a generally positive perception of e-books in spite of some common problems and limitations—unclear and inconsistent interfaces, difficulties with navigation or using features—that they had encountered.[3] Other studies have looked at the effects of e-books on students' performance. One study examining the influence of students' choice of e- or print for a course textbook found that while most students selected print, those who chose an e-book were more likely to use self-regulated learning strategies.[4] Another study looking at test performance found that students using e- or print scored about the same on tests, but the e-book users spent significantly more time reading, due in part to multitasking and online distractions.[5] A survey from 2003 repeated in 2009 for a longitudinal comparison found no change in the percent of respondents favoring e-books to print books over that time in spite of an increase in the percent using e-books, though most users were largely satisfied with their e-book experiences.[6] A few studies have conducted in-depth analyses of individual users' experiences. One compared 15 students from 3 different departments (economics, literature, and nursing) to observe them perform a pre-determined discipline-specific task, finding many similarities such as a tendency not to distinguish among different types of sources (e.g., e-articles or e-books), and to scan and skip around the text looking for key concepts rather than to read straight through.[7] Another looked at 7 students (including 2 with dyslexia and 1 visually im-

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paired) performing actual coursework using e-books, finding that the students rated their experiences as generally positive in spite of often being frustrated by difficulties in using some e-book features.[8] For our study, we conducted similar in-depth analyses of individual users, repeating our study annually with different groups of students to monitor changes.

## Methodology

Our original interviews and usability sessions took place in June 2011. At each school, an e-mail was sent to a random list of students offering a gift card for spending an hour of their time answering questions about their use of some library services. At Wesleyan, we interviewed seven students, and in subsequent years we recruited another seven students each June to repeat the study annually. We used software to record the interviews and capture screen activity, so we could focus on the questions and discussion during the interview sessions, and review and take notes about the interviews later. Between the third and fourth year of interviews, we incorporated some e-book related questions into a campus-wide survey to determine whether the findings in our in-depth interviews matched a much broader population.

We structured the protocol for our interviews and usability sessions to avoid asking leading questions in order to give students an opportunity to demonstrate their knowledge of, and explain their use of, e-books from their perspective. We began with a few general open-ended questions allowing students to frame their answers in their own terms, and when necessary we followed up by asking more in-depth questions about particular e-book features students had not sought on their own. For the interviews, we began by asking several questions to gauge student familiarity with e-books. Specifically, we asked:

- What is an e-book? We asked this to determine whether students' understanding of the term matched that of librarians and publishers.
- Have you used e-books? If so, we asked them to describe when, why, how, and how often

they used them; if not, we asked why not, and whether and why they might do so in the future.

- When given an opportunity to choose either a print or electronic copy of a book, when and why might you prefer one format or the other?
- What sources of e-books are you aware of, and which if any have you used?

Our protocol had three exercises for the usability portion. First, students were to find an e-book on a given topic, and to explain their steps and choices along the way. For the next two exercises, we directed them to two pre-selected e-books from different platforms and asked them to demonstrate and explain how they would use the e-books to find information on a given topic. If they did not use features such as printing or highlighting or annotating, we followed up by asking them to find and use those features and comment on whether the features were useful.

After the usability tests, we returned to interviewing, asking them to comment on their usability experiences, including whether that had altered their view of e-books and their preference relative to print. Finally, we asked how their ideal e-book would function.

In February of 2014, Wesleyan University Library along with Wesleyan's Information Technology Services implemented the MISO (Measuring Information Service Outcomes) Survey, a standardized survey for academic libraries and information technology departments to survey the campus on the frequency of use, satisfaction of, and importance of their services. The MISO Survey allows for a small number of local (campus-specific) questions to be added, so we added five questions specifically about e-books, which were informed in part by our findings from our first three years of interviews. Seven hundred students were contacted to complete the survey, and we had a 33% response rate.

## Findings

The most significant difference we have seen over the four years of the study is an increase in the use of e-

books, but that has not translated into increased sophistication of how they are used. Students are more familiar with and comfortable with e-books on a basic level, but they rarely make use of advanced features.

Over the four years of our study, only one student (from the first year) was unable to provide a reasonably good definition of an e-book. But even through the fourth year, we still had one or two students a year who could provide a good general definition of an e-book, but in practice could not distinguish between e-books and e-articles or other e-documents while performing the "find an e-book" exercise.

At the time we started our study, online journals were already commonly used by all our students and were well integrated into their study and research routines and strategies, but the little e-book experience the students previously had was mostly from assigned readings in online reserves for classes. All our Summer 2014 students had used e-books at least once; some had used them many times, often for leisure reading and in their own research as well as for assigned reading, though one was using them for the first time in a summer course. Yet, for the hands-on exercises, they made little more use of features such as highlighting or annotating in the fourth year than they had in the first, preferring instead to print or create PDF versions of significant chapters or sections to hand-annotate or to use PDF functionality with which they were already familiar.

There has been a consistent preference for print books over e-books, for both academic and leisure reading but especially for academic, with only one student out of seven each year expressing a preference for e-books. In the fourth year, however, we did see a difference in that only three had a strong preference for print, with three indicating they ideally would use both, but they would choose print if they could have only one. Those who wanted both formats use them for different purposes in a complementary fashion: e-books are good for discovery (searching, skimming, scanning, reading short passages), while print books are better for serious studying that requires deep, close, or long reading.

In all years, students consistently noted the various benefits of print books' physicality: ease of flipping around and through a book; memory of where in a book's thickness and where on a page a particular passage was; highlighting, underlining, and annotating; adding post-it notes (which serve not only as bookmarks, but also as indicators of which books in a stack, and which parts of an individual book, are most significant: more post-its in a book or a section indicates more significance). They also commonly noted that they are accustomed to print books; that is how they have always studied, and they have developed successful and familiar habits in their use of print books, which may point to a possible future shift in students' expectations and study techniques as (or, if) K–12 schools move more to using e-textbooks.

More students had more experience acquiring e-books each subsequent year, but the sources were fairly consistent over the years. Professor-provided copies on course sites, the library (either online reserves or the catalog, though even through our fourth year roughly half the students we interviewed had not used the library catalog to find e-books and many were not even aware the library had e-books in our collection), Google Books or regular Google, and Amazon were the most commonly cited sources. Each year two or three students also mentioned specific e-book collections such as Project Gutenberg or file sharing sites such as Pirate Bay. Those who used file sharing sites were not interested in pirating per se; rather, their purpose was to avoid having to work with several different platforms or to deal with restrictions on how much they were able to print or copy to PDF documents which they could organize in folders according to topical arrangements of their own design. Along these lines, in the course of our usability exercises, one student posited that the e-books seem designed not to be misused rather than to be used, and another that they seem designed with publishers' interests rather than readers' interests in mind.

For the "find an e-book on topic X" exercise, more students used the library catalog than one would expect based on their interview responses, which indi-

cated many did not know the library offered e-books. We have attributed this as likely due to the interviews and exercises taking place in the library with librarians. Many also went to Google Books, Google, and/or Amazon, using those sources as finding aids for titles to search for in the library catalog, as links to potentially substantial preview portions if not to the full books, or as sources for potentially purchasing an inexpensive e-copy if available. A few students went to JSTOR, the search box for the university web site, or some other inappropriate source for e-books, but nearly all chose at least a somewhat reasonable source. Using a reasonable source, however, did not mean that all of them used those sources with great facility: they might have difficulty recognizing an e-book in a sea of different types of publications, or they found a title but could determine how to access the contents. One student spoke for several others in saying "this is making me realize how little I know about finding an e-book." For the most part, however, they showed at least an adequate level of familiarity and facility with the task, and to some degree increasingly so over the course of our study. In general, though, content and accessibility was significantly more important than format: whether it was a book or article or anything else matters far less than whether the content is relevant and whether it is available or accessible.

The second and third exercises required students to look at two different pre-selected e-books from two different platforms and show us how, with identical pre-scripted questions, they would use each as one of their sources in the process of writing a paper on a given topic. We alternated which of the two we had them test first in order to see whether that made any difference in their impressions and preferences. We concluded that the order did not make a noticeably significant difference. Though we have added more vendors and many more titles since, and though some of those platforms have changed recently, the two we had selected changed minimally during the course of our study. We wanted to ask about the desirability and usefulness of a number of functions available on the platforms, but we began by letting the students show

us what functionality they would look for and use before we prompted them to examine anything they did not seek or stumble across on their own. By structuring our interviews this way, we found that students typically looked for and discussed only basic functionality on their own, even if they had a significant amount of previous encounters using e-books.

One of our goals in comparing two platforms was to determine whether students had a consistent preference and thus whether we should base our demand driven acquisition program on one platform or the other. We found, however, that there was not a clear favorite between them—each platform had its advantages and disadvantages to weigh, and even when a student favored one over the other overall, it was usually not a heavy favorite—but there were many consistencies in what the students liked or disliked about them. Therefore our focus here will be the students' general approach to e-books rather than the specific differences between the platforms.

Nearly all our students went first to the table of contents, looking for chapter headings or annotations to determine which sections of the book would be most relevant for their topic. Then they typically went either to a selected chapter or, more likely, to the preface or introduction to scan a summary of the book, looking particularly for brief chapter summaries contained therein. Some students would subsequently look for and use the search function to search for keywords in the text. However, most students did not try to search on their own—either because they did not think of it, or they were not confident in their ability to think of successfully usable search terms without having read enough of the book to be familiar with the terminology used—and we had to prompt them to do so. Only a few went to a book's index, and then found it frustrating that they could not click on a page number in the index to get to the text via imbedded hyperlinks.

After the students found a relevant passage for their hypothetical assignment, we asked what their next steps would be. Most indicated that they would either write notes on paper or type notes into a Word

document. Some said they would print relevant sections to highlight and annotate by hand, or create a PDF of a section to use a PDF reader's highlighting functionality that they were already familiar with. Some tried to copy and paste a passage into a Word document, albeit not always with success. Only a few thought to look for highlighting and annotating features within the e-book platforms.

The students had little if any difficulty with basic navigation within each book—going from page to page, finding specific pages or chapters. But there was a nearly universal preference for being able to scroll up and down from page to page rather than to click through page by page. Beyond basic navigation, however—e.g., copy/paste, downloading, highlighting, annotating—they often found it difficult to find the functionality they were looking for or that we prompted them to find. Much of this was due to not recognizing or accurately interpreting icons or labels. This may seem a minor point—it is not difficult to learn what icons or labels mean—but our students commonly would either not think of a function on their own if it was not obviously available, or they were not willing to spend much effort looking for specific functions or to explore an interface's capabilities if those were not obvious. Nearly all the students said unless a task was very important or they could not find a work-around, they would typically spend very little time trying to figure out how to do a task with the platform tools provided, even if it occurred to them that appropriate tools should be there. Most students said that their interest was in doing their work efficiently and writing their paper, not in exploring a software interface to find additional or advanced features. They would prefer to work with print or PDF formats they were already familiar with rather than learning a new interface along with doing their work.

Despite these remarks, all our students left our interviews with a higher opinion of e-books than when they started. As noted earlier, consistently in each year, six out of seven students began the interview saying they preferred print to e-books, and that was usually a strong preference. Near the end of the

interview, we asked whether their testing of these two platforms changed their preference. None of those who started with a preference for print switched to preferring e-books, but they all said the gap had narrowed. Even those few who started with a preference for e-books said they learned some useful things in the course of the interview. So, even though these students were unlikely to make much effort exploring the functionality of e-books—and, with few exceptions, had not done so in their previous experience with e-books—once they had a guided demonstration of how e-books can be used, they said that in the future they would be likely to use at least some of that demonstrated functionality. This finding points to the importance and usefulness of making students aware of our e-book collections in a more overt way and also providing instruction or guidance to make students more aware of e-book functionality.

We concluded our interviews by asking what they expect, and what they would like, e-books to be like in five years. In general, they wanted more intuitive interfaces, and more and broader features. They wanted e-books to better incorporate the advantages of print books—ease of flipping through, highlighting and annotating, visibly seeing sticky notes, having lots of books physically surrounding them, which may be difficult to replicate online—and they also would like new features unavailable to print, such as being able to collaborate more easily with other students including distant collaboration, and also to have video, sound, and other formats which print cannot include. But at this point, most e-books seem to be analogs to print books (and in many ways somewhat inferior analogs), and so far, few e-book platforms seem to do much to take advantage of the opportunities available with newer technologies. Those changes will require more creative thinking, writing, and producing content by authors as well as publishers and ideally, input from the library community.

After three years of interviews, we used the MISO survey in February 2014 as an opportunity to determine whether our numerical findings from our relatively small number of in-depth interviews were rep-

resentative of the student population as a whole. We found that in general this is the case. Seventy percent of respondents have used e-books for academic work, but about half of them use e-books no more than once or twice a semester. Eighty-six percent of respondents prefer print books to e-books, which matches our annual six out of seven (86%) interviewees preferring print books. Asked to indicate the degree of importance [not important, somewhat important, important, very important] of different functions available with e-books—such as printing, downloading, creating PDFs, searching text, reading a whole book, reading or skimming portions of a book, determining whether to acquire a print copy, highlighting, annotating—the options most commonly seen as "very important" were printing, creating PDFs, or downloading copies, which matches our interviewees' desire for enough control to organize and manipulate texts based on their own preferences and habits of study. Reasons to use an e-book rather than ways to work with an e-book—such as reading/skimming, searching, or determining whether to acquire a print copy—were generally rated "important" but not "very important." Using an e-book's system of highlighting or annotating were considered less important by more students, but those who considered these important mostly labeled them as "very important."

## Conclusions

Since the commencement of our study in 2011, many of the e-book functions on our students' lists of desired functions and features are still wanting. Although academic e-book platforms have improved and are for the most part more intuitive than when we began our study, certain issues brought forth during our four years of interviews still remain. For example, while printing limitations have become more generous and downloading of e-book sections is more widely available than when our study began (but still can be quite different from vendor to vendor), some e-book vendors require unique user names and passwords that cannot be synced with already existing campus credentials. Many of the students we inter-

viewed indicated that such ease-of-use barriers (having to remember yet another password) were disincentives to using e-book features explored during our usability sessions. With students relying more heavily on collaborative work for their assignments, the ability to share notes with each other, a feature that would be unique to e-books that could not be replicated in a print book, does not exist. Additional enhancements that allow more facile manipulation of e-books in the same manner as print books could ease the transition to higher use of academic e-books by undergraduates.

At the same time, it is incumbent upon librarians to work with vendors for responsible collection development practices. Conversations with providers could assist in determining which e-books features should be prioritized by vendors as e-book development continues and e-books are more widely adopted. It is also important to recognize one's own academic community and what should go into the decision-making process by liaison librarians for selecting the right format (print or e-) based on local needs. Finally, there is an educational role best shared by librarians and vendors to ensure that the technologies are developed to their fullest potential so that e-books can enhance, rather than hinder, the undergraduate learning experience.

## Notes

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