

Ebook User Expectations

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Executive Summary

This document synthesizes existing user research on ebooks, proposes user stories for the Enhanced Networked Monographs (ENM) reader interface, and poses questions for further investigation.

Research confirms the desirability of full-text search, annotation, and navigation using internal links within an ebook. Downloading, printing, and copying/pasting are also important. Though navigation via internal links has been studied, expectations about the directionality of links could be further investigated. Relatedly, though users may expect ebooks to have Internet-style hyperlinks in them, conclusions are mixed regarding the appropriateness or value of links to external content, and it is unclear what sort of content users desire from external links. This issue, as well as expectations for navigating not just within a book but also between ebooks, are areas for future study.

Introduction

Project background

The Enhanced Networked Monographs (ENM) project will provide free, web-based access to selected backlist books from NYU Press, University of Minnesota Press, and University of Michigan Press. Expanding on the current NYU Press [Open Access Books](#) website, ENM will provide an enhanced reader experience website including:

- Annotation (comments and highlighting)
- Full-text search
- Navigation via a “topic map” of names and concepts derived from back-of-book index entries

Currently, the core of the reader experience interface is the open-source JavaScript EPUB reader [Radium](#). The NYU Press Open Access Books website is an instance of the RadiumJS viewer (version 0.24.0) cloud-reader distribution. We’ve made several modifications, in part based on a UX evaluation, including a larger navigation bar with cosmetic modifications, CSS changes impacting dimensions and a lowered reading area to accommodate the modified navbar, hiding of various standard Radium buttons (about, audio, library, and share bookmark), and a local fix for a known Radium bug that causes images to split into two columns.

Sources consulted

A key source is the NYU UX team’s usability evaluation of the NYU Press Open Access Books site. The UX report principally deals with testers’ experience within one book, but also with the usability of the site’s homepage listing of available ebooks. Recommendations from the UX report are included in some user stories.

Beyond the NYU UX report, a literature review conducted by the [Orbis Cascade Alliance Assessment Team](#) provided a foundational bibliography of ebook user studies and research, which was supplemented by library science journal database searches and chapters from the book *E-Books in Academic Libraries*. The recent report from JSTOR Labs, *Reimagining the Digital Monograph: Design Thinking to Build New Tools for Researchers* was also invaluable. Many of the studies consulted or referenced were surveys, or very small focus groups/interviews. Some studies focused on e-readers like Kindle, Nook, etc. (Richardson and Mahmood, 2012; Pattuelli and Lopotovska, 2013). However, a majority of the studies focused on ebook (and/or e-textbook) use in academic settings and via subscription platforms, such as EBL and ebrary (now Ebook Central), ESCO eBooks, Springer eBooks, Safari Tech Books Online, MyiLibrary, Knovel, STAT!Ref, and more. Usually these vendor platforms provide in-browser access and some level of download capability. The questions in the studies consulted for this document were often general

and aimed at understanding user perceptions of ebooks; as a result, many studies did not differentiate between ebooks in browsers vs ebooks accessed on mobile or dedicated e-reader devices. In some cases, the study specifically asked about both (Cassidy et al). D’Ambra et al.’s task-technology fit study (2013) assessed the “fit of the functionality of e-books on **e-readers and other mobile devices** to their main tasks of teaching and research” (D’Ambra et al., 2013, p. 61). However, the definition of an ebook that the researchers provided to their respondents was broader than the article’s stated focus, and included language about both personal computers and handheld devices. Thus, the conclusions can be relevant to work on books in browsers.

A full bibliography of sources referenced here and those consulted can be found at the end of this document.

Personas and Motivations

A distinction can be made between the two personas of reader and user. Roger Schonfeld suggests that a reader’s objective is to read the book, whereas a user may have other objectives “such as skimming the illustrations, consulting an index, or conducting text mining.” (Schonfeld, 2015a, p. iii). As noted recently by Joseph Esposito (2017), “books perform all kinds of tasks.”

In addition to considering the difference between these personas, it may also be helpful to think about different motivations for reading. Many studies and articles indicate that ebooks are often used as reference sources.¹ For example, “I use e-books to check facts” and “I use e-books to research a topic” seem to be the highest-weighted tasks in D’Ambra et al.’s 2013 task-technology fit study (D’Ambra et al, 2013, p. 59, table 9). Shelburne’s 2009 survey, which is cited by many subsequent studies, indicates that 78% of survey participants who use ebooks at the University of Illinois at Urbana-Champaign did so for “research” purposes (Shelburne, 2009, p. 62). These sorts of motivations can help us rethink the features and formats of our content. In his recent definition of “exploratory resources,” Roger Schonfeld (2017) advocates for thinking of reference content as “workflow and infrastructure” and “exploratory resources” as those “that allow a researcher to learn about a subject area or field of study and then deepen their learning through a curated set of potential further readings and other content types.”

Various researchers have also attempted to categorize modes of reading or ebook use. For example:

¹ Zhang and Niu (2015) cite several: “Users often regard e-books as a quick reference tool (Abdullah & Gibb, 2008b; Staiger, 2012).” (Zhang and Niu, 2015, p. 210); “E-books in academic libraries usually are used as online references to extract information for study and research (Folb, Wessel, & Czechowski, 2011; Staiger, 2012).” (Zhang and Niu, 2015, pp. 214-15). There was also a recent Library Journal post on student preference for E-reference and the use of electronic texts for pointed research and not studying/long-form reading:
<http://lj.libraryjournal.com/2016/09/technology/ebooks/academic-ebook-sales-flat-preference-for-e-reference-up/>

From A.K. Pugh (1978), used in Thayer (2011) and cited in Freeman and Saunders (2015, p. 226):

- receptive reading (reading sequentially)
- responsive reading (active engagement with pauses and rereading)
- skimming (getting an overview)
- searching (looking for answers to a query)
- scanning (looking for a specific work or phrase)

From Abdullah and Gibb (“Students’ attitudes towards e-books in a Scottish higher education institute: Part 2: Analysis of e-book usage”, 2008), cited in Zhang and Niu (2015, p. 211):

- finding relevant content
- selective reading
- fact finding
- extended reading

The 2015 Ithaca S+R Faculty survey (Wolff et al., 2015) defined the following uses of a scholarly monograph:

- Reading cover to cover in depth
- Reading a section in depth
- Comparing treatment of ideas between monographs
- Skimming in whole or in part
- Exploring references
- Searching for a particular topic

Ann Marie Clark, a social scientist, indicates that she and a few of her graduate students prefer to read deeply using print books and that “[a]n e-book will often suffice when I am doing quick reference or searching for something in particular” (Clark, 2015, p. 205). Some survey respondents in Mclure and Hoseth’s study (conducted 2010, but published 2012) at Colorado State University remarked that “while e-books are preferable for reading brief sections, quick reference, and instant access, print is better when reading an entire book” (p. 140-141). A log analysis study (which analyzed data such as how long a user stayed on an ebook page, where they traveled next, etc.) done by Freeman and Saunders (2015), echoed these points and suggested that ebook users are actively engaged, skimming, and searching rather than the more deep “receptive reading.”²

Cited in Zhang and Niu (2015), the 2008 Abdullah and Gibb study entitled “Students’ attitudes towards e-books in a Scottish higher education institute” found that students prefer print for

² “Although the log data show that in general readers spend time engaged in continuous page-by-page reading—on average, over 45.21% of pages turned were consecutive—there was a surprisingly high percentage of transition pairs alternating between forward and backward jumps. This seems to indicate that academic e-book users are more engaged in responsive reading, skimming, and searching than in receptive reading.” (Freeman and Saunders, 2015, pp. 241-242).

longer reading and ebooks for finding information and selective reading, although their study also found that after using an ebook for selective reading, some users went back to preferring print because of dissatisfaction with their experiences.³ Many surveys and focus groups have found that this is likely because students and faculty dislike reading off of a screen.⁴ It may also be a reflection of frustration with ebook platforms and devices. The 2015 Ithaka S+R Faculty Survey found a shift in perceived ease of use of electronic and print formats between 2012 and 2015. While “reading cover to cover in depth” is still overwhelmingly easier in print, for all others (see above) “we are seeing an increase in the share of faculty members that identify that it is much or somewhat easier to perform the activities in print format as opposed to digital format and, similarly, are seeing an across the board decrease in the share that finds it easier to perform the activities in digital format (Wolff et al., 2015, p. 22).

Another factor to take into account is the context of a reader’s familiarity with a given book. As Mary Coe points out in her user research study about book index use, “for users who like and use indexes, the context of index use and their familiarity with the book are important factors.” (Coe, 2015, 97). Familiarity is likely an important factor that influences how readers/users approach an ebook.

Themes

Theme 1: NAVIGATING VIA MENUS AND ARROWS

Summary of research

The NYU UX team’s report highlighted several points related to Radium menus, arrows, and drawers (like the table of contents drawer). These are architectural features of the Radium platform that impact a user’s ability to navigate and move through a book.

The affordances of physical vs. digital page-turning are something to keep in mind when considering how a user moves through an ebook. Ann Marie Clark brings up the issue of loading time as slow compared to the ease with which one can flip through a book; this is a factor in her and some of her colleagues’ preferences for print books (Clark, 2015, p. 204). Likewise Zhang and Niu report that “slow response, might also affect students’ willingness to read e-books online (Hernon et al., 2007).” (Zhang and Niu, 2015, p. 211). Summarizing Shelburne, Zhang and Niu write

³ “Abdullah and Gibb (2008a) categorized e-book use into four types: finding relevant content, selective reading, fact finding, and extended reading. In a follow-up study (Abdullah & Gibb, 2008b), most students preferred to use a print book for extended reading, although they preferred e-books for finding relevant information and selective reading. Students had no strong preferences for book format for fact finding. For selective reading, students who had used an e-book before preferred print books and students without experience of e-books preferred to use e-books. This finding suggests that students expected e-books to be more effective for searching information, but they were not satisfied with their experiences.” (Zhang and Niu, “The User Experience of E-Books in Academic Libraries: Perception, Discovery, and Use.”, 211).

⁴ For example, see Bratanek (2013), p. 66.

“As the respondents of Shelburne’s (2009) survey noted, many e-books are designed for sequential access, which is not very efficient for reference and research work, such as flipping through pages in different chapters and cross-referencing.” (Zhang and Niu, 216).

User stories

As a user, I can navigate the e-book using menus and arrows.

- As a user, I feel the menus and page arrows disappeared too quickly and I had trouble finding them again.
 - UX report recommends making page arrows and menus fixed/frozen
- As a user, I am confused when the table of contents opens on the left side of the screen, instead of near the button I clicked.
 - UX report suggests moving either the table of contents or button so they are on the same side.
- As a user, I would like to have the option skip over sections of the book.
 - Options: scroll through page thumbnails or a slider? click on linked chapter heads and sub-heads?
- As a user, I want the zoom setting to be easy to access (right now it takes two clicks)

Theme 2: NAVIGATING VIA INTERNAL LINKS

Summary of research

Navigation is a key factor in the ebook experience. Readers want to navigate quickly to the section of a book that is relevant to their needs. The NYU UX Report also touched on hyperlinks within the ebook’s content (such as footnotes).

In their task-technology fit study, D’Ambra et al. found that navigation is one of the stronger factors that influences an academic’s sense of the fitness of an ebook for their tasks. Browsing the table of contents was the most important activities in the navigation category (D’Ambra et al, 2013, p 59, table 9). Related to this, an error-free table of contents was also signalled as important in a study by McKay, Buchanan, and colleagues (2012) (Zhang and Niu, 2015, 214).

Browsing the index and linking from the index to full text were the next most significant factors in D’Ambra et al.’s study after table of contents (D’Ambra et al, 2013, p 59, table 9). However, the motivation of a user is important to consider: when talking about a transaction log analysis by McKay, Hinze, and colleagues (2012), Zhang and Niu say “The analysis identified the five most commonly viewed parts of the e-books: front matter, chapter headings, table of contents, the first page of content, and the introduction...The conclusion and index seem to be used less often than in similar studies, possibly because users in the discovery stage might be focusing on the overall relevancy of the e-book and not on a particular piece of information.”(Zhang and Niu, 2015, 213-214).

Based on her interviews, Coe concluded that book index users (both print and ebook) turn to indexes in order to gain a general overview of a book and to locate specific information (Coe, 2015, p. 93). Barnum et al (2004) reference a similar conclusion by Bishop, Liddy, and Settel (1991) that readers use indexes, “to identify and locate particular information within the book” and “to get an idea of a book’s scope and detail, and the nature of a particular subject” (Barnum et al., 2004, p. 186).

Mary Coe cites several studies by Abdullah and Gibb that find that back-of-book-indexes are better at getting users to the information they want (Coe, 2015, p. 92). However, ebook users don’t tend to use them (for example, Zhang and Niu cite the 2010 study by Berg, Hoffmann, and Dawson). Barnum et al. found in their 2004 usability study (which compared index vs. full-text search use in an Adobe Reader) that although the hyperlinked index got users to specific information an average of 10 minutes faster, users did not perceive the index as being necessarily more helpful.

Summarizing Berg, Hoffman, and Dawson’s 2010 study, Zhang and Niu say “Participants expected to interact with e-books in a way similar to navigating websites. For example, they expected that all chapter titles, keywords, indexed terms and page numbers would be hyperlinked, which was not true for the tested e-book platform.” (Zhang and Niu, 2015, p. 215).

In a 2016 panel of students organized by UKSG (United Kingdom Serials Group), one noted “Journal articles have a lot more functionality, for example I can click on an annotation [possibly he means footnote] and it will take me to that reference and straight to the bibliography.” (Estelle, 2016, 32).

When navigating, users may expect their destination to be highlighted. Barnum et al. noted that their users experienced frustration when using the index in combination with full-text search because “the hyperlinked index entry took the users to the page where the information could be found, but it didn’t highlight the portion of the page where the desired information was located. This behavior clearly violated the users’ mental model of how hyperlinked words in an index of an electronic text should work. Many users felt that they had to read unnecessary sections or pages of text to complete the task, something they didn’t like to do, regardless of the quality of information found” (Barnum et al., 2004, p. 202).

User stories

As a user, I can traverse an e-book via internal links (like the table of contents, index, and more)

- As a user, I want to be able to easily navigate between the text and footnotes

- As a user, I want to be shown which footnote I am supposed to be looking at because I do not like that I have to remember the footnote number I clicked on once I am taken to the footnote page
 - UX Report recommends highlighting the footnote number on the footnotes page so that users can see which one they should be looking at.
- As a user, I want it to be intuitive how to get back to my place in the text from the footnote
 - UX Report says that users want a pop-up style footnote on the page of text.
- As a user, I want to jump between occurrences of the term I am interested in
 - From 17 Nov 2015 meeting notes; Case 2: while reading, users see a running list of what topics are on that "page". To reach the topic page, you navigate via the running list. From the topic page, you reach the "page" of the relevant occurrence but do not link to the actual term on that page.
 - Example: occurrence view in Infoloom tool
 - Example: [Proquest Literature Online](#) [search "radial reading", click on first reference hit at bottom "Introduction Definitions, themes, changes, attitudes International Companion Encyclopedia of Children's Literature"]
- As a user, I want the index term I have selected be differentiated from the rest of the text, so that I do not have to hunt for the specific information I want.
 - See UX Report's recommendation to highlight footnote number (above) and last part of research summary above.

Theme 3: USER ORIENTATION WITHIN A BOOK

Summary of research

This theme relates to [Theme 1: Navigating via Menus](#), above.

Summarizing a study by Liesaputra and Witten (2008), Zhang and Niu write "users had disorientations with e-books and could not determine the size of online documents." (Zhang and Niu, 216).

Summarizing Shelburne, Zhang and Niu write "As the respondents of Shelburne's (2009) survey noted, many e-books are designed for sequential access, which is not very efficient for reference and research work, such as flipping through pages in different chapters and cross-referencing." (Zhang and Niu, 216).

There is some desire expressed in earlier studies for the inclusion of page numbers, mostly for purposes of citation (for example, Rojeski 2012, p. 235). The JSTOR Labs report noted that standardizing the pagination of digital and print versions would help users move between formats (Brown 2016, p. 10). However, the NYU UX report concluded that "Users were not overly

concerned about mapping a page number to the physical book. They were more concerned with being able to quickly orient themselves within the text.”

User stories

As a user, I can know where I am within a book and return to what I'm doing later.

- As a user, I want to know where I am in the book
 - UX report recommends a progress bar with numerical identifiers (similar to Kindle's locations).
 - I want to see where the print book's pages begin and end, and I want to be able to turn this view on and off.
- As a user, I want to return to specific places in the book later
 - UX report recommends a bookmark feature
- As a user, I want to remember which books in the collection I was reading
 - UX report recommends a favorites feature
- As a user, I can easily locate where I was just reading even if I change the size of the window or open/close sidebars

Theme 4: FULL-TEXT SEARCH WITHIN A BOOK

Summary of research

The NYU UX team's report ranked the lack of “in-text” searching as a usability catastrophe. As Zhang and Niu point out, “Previous surveys have shown that users view the convenience of online access and search functions as the most important advantages of e-books over print books (Jamali, Nicholas, & Rowlands, 2009)...As a result, how e-books help users find relevant sections and extract information for further use affects users' attitude about using e-books as valuable information resources. Searching and navigation functions are thus critical to users' acceptance (Levine-Clark, 2006)” (Zhang and Niu, 2015, p. 210).

In Ithaca S+R's 2015 Faculty Survey, searching was the only activity faculty largely ranked as easier in electronic format than in print (Wolff et al., 2015, p. 20). In her pilot program to include ebooks in course reserves at Dickinson College, Rojas (2012) indicates that 2/3 of study participants mentioned full-text search as a benefit of ebook use (p. 234). Some survey respondents in McClure and Hoseth's study (conducted 2010, but published 2012) at Colorado State University remarked on the ability to search within a text. In the graduate student and faculty-focused study at Sam Houston State University conducted by Cassidy et al. (2012), “ability to search the whole text” was one of the most important functions (p. 328).

In their task-technology fit study, D'Ambra et al. found that navigation is one of the stronger factors that influences an academic's sense of the fitness of ebook technology to their jobs.

Though it was less strong than browsing the table of contents or index, searching across full text was a significant factor. (D’Ambra et al, 2013, p 59, table 9).

Though her sample size was small (only six students in addition to four librarians and four faculty members), Bratanek found in her 2013 master’s thesis that searchability was a common benefit of ebooks that students cited (Bratanek, 2013, p. 65). The people she interviewed also preferred to read short texts online, like journal articles. One librarian she interviewed said that when ebooks were not divided into “articles” (like they are in an encyclopedia database), “she did a keyword search to find the most pertinent sections of the book” (Bratanek, 2013, p. 76). All six of the students on the 2016 panel organized by UKSG remarked on their appreciation for the search function in ebook platforms (Estelle, 2016).

Regarding the relation of human-created indexes to search, Ann Marie Clark notes that “One caveat is that an electronic word search rarely replaces a good index in a scholarly book, and it would be sad were e-publishers to begin skimping on e-book indexing.” (Clark, 2015, p. 198).

Barnum et al. report in their literature review about the problems users have when faced with too many search results or irrelevant results because of the presence of homonyms (Barnum et al., 2004, pp. 187-188). Duffy (2013) writes that literature on the search behaviors of historians shows “they often complain about being overwhelmed with the volume of results they get and the poor indexing features of full text databases” (Duffy, 2013, p. 5).

One of Mary Coe’s book index user study participants commented about the affordances of searching full-text vs an index, saying **“I like Google Books where you can look at all of the instances, where they’ve got the short excerpts where you see the search word in context and how it’s used [rather than the long lists of undifferentiated locators in the print index]”** and another said “I would definitely go the index to find the concepts and keywords, then use the index as a launching pad for searching.” (Coe, 2015, 96). Barnum et. al (2004) also found that their users consulted the table of contents and/or the index when they weren’t sure the exact term they should be searching (Barnum et al., 2004, pp. 203-204). Since as Coe notes, users “did not always consider whether the search term they had chosen from the index would exist in that form in the text,” (Coe, 97) including ENM topics in the full-text search index may address this problem.

User stories

- As a user, I want to find terms not necessarily in the table of contents (from UX report)
 - UX report recommendation: full-text search
 - Other options: Use topics to auto-populate search results? Include “topic pages” in same search index as epub content?
- As a user, I want to be able to search the full text of a given book.

- As a user, I want to be presented with snippets of relevant text after I do a full text search of a single book.

Theme 5: ANNOTATING

Summary of research

Zhang and Niu (2015) cite Brahame and Gabriel (2012)'s conclusion that highlighting and annotating repeatedly come up as important for users,⁵ which is echoed in Glackin, Rodenhiser, and Herzog's (2014) study cited by Thomas and Chilton (2015) in which inability to highlight was a specific complaint.⁶ Some survey respondents in Mclure and Hoseth's study (conducted 2010, but published 2012) at Colorado State University indicated their desire to "take personal notes within e-books" (p. 140). In a small focus group of faculty at the Arizona State University in 2007, Carlock and Perry reported that "professors wanted, both for themselves and for their students, the same freedoms allowed by print books: the ability to write notes, link to related items or citations, highlight passages, and copy and paste from the text" (Carlock and Perry, 2008, p. 252).

In the graduate student and faculty-focused study at Sam Houston State University conducted by Cassidy et al. (2012), "the abilities to take notes and highlight texts" were the **second-most important features**, behind full text search and printing functions (p. 328).

In their task-technology fit study, D'Ambra et al. added annotation as an important factor to the two others (navigation and output) they identified in existing literature on ebook use (D'Ambra et al, 2013, p 61). Though the confirmatory factor analysis table does not provide data for the highlighting task, the bookmarking and annotating tasks had high loads, indicating their influentialness as factors for academics considering the fit of an ebook to their tasks (D'Ambra et al, 2013, p 59, table 9).

The JSTOR Labs report mentioned annotation in several of their principles for the reimagined monograph, and one of said principles was "Readers should be able to interact with and mark up digital books." (Brown 2016, p. 10). The JSTOR Labs report recommended export, private, group, and public sharing capability, and long-term access and preservation of annotations. One of their participants is quoted as saying "The annotations...have to be able to escape the book file." (Brown 2016, p. 10).

However, in their article comparing two surveys conducted in Florida universities, Cataldo et al. (2014) note that it is still difficult to actually annotate ebooks (p. 309). Users seem to be frustrated and not satisfied by the options available.

⁵ "Other e-book features, such as downloading, printing, **text highlighting, annotating**, copying, and pasting, have repeatedly been found important for users to develop positive attitudes toward e-books (Brahme & Gabriel, 2012)" (Zhang and Niu, 2015, p. 210).

⁶ "Glackin, Rodenhiser, and Herzog's (2014) study of students accessing e-books on mobile devices found that the primary complaint participants had about e-books was usability, followed by functionality, with specific complaints about the inability to highlight..." (Thomas and Chilton, 2015, p. 252).

Thomas and Chilton relate that “as Schomisch, Zens, and Mayr (2013) put it, “‘Read only’ appears insufficient in a scholarly context; additional features for printing, **marking, annotating,** and excerpting are crucial for textual work in academia” (p. 389)” (Thomas and Chilton, 2015, p. 252). Clark (2015) writes about her note-taking habits and appreciates being able to access notes from multiple devices, but also printing, exporting, and syncing (features she did not find easily usable on the Kindle app she used). She also mentioned the issue of communicating the location of her notes to others who had different versions of the text, and that the lack of page numbers was frustrating (Clark, 2015, p. 201).

User stories

[User stories for annotation were developed separately in collaboration with [Hypothes.is](https://www.hypothes.is/)]

Theme 6: SUPPLEMENTARY INFORMATION

Summary of research

In the graduate student and faculty-focused study at Sam Houston State University conducted by Cassidy et al. (2012), “embedded videos and hyperlinks” were ranked as **less** important than other features (p. 328). However, in a small focus group of faculty at the Arizona State University in 2007, Carlock and Perry report a feeling that “A lot of e-books...aren’t taking advantage of the fact that it’s online and can be hyper-linked...it should be interlinked and hyper-linked and referenced to other materials out there.” (Carlock and Perry, 2007, p. 252). In a 2016 panel of students organized by UKSG (United Kingdom Serials Group), when asked about ideas for improvements to ebooks, one student suggested links to videos or other content. (Estelle, 2016, p. 35). Another student suggested links to the actual articles in references as opposed to just the reference section of the text (Estelle, 2016, p. 35).

In a study of 81 graduate students comparing E-readers (like the Kindle, Nook, etc), Richardson and Mahmood (2012), “built-in dictionary function” was the fourth-most common response about aspects participants liked about their own e-readers (Richardson and Mahmood, p. 177).

User stories

As a user, I can find out more about a given idea or topic

- As a user, I want to land on a page that provides more information about an idea, person, or topic
- As a user, I want to find snippets of scholarly writing about the thing I’m studying
 - Have a topic page that presents snippets of text (a la Hathitrust)?

- From 17 Nov 2015 meeting notes; Case 1: while reading, an indexed term is a link to the topic page for that term. The topic page contains a list of links that reach all occurrences of the topic term across all books, linking directly to the term's occurrence. (Question: is the topic page organized per title, which expands into occurrences within the title. Question: what is the order of the topics or titles?)
- [Kindle X-ray](#) has two pages, both overlay and completely cover the text of the page.
 - One provides a list of people and terms and shows their frequency on the page, chapter, or entire book.
 - Clicking on a person or term name brings the user to a page overlay that provides a bio (with external link to Shelfari or Wikipedia), name frequency visualization, and snippets of text.

As a user, I want access to relevant external content from within the book I am reading.

- As a user, I want to find easy-to-digest supplementary information about a topic
- As a user, when reading a book from the Connected Youth series, I want to view videos from within the reader interface.
- As a user, when reading a book from the Connected Youth series, I want to click a link to a video and be taken to a new tab in my browser.

Theme 7: NAVIGATING A COLLECTION

Summary of research

This theme is about finding books in a collection, and navigating from book to book. Full-text search across the entire corpus is addressed. There is some overlap with [Theme 6: Supplementary Information](#), above.

Ann Marie Clark notes that speed of access (instantaneity) lets her “quickly get the lay of the land on a new topic, or update myself on ongoing research directions. I more often use e-books to rule out potentially useful sources quickly than to work at length with those sources.” She “can take a quick peek.” (Clark, 2015, p. 198). Mary Coe’s exploratory user study into the expectations of book index users found that several people made use of the table of contents to get “the big picture” of the book, but that the index was also useful for this purpose (Coe, 2015, 94).

The JSTOR Labs report remarked on the importance of serendipitous discovery, or the “library stacks” effect in principle 11 for the reimagined monograph: “Ideally, digital book collections and aggregations would offer serendipitous discovery— the “library stacks” effect.” (Brown 2016, p. 11).

Zhang and Niu write that “Earlier studies raised concerns about e-books not being indexed by library catalogs and suggested including indexes and tables of contents in the catalogs to

improve users' browsing and searching capabilities of relevant e-books (Abdullah & Gibb, 2008b). Shelburne (2009) further suggested enhancing the full-text search ability and bibliographic information for e-books in the same way that journal content can be searched and discovered." (Zhang and Niu, 2015, 212).

The JSTOR Labs report remarked on the lack of automated "similar books" recommendations in such interfaces (Brown 2016, p. 11). When prototyping ideas, JSTOR Labs found that their small sample of users was most interested in "The Book-as-Portal-to-Other-Scholarship" and "Topic Explorer", both of which get at the idea of related content (Brown 2016, p. 13).

In a paper and case study about finding primary sources in HathiTrust, Duffy (2013) remarks on how its combination of bibliographic records and full-text search can improve discovery. Duffy recommends that scholars looking for primary sources use an advanced search technique: combining full-text keyword searches with subject-heading searches targeted at subdivision headings (those related to document types). As expressed by Duffy (2013) and Garrett (2007), subject headings are valuable because they help "users today find what they are looking for by using subject headings *not* as verbatim search expressions, but as sources for frequently unique keyword material" (Garrett, 2007, 72).

However, one limitation of subject headings is "a general trend towards vague and general subject headings" (Duffy, 2013, p. 10). Creating topics based on more specific index terms in the ENM project could address this issue. Besides including subject headings in search, Duffy's other suggestion is to give "the option to browse the LCSH thesaurus as one can in traditional OPACs." (Duffy, 2013, p. 11). This could be accomplished through a browse topics feature in the ENM interface.

User stories

As a user, I want to find books that are relevant to my research (items of relevance) because I want to read them deeply either online or in print.

- As a user, I want to be presented with snippets of relevant text from many books in the collection.
- As a user, I want to be able to search across the full text of all the books in the collection (a la HathiTrust)
- As a user, I want to explore an individual book using a visualization of all of its topics. I want to see an overview of what an individual book is about because I need to know that before I commit to reading the book.
- As a user, I want to explore multiple books that address the same topic.
 - I want subject to be taken into account when I search for a book.
 - This could be subject headings or Infoloom topics
 - I want to be able to sort and filter by subject area.

- The UX report recommends adding faceted filtering on the homepage using the subjects found on the “book details” page.
- Infloom topics could also play into this feature?
- I want to be able to click on a subject in the “book details” page and be returned a pre-sorted list of other books tagged with this subject.
 - The UX report recommends making use of subject tags that take users to a pre-sorted list.
- Have a topic page that presents snippets of text (a la Hathitrust)?

Theme 8: TABLET EXPERIENCE

Summary of research

The NYU UX team’s report highlighted the desire of users to have an experience consistent with their understanding of how touchscreen devices work.

User stories

- As a mobile or tablet user, I want to swipe to turn the page
- As a mobile or tablet user, I want to “pinch and expand” for zooming

Theme 9: CITATION GENERATION

Summary of research

In the graduate student and faculty-focused study at Sam Houston State University conducted by Cassidy et al. (2012), 71% of graduate students who responded indicated that automatic citation generation was of high importance, although faculty were less interested in this option (pp. 328-329). In a small focus group of faculty at the Arizona State University in 2007, Carlock and Perry reported that “professors wanted, both for themselves and for their students, the same freedoms allowed by print books: the ability to write notes, **link to related items or citations**, highlight passages, and copy and paste from the text” (Carlock and Perry, 2008, p. 252).

User stories

- As a user, I want to be able to generate a citation for the page I am reading, including a link to that page in the ENM site.
- As a user, I want to be able to export a citation into a tool such as Zotero, Refworks, or Endnote.
- As a user, I want to see instructions for how to cite the book I am reading.

Theme 10: COPYING/PASTING

Summary of research

Zhang and Niu write that “Other e-book features, such as downloading, printing, text highlighting, annotating, copying, and pasting, have repeatedly been found important for users to develop positive attitudes toward e-books (Brahme & Gabriel, 2012). (Zhang and Niu, 2015, p. 210).

In a small focus group of faculty at the Arizona State University in 2007, Carlock and Perry reported that “professors wanted, both for themselves and for their students, the same freedoms allowed by print books: the ability to write notes, link to related items or citations, highlight passages, and copy and paste from the text” (Carlock and Perry, 2008, p. 252).

In a 2016 panel of students organized by UKSG (United Kingdom Serials Group), one student noted “It is also easier to cite from e-books as well, as opposed to typing it in from a printed book.” (Estelle, 2016, p. 34). In this case, it seems the student is referring to the ability to copy and paste. Copying and pasting passages comes up in the JSTOR Labs report’s principles 9 and 7, and in one of their ethnographic interviews.

User stories

- As a user, I would like to select a paragraph or other chunk of text in a book, copy the text, and paste it into a text editor program.
- As a user, I would like to use the keyboard shortcut Ctrl-C to copy selected text in Radium.

Theme 11: DOWNLOADING/PRINTING

Summary of research

Zhang and Niu (2015) note that “Other e-book features, such as downloading, printing, text highlighting, annotating, copying, and pasting, have repeatedly been found important for users to develop positive attitudes toward e-books (Brahme & Gabriel, 2012)” (Zhang and Niu, 2015, 210).

Some survey respondents in Mclure and Hoseth’s study (conducted 2010, but published 2012) at Colorado State University noted lack of printing and downloading features as a shortcoming of the ebook platform they were using (p. 140). In the graduate student and faculty-focused study at Sam Houston State University conducted by Cassidy et al. (2012), printing was one of the most important functions (p. 328).

Cassidy et al (2012) noted that students surveyed expected that ebooks be available for download on a variety of devices, partly because they require access even without an Internet connection (Cassidy et al., 2012, p. 330).

User stories

- As a user, I would like to print a portion of the book I am reading
 - I would like to print the current chapter I am reading
 - I would like to specify a page range for printing
- As a user, I would like to read sections of a book offline, since I may need to read or use the book in places with no internet connection (such as the subway or on an airplane)

Theme 12: TEXT-TO-SPEECH

Summary of research

D’Ambra et al. (2013) indicate that a “read aloud” function was a strong factor for scholars assessing the fit of ebook technology to their needs, although the output dimension of their model was the one that was the least reliable (D’Ambra et al, 2013, p 60).

User stories

- As a user, I would like highlight (select text) to have read aloud to me
- As a user, I would like to have the option to have a given chapter read aloud to me
 - I would like to be able to pause and start the text-to-speech function myself.

Further research

The ENM team could work with the NYU UX team to develop research questions.

As Coe suggests, one area for further research could be navigation in books.⁷ Freeman and Saunders’ study explores this area, and others cited above give a sense of how important navigation is and a bit about how it is done using indexes. However, it might be helpful to do more research or observation about user expectation of the **directionality of links**; for example, do they want to jump between index and page? What expectations or desires to users have about navigating between endnotes and text?

There could also be more research into how reader/users expect or desire to **navigate between different ebooks** (although there may be relevant insights from studies about how users approach library catalogues, and how they do or do not make use of subject heading searches).

⁷ “Participants use indexes in conjunction with tables of content. Based on this finding, it may be more appropriate to study how readers navigate in books generally, rather than focusing exclusively on index use.” (Coe, 2015, 97).

Are they open to jumping from within one book to another? Why would a user want to travel between books? What would they like to do that they can't right now? A wireframe or paper prototype would be useful in an investigation of these questions.

Another area with scarce research available is **user expectations regarding external content** in ebooks. While there are some hints that users expect ebooks to have the kind of hyperlinking to external material that one finds on a web page, it's still not clear what types of supplementary resources readers want to be linked to. Furthermore, do they want to be exposed to external resources within the ebook interface or do they want to be taken directly to the source website? We might want to ask questions about the needs of "radial readers". This may help us think about what the topic map should do.

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