

HathiTrust Mobile: A Comparative Analysis

SI622 001 Group 5 – Kate Davies, Kyle Donnellon, Melody Ku, JP Obley

Word count: 3376

Executive Summary

For this phase of our project, we conducted a comparative analysis between the HathiTrust Digital Library mobile application and some of its direct, indirect, partial and analogous competitors, including Project Gutenberg Mobile, Google Books iPhone app, Internet Archive, M-Library Mobile, Amazon Kindle iPad App, GoodReader iPad App, Barnes & Noble Nook iPad App, 7Fast, Library of Congress Prints and Photographs Collection and Mirlyn, the University of Michigan Library Catalog. We collected data from our comparisons in a Google form and analyzed it based on a set of questions we developed to determine the availability and strength of key features.

Based on our comparison data and analysis, we identified these key findings and recommendations:

Findings

- The standard page-advancement functions for digital document readers are swiping right-to-left and tapping the side of the screen.
- Saved searches or default search profiles are not currently a feature offered by any of HathiTrust Mobile's direct competitors.
- Many competitors with document reading capabilities automatically save the spot where a user left off reading, and return to that location when the user re-opens the document in a later session.
- A number of competitors have "My Bookshelf" or other similar capabilities keeping personalized collections of books/documents for users.
- Access to citations of documents is a feature not many competitors have.

Recommendations

- HathiTrust Mobile should adopt the standard page-advancement function present in competitors' products across all possible platforms and devices.
- HathiTrust Mobile should offer the ability to save searches or search profiles in order to set itself ahead of competitors.
- HathiTrust Mobile should save the spot where users left off reading.
- HathiTrust Mobile should make its collections feature available on mobile to keep pace with competitors and encourage repeated usage.
- HathiTrust Mobile should make its citation management available on the mobile site.

These findings and recommendations have given us a better understanding of where HathiTrust mobile stands in relation to its competitors and in what areas it could improve its features and services.

Introduction

The system we are evaluating is HathiTrust Mobile (<http://m.hathitrust.org/>), the mobile web application for HathiTrust Digital Library (<http://www.hathitrust.org/>), a large-scale repository of digitized content from the collections of major research libraries and institutions. HathiTrust is a collaborative effort of more than 60 contributing institutions that are dedicated to securely preserving human knowledge for use both today and in the future.

HathiTrust Mobile is a version of the HathiTrust Digital Library website which is optimized for use on mobile devices. A project of the University of Michigan Library UX Department, HathiTrust mobile focuses on the catalog search and full-text reading (referred to as PageTurner) functions of the main site. It also allows users associated with its partner institutions to download full-text materials in PDF or ePub formats. Because the mobile application is web-based, it is accessible across all platforms and can be used from mobile devices, including phones and tablets, as well as laptops and desktops.

HathiTrust Mobile launched in the fall of 2011. However, the staff of the UX Department was unable to test the site as extensively as they would have liked, and are consistently finding bugs. The goals of our project are to identify further bugs to be fixed, recommend design ideas to improve the site's current navigation and gauge how well current users are being served by the site.

The current users of the HathiTrust regular site are largely academics—librarians, professors, students and researchers—as well as hobbyists interested in topics ranging from genealogy to boat restoration. Although the user base for the mobile site is less established, HathiTrust Mobile is not designed for research, as it lacks the full-text search function of the regular site; its users are likely members of the general public who are interested in reading digitized content from a mobile device.

The objectives of this phase of the project were to explore market practices and gain product development and design insights through analysis of products competing with HathiTrust Mobile's market share. The principal questions we sought to address were:

- How well do the features and functions of HathiTrust Mobile fulfill users' core desires and/or needs as compared to other products on the market?
- What are the current trends for competitive products?
- How could HathiTrust Mobile could adapt to better fulfill its objectives and remain competitive within the market?

Methods

Criteria for selecting competitive products

We began by breaking down HathiTrust Mobile into its different functions, including, but not limited to:

- Ability to search for documents;
- Ability to read documents on the site without a download;
- Ability to search within the document;
- Ability to download the document;
- Ability to share the document;
- Ability to locate hard-copy of the document.

While considering these features we started a list of competitors. Each competing site or app was chosen because it had one or many features in common with HathiTrust Mobile.

Those sites or apps that were considered direct competitors were chosen because they offered search capabilities, allowed users to read within the app, or provided what we considered to be a main feature that HathiTrust mobile offers, namely access to free eBooks or other public domain documents.

The indirect competitor was chosen because it served many of the same functions as HathiTrust. This was slightly problematic as the University of Michigan Library does often direct users to HathiTrust; however, the comparison was made with the assumption that the user would not be linking to HathiTrust and instead would be using the mobile site to search, locate, share, and save records.

Partial competitors were apps that allowed for the search and retrieval of free eBooks, but were also linked to commercial ventures. These apps allowed

for the downloading of content, most often paid content, and/or offered a digital document reading function

Our choices for analogous competitors were chosen because of the features they offered that HathiTrust does not. They are related to HathiTrust by way of being a part of the larger library community, but the similarities are not what interested us. We sought out interesting approaches to search results or novel possibilities for advanced features.

Evaluated Products

For this analysis, we selected 10 systems for evaluation. A brief description of each system follows:

Project Gutenberg Mobile Site (Direct Competitor)

Founded by Michael Hart in 1971, Project Gutenberg was a pioneer in eBooks and continues to be a source for free eBooks, as well as movies and music. Their database is made up of either permissible copyright works or works in the public domain. They have records in many languages, including English, Portuguese, German, and French. (Gutenberg, 2011)

Google Books iPhone App (Direct Competitor)

The Google Books app is a reading application that allows users to read more than 3 million Google eBooks, consisting of free books in the public domain as well as books available for purchase, on their mobile device. (App Store - Google Books, 2011) Google Books syncs with a user's Google account and loads books they have downloaded from the Google Books site in their library.

Internet Archive (Direct Competitor)

The Internet Archive is a non-profit whose stated mission is, "Universal access to all knowledge." Founded in 1996, the Internet Archive is a member of the International Internet Preservation Consortium (IIPS) and offers permanent storage and access to digitized music, moving images, websites, and over 3 million public domain books.

M-Library Mobile (Indirect Competitor)

M-Library Mobile (m.lib.umich.edu) is the mobile web application for the University of Michigan Library website. The application contains a mobile version of the Mirlyn library catalog as well as links to mobile databases, library hours

and locations, new and events, research guides, and an “Ask a Librarian” service. Its primary function is to deliver library resources to University of Michigan students and faculty who are on the go.

Amazon Kindle iPad App (Partial Competitor)

The Kindle app for mobile devices allows Amazon customers to access copies of their Kindle books with any mobile device. The Kindle store has over 1 million books and hundreds of electronic magazines and newspapers available for purchase. (Apple Store - Kindle, 2011) Additionally, customers can email themselves PDFs and other documents to open up for reading within the app.

GoodReader iPad App (Partial Competitor)

GoodReader is a robust PDF reader application for iOS devices designed by Good.iware Ltd.. It was the top-selling non-Apple app in the United States in 2010. (GoodReader for iPad for iPad on the iTunes App Store, 2011) GoodReader makes it possible to view a wide variety of file-types on mobile devices, but specializes in PDFs and large text files.

Barnes & Noble Nook iPad App (Partial Competitor)

The Nook app for mobile devices allows Barnes & Noble Nook customers to access copies of ePub documents purchased from the Nook store on BarnesandNoble.com from any mobile device. The Nook library features over 2 million books, magazines, newspapers and has a feature called LendMe which allows customers to share publications with friends and loved ones. (Free Nook Reading App (tm) Download eReader app - Barnes & Noble, 2011)

7Fast (Partial Competitor)

A service of the University of Michigan library system, 7Fast is a free interlibrary loan service for students, staff and faculty. Requests are usually completed with a link to a digital PDF within 2-3 business days.

Library of Congress Prints and Photographs Collection (Analogous Competitor)

The Library of Congress Prints and Photographs Collection holds over 14 million records, approximately 95% of which are described online. Over 1 million of the records have digital images that are available from the site. The Library of Congress offers these records to the general public in support of education and scholarship. (About the Prints and Photographs Online Catalog (PPOC), 2012)

Mirlyn, University of Michigan Library Catalog (Analogous Competitor)

Mirlyn is the library catalog for the University of Michigan. Serving the instructional and research goals of the university community, the library holds over 7 million print volumes, as well as tens of thousands of digital subscriptions. (MLibrary Collections | MLibrary, 2012)

Analysis

By using a Google form we were able to easily accumulate the analyses of each competitor. We broke down the features and functions into a series of questions and analyzed each service based upon these questions. The resulting spreadsheet left with made it easy to compare and contrast each feature within each service (Appendix A).

Findings and Recommendations

Summary Results

In general, HathiTrust mobile held up very well when compared to competitors. HathiTrust Mobile offers multiple functions as an application: it allows the user to search a large catalog of documents, and allows the user to read and share those documents. We noticed some notable deviations from the standards exhibited by other systems, particularly for the role of digital document reader. We also identified a few features which currently exist on HathiTrust's main site that could add immense value to the mobile site for users if they were accessible from the mobile site.

Key Findings and Recommendations

Finding 1: The standard page-advancement functions for digital readers are swiping right-to-left and tapping the side of the screen.

Recommendation 1: HathiTrust mobile should adopt the standard page-advancement functions across all possible platforms and devices.

HathiTrust uses the open-source application PageTurner (originating from Internet Archive) to allow users to read books and documents directly on the site. To move between consecutive pages users can swipe up or down, or use one of the up and down arrows provided on the right hand side of the screen. Additionally, there is a progress bar on the bottom of the application, but that does not allow for precise movement within the record.

Our analysis revealed that the standard functionality for movement within a document in a digital reader application is a side-to-side swipe of the finger (to mimic turning a page) or a tap on either side of the screen. By having users move through a document vertically, HathiTrust Mobile is asking them to use gestures that are different from those that they may be accustomed to use for moving through a document on their mobile device.

As PageTurner is open-source, HathiTrust may want to explore the cost of including this feature in the source code. By utilizing similar, unpatented design choices like this one made by larger companies with the resources for research, HathiTrust may be able to remain relevant when users switch between applications.

Finding 2: Saved searches or default search profiles are not currently a feature offered by any of HathiTrust's direct competitors.

Recommendation 2: HathiTrust should offer the ability to save searches or search profiles in order to set itself ahead of competitors.

Use of a mobile site suggests that a user is on the go, out of the office, and away from the computer. HathiTrust Mobile is not currently intended for research, but users may want to conduct searches that are related to larger research projects, and then save those searches for when they are in front of their desktop or laptop.

HathiTrust would be the first to offer this feature, and it could be offered strictly to users who log in through partner institutions. This would provide an incentive for users who are engaged in larger research projects to utilize the mobile site for searching and accessing documents.

Finding 3: Many competitors with reading features automatically save the spot where a user left off reading and return to that position when the user re-opens the document.

Recommendation 3: HathiTrust Mobile should save the spot where users left off reading.

Once a user exits out of the browser app or closes the PageTurner window on his or her mobile device, the page or point of a document that he or

she had advanced to is lost. This is not the case with a number of competitors' products (Google Books, Kindle, Nook, GoodReader, Internet Archive). We consider this a valuable function that would encourage repeat usage of the mobile website.

We recommend adding a cookie-like feature to the mobile site that keeps track of where a user is within a specific document. This would be a service to users that are logged in. By doing so, users will not have to reload the document each time, or remember where they left off.

Finding 4: A number of competitors have "My Bookshelf" or other similar features keeping personalized collections of books/documents for users.

Recommendation 4: HathiTrust should make its collections feature available on mobile to keep pace with competitors and encourage repeated usage.

One of the features we investigated in our evaluations related to user personalization was whether users had the ability to manage multiple records or groups of records. Several of the competitors offer users "bookshelves" containing only the documents they've purchased (Kindle, Nook, Google Books) or the ability to "favorite" specific documents (M-Library mobile site, Mirlyn). These features make it easier for users to return to documents they consider important or relevant without having to relocate them.

It is our recommendation that the pre-existing collections feature offered on the HathiTrust's main site be extended as a feature available on the mobile site. This will encourage users to consider the mobile site as an extension of the main site, and in our opinion, would encourage repeat visits to the mobile site, since users would know that they could access their collections even if they are accessing the HathiTrust collection on a mobile device.

Finding 5: Access to citations of documents is a feature not many competitors have.

Recommendation 5: HathiTrust should make its citation management service available on the mobile site.

For a user such as a researcher or student, it is important to be able to access accurate citation information about the documents he or she is reviewing. From the document record entry, HathiTrust Mobile offers the user a link to the

main HathiTrust site where a citation can be accessed. Looking at citation options available from other competitors, only one not directly associated with an academic library (Internet Archive) offers the option to access document citations.

We think that the citation feature is one that could set HathiTrust Mobile ahead of its competitors. Our recommendation is that access to document citations be made available directly from a link on the mobile site.

Discussion

Instead of instituting a comprehensive study, we established the evaluation criteria based on previous interviews conducted, and individual experience. This could have potentially influenced our evaluation so as to have a favorable bias toward the sites already possessing the aforementioned features. Furthermore, our recommendations are based on our own usage, not on the usage of a well-defined target audience; the criteria we define may not completely reflect user needs. For instance, a typical user may only spend a few minutes browsing whereas we were committed to a critical analysis of HathiTrust mobile and its competitors. Hence, we were more meticulous in our examination of the systems in question.

Many of the applications we examined in this analysis are native applications that are available on a wide variety of devices and platforms. However, due to time constraints as well as being limited to devices that members of our team own, we were unable to analyze these applications across multiple devices and platforms. While it is likely that there are slight differences between display and functionality across devices and platforms, there are also larger potential functional differences. For example, because of Apple's current content distribution policies, iOS applications like Kindle, Nook and Google Books do not allow users to search for materials within the actual application; the corresponding Android applications, however, do have this functionality. (Google Books - Apps on Android Market, 2011)

The design team of HathiTrust mobile is currently working to broaden the target users from scholars and students to the general public. Unlike their competitors, HT Mobile is in the early stages of this evolutionary process. Consequently, this raises a "chicken or egg" type dilemma: should HathiTrust mobile assume their target audience and design the features accordingly, or should they design specific features to attract a certain audience?

Conclusion

Overall, we found that HathiTrust mobile had significant features in common with its competitors and that it did comparatively well at both displaying search results and providing a reading function. However, the comparison also revealed areas in which HathiTrust mobile could improve.

While Finding 1 suggests that HathiTrust could improve its user experience by adopting the standard gesture for page-turning, most of our findings (Findings 2 through 5) suggest that making more advanced features, such as saved searches, saved pages, citations and collections, available on the mobile site would help it out-compete similar systems and services. A few of these features are currently available on the HathiTrust regular site, suggesting that they are useful to some HathiTrust users and may also be desirable for HathiTrust Mobile users.

Because of the time constraints of our comparative analysis, we were not able to evaluate the technological and financial feasibility of our proposed recommendations. However, as we move forward with the project we intend to pay special attention to these recommendations and determine through our survey and user testing whether they would make a positive addition to HathiTrust mobile.

References

- . About the Prints and Photographs Online Catalog (PPOC). (2012), from <http://www.loc.gov/pictures/about>

- . App Store - Google Books. (2011), from <http://itunes.apple.com/us/app/google-books/id400989007?mt=8>

- . Apple Store - Kindle. (2011), from <http://itunes.apple.com/us/app/id302584613?mt=8>

- . Free Nook Reading App (tm) Download eReader app - Barnes & Noble. (2011), from <http://www.barnesandnoble.com/u/free-nook-apps/379002321>

- . GoodReader for iPad for iPad on the iTunes App Store. (2011), from <http://itunes.apple.com/us/app/goodreader-for-ipad/id363448914?mt=8>

- . Google Books - Apps on Android Market. (2011), from <https://market.android.com/details?id=com.google.android.apps.books&hl=en>

- Gutenberg, P. (2011, December 21, 2011). About - Gutenberg, from <http://www.gutenberg.org/wiki/Gutenberg:About>

- . MLibrary Collections | MLibrary. (2012), from <http://www.lib.umich.edu/mlibrary-collections>

Appendix A

Name of Product	Type	Intended Audience?	App/Site?	Doc Types	search function?	browse function?	advanced searching?	default search profile or save searches?	Can you limit your search to full text only?	How are the search results displayed?	Can you resort the results?	Do results provide a text snippet or preview?	details and/or metadata for each record?	Multiple viewing options for record?
Project Gutenberg	Direct	Humans	Mobile Website	free, out-of-copyright ebooks, digitized audio books, CD's/DVD's, digitized sheet music, Kindle books.	Yes	Yes	Yes; search by author, subject and title	No	No	Displayed at the bottom of the same window. Organized from "most downloaded" to "least downloaded" (descending)	Yes, resort by titles, authors, subjects, alphabetically and by release date.	No	Author, title, notes, ebook no., publish date, download count, subject headings, LOC classification, rights status	No.
Google Books	Direct	General public	Mobile App	wide variety of books and magazines. Books that are in the public domain are free and others are available for purchase through the Google eBookstore.	Books associated with your Google account are available in app under "My eBooks." doesn't appear to be a way to search for additional eBooks within app.	Books associated with your Google account are available in app under "My eBooks."	No	No	No	N/A	N/A	No	N/A	options for "Day" or "Night" reading—"Night" changes background to black and text to gray—typeface, text size, line height, "Flowing Text" or "Scanned Pages," and "3-D Page Turns" (either on or off).
M Library Mobile Site	Indirect	UM students and faculty	Mobile Website	Books, periodicals, and other resources from the UM Library.	Yes	No. Does allow users to browse research guides.	No.	Yes	Yes	Results are displayed vertically, 20 results per page, with associated metadata.	Clicking on "Refine Search" allows users to refine results by subject, academic discipline, format, language, place of publication, date of publication, region, library, and author.	No	Name of record, author, author's birth and death years, publication year, format of resource, resource availability (online/lib)	Cannot view records directly from MLibrary mobile. Records that are available online externally link to HathiTrust.
LOCn	Analogous	researchers, general population	Site	historical digitized photographs, drawings, prints and manuscripts.	Yes	Yes	Yes search by subject, creator, title and number, as well as "all text fields"	Yes	No	3 options. A list that shows a thumbnail and a brief description; a gallery that shows thumbnails with titles; a grid that shows thumbnails without text; and a slide show.	can narrow the results based on 3 different criteria: "Larger image available anywhere," "Larger image available only at the Library of Congress," "Not Digitized"	Yes	title, subject headings, date created, MARC record, notes, call number, repository, medium	Yes, you can view it with as little or as much metadata as you want.
Mirlyn	Analogous	Students, staff, faculty and researchers for UM	Mobile Website	info to find books, movies, microforms, maps, newspapers, journals, magazines in the UofM library system	Yes	No	Yes, search all fields, title, author, subject, isbn, discipline and journal title	you can mark "favorites"	Yes	results are displayed in a list.	Yes, can refine results based on subject, author, date, discipline, region, language and medium	No	title, language and medium. Link to full site w/ all metadata	no.
Kindle	partial	Anyone who reads books.	Mobile App	Kindle files purchased through Amazon.com	Yes	Yes	search within a text, but no full-text search across all texts No other advanced search.	No	No	Can't search across books. This is for searching within documents. The search term is highlighted and presented with surrounding text, along w/ location in document	No	Yes	The list of books shows Title, Author, Book Cover and how far you've read in the book	You can toggle between seeing only the book covers and seeing a smaller book cover with the metadata alongside.
GoodReader	partial	Mobile users who want to view documents	Mobile App	PDFs txt files Photos MS Office files iWork/Keynote files audio files video files	Yes	Yes	search for "recently read" files, and adjust the time-frame that defines "recent". No full-text search	No; just see recently read files	No	In a list, organized by title.	You can sort by Name, Date or File Size.	Yes	Only file name and size are included in metadata, as GoodReader is for files you've downloaded.	Text file (if OCR'd, and formatting isn't necessarily the best) Change page orientation Single/Double page layout Crop pages
Nook	partial	Anyone who reads books.	Mobile App	Epub documents	Yes	Yes	No	No	No	search by title of the book or pub in the "bookshelf" screen, and it will pull up the covers of any relevant titles. W/in doc, search for terms, and a snippet of text featuring the word along with the page number will appear in a list.	You can sort by item type (e.g. book, magazine, newspaper, archived) or by date purchased.	Yes	Just the book cover in the bookshelf area. If you're in a book, you can click to see the title and author, as well as book cover and a description of the book.	You can change font, line spacing, margins, screen color.
Internet Archive	Direct	public interested in digitized materials and familiar with computer use	Mobile Website	websites, audio, moving images, texts	Yes	Yes	Yes, by title, creator, description, collection, media type, date, etc. Not by subject "Advanced search provides additional search queries based on numerous criteria (ie: ratings, call numbers, collections, etc.); options to search based on different formats.	No	Yes	Provides author, publisher, year, copyright, language, digitizing sponsor, location of book collections from, collection description, reviews, selected metadata (information origin id, identifier, scanner, source, media type, identifier-access, Oclc-id, scan date, copyright-region, identifier-ark, image count, page, Ocr)	yes, by relevance, average rating, download count, date, date added You can group results by media type and collection You can also refine your search options by collection, creator, media type, file formats and related collections	Yes	information origin, its creator(s) - if any, brief synopsis with keywords, links, key words, download counts, and average rating	yes. You can select thumbnails which provides a fast-moving image of the desired work. You can also select read online, pdf, epub, kindle, daisy, full-text, djvu, metadata (which allows you to select which sections you wish to read).
7Fast	Partial	Faculty, students, staff of UM	Mobile Website	Articles and book chapters are delivered via email contains a link to view PDF. PDF files destroyed after 15 days due to copyright	Yes	Yes	7FAST is connected with the M-library regular search function	No	Yes	If the searched article e-copy is available - by title, source, section, length, summary, subject, organization person, city, country, load-date, language, type If a 7FAST request is placed - by title, year, inclusive pages, not wanted after date, etc.	No	No	title, author, source, volume, number, date, pages	the paper copy may be available if specifically requested

Name of Product	How do you navigate through the record?	Document Markup	Progress Bar?	options for wayfinding within doc	Is there a way to manage multiple records?	Save reading location?	Can you download the document?	Can you save the document?	Can you share the document?	Citations?	Aesthetics
Project Gutenberg	N/A	N/A	No	N/A	N/A	N/A	Yes	Yes	Yes	No	Website doesn't detect mobile device, have to click on mobile link; very simple and easy to understand design; unable to download files, kept getting an error and I'm unsure if this is my phone's fault or the site's fault.
Google Books	Users turn pages using a flip gesture. There does not appear to be another option for this.	No	Yes	Users can click an icon that displays the TOC and jump to a chapter from there. Users can also use the progress bar to jump from page to page.	Yes. My eBooks, Archive	Yes	Yes	Yes	No	No	I find the application aesthetically pleasing. The text display of the books is very good. The design is simple and doesn't distract from the reading experience.
M Library Mobile Site	N/A	N/A	N/A	N/A	If logged in with UM username and password, users can "Favorite" records.	N/A	No	Yes	Yes	Yes	Note on the questions above: You can save and share the RECORD, not the document. The aesthetics of the site are pretty good overall. The site does use a lot of text rather than icons, which can make its appearance cluttered.
LOCn	N/A	No	No	N/A	No	No	Yes	Yes	Yes	No	The site appears to have been designed for function, not aesthetics. That's not to say it's unattractive, but, rather, it is clear, simple and able to hold a lot of content without being overwhelming. I really liked how the search results were displayed and how I was able to change the display.
Mirlyn	n/a	no	No	n/a	you can mark records as favorites	no	No	No	Yes	Yes	Pretty simple and easy to navigate. While having limited options can pose a problem, it's nice not being overwhelmed by too much on such a tiny screen.
Kindle	You swipe from right to left or tap the right side of the screen to advance the page, and you do the opposite to go back a page.	Yes. You can highlight passages by selecting a word and dragging to cover the entire passage, and you can also add a note to a passage by doing the same function but selecting "Note" instead of "Highlight".	Yes	Jump to TOC, Beginning, specific location, your notes	All of your purchases are linked with your account. You have to be logged in to your Amazon account to use the app.	Yes	Yes	Yes	No	No	The interface is simple and pleasant. The bookshelf concept makes it easy to browse through your purchased books. It took me a long time to figure out how to highlight though, as it's not intuitive.
GoodReader	Swipe right to left or tap on the right side of the screen to advance pages, and do the reverse to go back a page.	Highlight Underline (Regular or squiggle) Make Notes Strike-Through Draw shapes	Yes	Jump to a page	You can organize your documents into folders.	Yes	Yes	Yes	Yes	No	I find the main screen where you organize documents a little cluttered, but once you figure out what all of the features are, it makes more sense. Navigation while you're reading is easy to figure out.
Nook	You can swipe right to left or tap on the right side of the screen to advance a page, and do the opposite to go back a page.	You can highlight or add a note to a passage by holding down on a word and dragging to cover the entire passage.	Yes	If the file allows, you can jump to different parts of the book according to a list of the TOC that pops up.	There is a bookshelf area that shows all books you've downloaded which is tied to your Barnes and Noble account. You must be logged in to use the app.	Yes	Yes	Yes	Yes	No	I find the lack of options a little confusing. The layout of the app is simple enough, but I wish there were more metadata available in the bookshelf area.
Internet Archive	first view the options under "view the book", make a choice and select the option. when select read online - use the right or left arrow at the bottom right corner to flip pages	No	No	thumbnails and metadata	no	yes	Yes	Yes	Yes	Yes	It's confusing and not aesthetically pleasing, for instance 1) the rapid moving thumbnail distracts users and is not legible 2) The color is too closely match so it's difficult to read the selection
.7Fast -	through accessing M-library website.	yes, after PDF download - user can comment, mark up under PDF light.	No	PDF markup	no	once you download to PDF	Yes	Yes	Yes	Yes	it's within the M-library site - it's uniformly organized.

Appendix B

HathiTrust Mobile Site Comparative Analysis

											
Competitor Type	-	Direct	Direct	Direct	Analogous	Partial	Analogous	Indirect	Partial	Partial	Partial
Search	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Advanced Search	Yes	Yes	No	Yes	Yes	No	Yes	No	No	No	No
Saved Search or Search Profile	No	No	No	No	Yes	No	Yes	Yes	No	No	No
Browse	No	Yes	-	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Full Text Only Option	Yes	Yes	No	No	No	No	Yes	Yes	Yes	No	No
Resort Results	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	Yes
Snippet/Preview	No	Yes	No	No	Yes	Yes	No	No	No	Yes	Yes
Details/Metadata	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No	No
Multiple Views	Yes	Yes	Yes	No	Yes	Yes	No	No	-	Yes	Yes
Document Markup	No	No	No	-	No	Yes	No	-	-	Yes	Yes
Progress Bar	Yes	-	Yes	-	-	Yes	-	-	-	Yes	Yes
Wayfinding	-	-	Yes	-	-	Yes	-	-	-	Yes	Yes
Manage Multiple Records	No	No	Yes	-	Yes	Yes	Yes	Yes	No	Yes	Yes
Save Location	No	No	Yes	-	No	Yes	No	-	-	Yes	Yes
Download Document	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Share Document	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Citations Available	No	Yes	No	No	Yes	No	Yes	Yes	Yes	No	No