2016

Students Self-Reporting on Independent Reading Habits in Relation to Print and Electronic Texts

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STUDENTS SELF-REPORTING ON INDEPENDENT READING HABITS IN RELATION TO PRINT AND ELECTRONIC TEXTS

By

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A Thesis submitted to the Department of English in partial fulfillment of the requirements for graduation with Honors in the Major

Degree Awarded: Spring, 2016
The members of the Defense Committee approve the thesis of Madison Penico defended on April 11, 2016.

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Abstract

This paper seeks to investigate and describe the relationship between college students’ independent reading in print and electronic formats. Studies of students from kindergarten to the college level observe how students receive information from books accessed through ink and paper or through a screen interface (Baron, 2015; De Jong & Bus, 2003; Dillon, 1992; E-textbooks, 2012; Schugar et al., 2013; Wästlund et al., 2005). The major concerns in these studies are issues of comprehension, concentration, and retention. In the area of higher education, similar studies focus on student interaction with textbooks or course-related materials (Direct Textbook, 2015; E-textbooks, 2012; Li et al., 2011; Tan, 2015; Wästlund et al., 2005). The central concerns of these studies are issues with memory and recall, which have been found to be diminished on a screen interface (E-textbooks, 2012; Schugar et al., 2013; Wästlund et al., 2005). Less is known about student interactions with independent reading texts, or texts read outside of coursework or related assignments. Through a broadly distributed survey and additional targeted interviews of traditional, college-age undergraduate students, this study explores the self-reported reading habits and attitudes of students reading independently in print and digital mediums. The findings of this paper can be compared to studies of younger students and college-age students reading for school in order to determine the extent to which genre and choice impact preferences and behaviors towards print and electronic books.
Introduction

Comparisons between electronic books (e-books) and print books have been the subject of studies, surveys, and debates for decades (Baron, 2015; De Jong & Bus, 2003; Dillon, 1992; E-textbooks, 2012; The Future of the Book, 2014; Keim, 2014; Li, Poe, Potter, Quigley, & Wilson, 2011; McMillan, 2013; Milliot, 2015; R.J., A.E.S. & G.S., 2014; Schugar, Smith, & Schugar, 2013; Tan, 2014; Wästlund, Reinikka, Norlander, & Archer, 2005; Yu, 2012). Researchers have tried to determine differences in comprehension, retention, preference, concentration, and a host of other issues as readers transition into a more digital age. Many studies have found negative correlations between e-books and intensive reading, or reading a few texts, or a written work meant to convey information, with great care and concentration (De Jong & Bus, 2003; Dillon, 1992; E-textbooks, 2012; Schugar et al., 2013; Wästlund et al., 2005). People reading on a screen become prone to scanning and skimming rather than linear reading, so electronic texts could be a good fit for extensive reading, or reading a text for a general understanding (Baron, 2015; E-textbooks, 2012; Li et al., 2011; Wästlund et al., 2005).

The capability to read electronically is continually increasing together with ownership of personal devices such as Tablets, E-Readers, Computers, and Smartphones. Understanding the contrast between print and digital is vital, especially with the rising popularity of electronic-reading enabled devices. There is now a generation of digital natives entering school, and the technology they have been raised with could either be enhancing or sabotaging their education. The probable truth is that screens most likely have an effect on education that falls somewhere in the middle.

Schools have been taking initiatives to incorporate more technology, including e-books, into class curricula (Baron, 2015; Embong et al., 2014; Fla., 2013; Prensky, 2001; Schugar et al.,
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2013; Yu, 2012). Some of the biggest selling points for e-books, their interactive features, have been found to fragment content comprehension rather than improve reader relationship with the text (De Jong & Bus, 2003; Schugar et al., 2013; Wästlund et al., 2005). My study focuses more on student behaviors and preferences than on concentration, but I think the comprehension and retention perspective is important to understand as it can influence reader choice.

Surveys and tests performed to confirm or disprove the theory that electronic texts are harmful to reading have found that PDFs with no difference from the print document other than the way it is read – on a screen – still find print to be best for concentration and comprehension (E-textbooks, 2012; Wästlund et al., 2005). Comprehension tests have been administered to readers from the kindergarten level to college students to adults, and they all seem to echo that print is superior to electronic books. However, most of these studies test students reading for an educational purpose. Academic reading requires an intensive focus that is less necessary in independent reading. The change in reader attitude from textbooks to fiction books can lead to other reader changes. In this paper, I explore those changes as they relate to print and digital formats. My intent is to investigate the preferences and habits of college students as they read independently so that I can better describe how and what college students read outside of coursework. For some younger students, comprehension tests are administered based on works of fiction, but for students at universities, the testing material is almost always based on textbook readings. More than that, multiple surveys have also shown that college students have a marked preference for print textbooks (Baron, 2015; Direct Textbook, 2015; Li et al., 2011; Tan, 2014; Yu, 2012). This preference could relate to concentration, distraction, habit, etc., but the preference for print is definitely present in an academic environment.
Intensive reading is best done in a print format, but what about extensive reading? Especially at a college level, how does an independent reading experience change with a switch from print to digital? Students in institutions of higher education have already studied reading comprehension methods for years. University students know how to identify themes in a work along with areas like author intention. Younger readers sometimes struggle with reading comprehension because the multiple mental tasks of reading strategies along with content focus can lead to a cognitive overload (De Jong & Bus, 2003; Schugar et al., 2013; Wästlund et al., 2005). Without such a mental burden, higher education students have different reading experiences on print and electronic mediums. Concentration is a less important factor with independent reading, so how does that affect preferences?

College students also belong to a demographic likely to own some kind of electronic reading device. In the 18-29 age range, 48% of people reported owning a tablet device in 2014, over a 10% growth from the 37% ownership rate reported in 2013. The 18 and up age range also had 32% E-Reader ownership, another significant growth from the 24% reported in 2013 (US Tablet Ownership, 2014; Zickuhr & Rainie 2014). The college-age demographic is a very telling demographic when it comes to differences in print and digital mediums, especially with so many college-age students owning a personal reading device. My choice sample of college students helps to determine recreational reading preferences in terms of genre and medium.

As E-reading technology has become more accessible since the 2000s, e-books have risen in popularity (Baron, 2015; Ebook Timeline, 2002; New AAP Figures, 2015; Rainie, Zickuhr, Purcell, Madden, & Brenner, 2012; US Tablet Ownership, 2014; Zickuhr & Rainie, 2014). Readers of genre fiction, like science fiction, romance, mystery, etc., were some of the first to switch from print to digital (The Future of the Book, 2014). Years later, mass market paperbacks
still make up a large part of electronic publishing (Milliot, 2015; R.J. et al., 2014). Big publishing companies like Random House and HarperCollins have even begun launching digital only titles focused in the genre fiction area (McMillan, 2013). Electronic textbooks are a small section of electronic publishing (Yu, 2012). With students choosing to buy print textbooks at a higher price than the digital alternative, the e-textbook industry probably will not have any significant growth any time soon (Li et al., 2011; Tan, 2014). However, with all the statistics and surveys showing these correlations, there is still a dearth of studies examining college students’ relationship to print and digital mediums outside of school work. Also, because so many studies focus on comprehension results, there is a gap in knowledge of the independent reading habits of college students which relates more to interest, preference, and attitude. I hope to be able to investigate and then describe not only what such preferences and habits are, but also the reasons my subjects might have supporting their choices. My study seeks to fill at least a part of that gap with a self-reporting survey and targeted, follow-up interviews. The descriptions of my study will be based on the self-reported responses of students and not, as other studies have done, based on comprehension or retention tests for each medium.

What are the independent reading habits of college students, and how do they differ between print and electronic texts? When retention and comprehension are not the primary goals of reading, what factors determine what, when, where, and how students choose to access and read recreationally? In this paper, I study students’ self-reported independent reading behaviors and attitudes in digital and print reading. Using surveys and a few, focused semi-structured interviews, I have collected and reported on student reading behaviors in order to begin to describe college-age recreational reading in an increasingly digital world.
Literature Review

Much of the research surrounding student interactions with print and electronic mediums can be divided into three major branches of study: Students from kindergarten to 12th grade reading fiction, college students reading textbooks, and the reported academic preferences of college students.

Younger readers are increasingly exposed to digital mediums, so much so, there is a new generation of “digital natives” studying at different levels in school (Prensky, 2001, p. 2). The idea that text interactivity in e-books can enhance reader to text connections coupled with the assumption that digital natives are digital experts has led to more and more classrooms incorporating e-books (Embon et al., 2014; Fla., 2013; Prensky, 2001; Schugar et al., 2013; Yu, 2012). Unfortunately, the selling point of interactivity seems to be the downfall of audience content comprehension (De Jong & Bus, 2003; Schugar et al., 2013; Wästlund et al., 2005).

In 2003, a study of children from ages three to seven in the Netherlands reviewed how the children interacted with multimedia books available on computers. The children’s time with the electronic books was divided into 15 minute sections. After each session, the participants were tested to see if the could put the events of the story in chronological order: “even after six 15-minute sessions, only one of the four- to five-year-old participants had read the entire text once in the correct order.” The young readers also opted to spend 43% of their time with the digital story playing the games in the text instead of reading (De Jong & Bus 2003, p. 148-149).

Young readers are already trying to learn simple reading techniques to improve comprehension. The beginning stages of reading are often coupled with assessments asking for a main idea, author’s intent, a timeline, etc. Young readers often need most of their mental resources focused on understanding the story. The addition of e-book animations leads to a
cognitive overload for readers (De Jong & Bus, 2003; Schugar et al., 2013; Wästlund et al., 2005). Even for adults, websites with articles or interesting information are frequently full of advertisements and other distracting visuals.

Ten years after De Jong and Bus’s research was published, a 2013 similar study of children from grades K-6 also found that the “gimmicks” of electronic picture books distracted rather than enhanced interaction with the text. The study took place at a summer reading clinic in which the children read and were tested on two interactive e-books and two print books. The e-books chosen were multimodal texts, involving animations, videos, sounds, and verbal narrations. The students performed better at retelling and comprehension tests after reading the print books, “even though higher levels of engagement were both self-reported and observed when they were reading from e-books” (Schugar et al., 2013, p. 617). One of the participants, to whom the study gives the pseudonym “Ravi” admitted after spending time with the digital version of one of the stories, “I have no clue what I just read.” Ravi was observed lingering on the flashy features of the e-book like “making the ‘wiggly woos’ howl and the ‘good grey mare’ ‘clippety clop’” (Schugar et al., 2013, p. 615).

These studies relate to genre fiction, but they focus on younger students instead of the college-age demographic I am interested in studying. College students have already undergone years of the reading comprehension training that younger students are just beginning. My study will help determine whether reading experience or level might change reading habits in print and electronic mediums. Without the extra mental burden, graduate and undergraduate students might perform differently between print and digital mediums.

Some studies done on higher education students show similar results to the K-12 studies with different content and genres. Reading comprehension diminishes when the eyes go from
ink and paper to screen and pixels. An experiment at the University of Karlstad in Sweden studied the effect video display terminals (VDTs), or screen interface systems, have on student concentration. The sample separated 72 students evenly by gender. The sample population was also of a similar age with similar GPAs. The participants either read a PDF file on a screen interface, or they read a printed version of the PDF. Afterwards, the students were given a test on their comprehension of the document. The subjects were also asked to report their feelings (such as optimistic, distressed, and/or tired) towards the different technologies and mediums. The study showed that students reading on a VDT performed more poorly than paper participants on the comprehension tests. The screen format subjects also reported higher levels of stress and fatigue (Wästlund et al., 2005).

Erik Wästlund, Henrik Reinikka, Torsten Norlander, and Trevor Archer, doctors and researchers from the University of Karlstad, found that many of the problems associated with digital texts stem from a cognitive overload: “In addition to the task requirements of the assignment one must also handle the computer equipment” (Wästlund et al., 2005, p. 390). While reading on a screen, the user has to operate the computer and frequently use functions like the scroll button. Doing so takes up mental resources as the reader performs two different tasks. The page layout changes every time someone scrolls. After scrolling, the readers were forced to re-find their spot, leaving the content fragmented in their minds (Wästlund et al., 2005).

The addition of these cognitive tasks leads to more mental resources focused on perception rather than content of the reading, and the increased mental burden results in higher levels of stress and tiredness for the reader (Wästlund et al., 2005). The turning of a page in a print book might enhance text comprehension rather than overload the mind. Jenny Thompson, a cognitive scientist of Sheffield University, reported “we use physical pages as anchors for deep
comprehension” (Keim, 2014, ¶ 19). The physicality of turning a print page can create a sort of tactile annotation. Through these annotations, readers can create a map of a book in their minds, following the progression of the content mentally, visually, and physically.

A U.S. study at James Madison University (JMU) used eye-tracking technology to determine how students read digitally (E-textbooks, 2012). The research at JMU did test the students for comprehension, but the study was more interested in how students read, similar to my own interest in reading habits. Dr. David Daniel and Dr. Krisztina Jakobsen, psychology professors at JMU, used a camera inside the monitors to track the movement of the readers’ pupils. With this they could see which sections the students lingered on, skipped over, or doubled back to read again. Their research found that “the scanning pattern produced when the student read a textbook showed consistent reading from line to line down the page. But the scanning pattern from reading on the screen was less intense” (E-textbooks, 2012, ¶ 13).

The study tested students taking a psychology course for the first time with an introductory psychology textbook. The comprehension test showed that it was possible for students to get the same scores using either medium, but the students using a digital text had to spend more time with the reading to receive a similar score. Daniel and Jakobsen said the instinct to scan and skim on screens was to blame. Students would run their eyes over the electronic text, looking for keywords, but too much information was lost from keyword to keyword. Those students would then have to go back and read sections they had already skimmed to try to fill the gaps in their knowledge (E-textbooks, 2012).

At the end of the study, Jakobsen theorized a change in genre might change the readers scan and skim technique on a screen interface saying, “reading and studying are different activities for many students… When they are reading they want to finish reading and when they
are studying they go straight for key words and tutorials” (E-textbooks, 2012, ¶ 15). The survey conducted in this paper should be able to confirm or deny Jakobsen’s theory if students report that a change in genre also changes their print or digital reading habits. In the course of the study, the participants were given a chance to identify a preference for a print or electronic book. The results showed 75% of students preferred print, and 60% said they would buy low-cost print instead of a free e-book (E-textbooks, 2012). The results of my study may point to similar preferences for recreational reading, or it might show a flip in student attitudes towards e-books. The lessened concentration threshold of independent reading books might lead to a preference for electronic over print, or my study might find a print preference across different genres.

A lot of surveys have tried to identify a preference for either print or electronic texts, and many of them have had results similar to those in JMU’s study. Students consistently report a preference for print textbooks, even if the e-textbook is the cheaper alternative (Li et al., 2011; Tan, 2014).

Recently, Hewlett Packard surveyed 527 San Jose State University students. The results exhibited a 57% preference for print. 21% of the participants preferred e-textbooks, and 21% said they had no real preference. Of those that chose print over digital, some students were willing to pay 50% more money to get a print book, and the students that claimed a preference for digital texts cited ease of access and affordability as key reasons for their choice (Tan, 2014). Electronic textbooks are often considered preferable to print textbooks because they are affordable, but what other reasons do students have for going digital? Could it be as Jakobsen guessed, and the genre of a text affects the medium on which it is read (E-textbooks, 2012)?

The University of California Libraries conducted a similar survey that questioned the participants’ relationship to e-books. Of the 2569 students and faculty members, 58% reported
that they used electronic texts academically, but only 34% of those participants said they preferred e-books over print. 49% of the people involved said they preferred print, and the remainder indicated that they had no preference (Li et al., 2011).

Many of the students and staff who pointed to a print preference self-reported concentration and comprehension as some of their key reasons. “E-books divide my attention,” testified one undergraduate. Another said, “paper … keeps me focused and away from distractions that may arise from computer usage.” Other students claimed “I have some difficulty paying careful attention to long passages on my computer,” or “reading on the computer makes it harder for me to understand the information.” One other student claimed a preference for print, but made an addendum to his choice: “I answered that I prefer print books, generally. However, the better answer would be that print books are better in some situations, while e-books are better in others” (Li et al., 2011, p. 11). In this study, students were asked to explain their print or digital preference print or digital based on academic tests. Even with the limit of an academic focus, one student responded that e-books could be superior to print in a certain setting. Would fiction reading be the appropriate situation for an e-book to surpass a print book? My survey will be able to explore comments like that in more depth.

Naomi Baron conducted a global survey with 300 university students in the U.S., Japan, Germany, and Slovakia. Baron found that students picked print over digital a vast majority of the time; 92% of students reported that they were able to concentrate better when reading with a hard copy (Baron, 2015). In an interview about the study, Baron reported that her participants noted their preference related to “eye strain and headaches and physical discomfort” as well as concentration: “they say they get distracted, pulled away to other things” (Robb, 2015, ¶ 7). Baron also said the preference was strongest with sources of intensive reading, the preference for
print over e-book was diluted in what refers to as “light reading” (Robb, 2015, ¶ 4). A lessened preference between the two mediums was also reported in a survey conducted by print and e-book seller Direct Textbook. While the survey found that 72% of students preferred a print textbook, several of the participants said they preferred e-books for recreational reading (Direct Textbook, 2015). Of course, this survey was another study focused on the academic side of print and digital reading. Only a few participants gave responses related to independent reading, and none of the responses looked more closely into that preference.

Aliteracy, or a lack of habitual reading in literate individuals, is not a problem among college students. A couple of studies expressed the concern that undergraduate and graduate students do not read independently (Burak, 2004; Gilbert & Fister, 2011). Lydia Burak, a professor at Bridgewater State University, collected data from a survey of 201 undergraduates that represented students from 23 different majors at different points in their undergraduate careers. Of the students, 90% reported positive attitudes towards recreational reading with 63% reporting that they had read independently in the previous semester and 85% saying they intended to read independently over the summer (Burak, 2004). Julie Gilbert and Barbara Fister, researchers from Gustavus Adolphus College, conducted a survey of 717 undergraduate students in which 93% reported that they enjoyed reading for leisure. 77% also reported that, of all genres of recreational reading, fiction was their favorite (Gilbert & Fister, 2011). The surveys done by Gilbert & Fister and Burak showed that college students do read outside of assigned course-work, and they have a strong preference towards reading fiction, especially genre fiction like Science Fiction, Romance, and Fantasy. The surveys did not, however, address those preferences in relation to a print or electronic preference. My study seeks to further explore those preferences as they affect or are effected by a print or digital medium.
Recreational reading is the biggest part of the electronic publishing industry, but there is very little known about it in relation to college students. Research done by Baron, Li, and Direct Textbook are centered around educational reading, and hardly mention reports about independent reading. Using the research and data in this paper, I want my survey to be focused on independent reading habits. College students do a large amount of reading, and they do not have to think about learning reading strategies as they move through a story. Intense concentration is also less necessary with independent reading, so would reports about physical discomfort like eye-strain be lessened? Do college students feel less of a preference for print books in a recreational capacity, or is the preference flipped? Do students notice preference relating to any kind of physical cues such as eye strain? There is a strong foundation of research built on educational reading in which questions like those have been answered. What are the independent reading habits of college students, and how do they differ between print and electronic texts?
Methods

To identify the independent reading habits and attitudes of a convenience sample of students, I composed an Institutional Review Board (IRB) approved survey on the Qualtrics program (see Appendix A for IRB documentation). The survey was open to any interested individuals, but the targeted audience was college students, especially those studying at Florida State University. A message at the beginning of each survey described the project, the survey process, and any risks or privacy issues involved in the survey. The same message also defined informed consent as a voluntary process in which subjects were free to withdraw consent at any point during the survey or the semi-structured interview. The sample for the survey was students who read at least two books recreationally in the last year. The student participants were, for the most part, at the undergraduate level. At the end of each survey, I included a space for the participant to submit an email where they could be contacted for a longer, semi-structured interview about the survey. I conducted post-survey interviews in order to obtain more detailed accounts of the students reading habits and attitudes, so in this way I could be supplied with both quantitative and qualitative information about students’ reading habits.

I believe the population group I selected for the survey is the best group to examine for the purpose of this paper. To get the best data from the surveys, I needed participants who would be able to answer questions about reading preferences. I believe that students who read at least two books for recreation in the last year were better able to accurately name an independent reading preference than students who only read academically. I made contact with possible subjects through social media, teachers within the English Department, and brief class visits to introduce the project and distribute the survey link.
The survey consists of three main sections (see Appendix B for full survey). The first section of questions is general reading questions towards of their independent reading habits. The second section of questions is pointed about recreational reading on print mediums, and the third section pertains to recreational reading on electronic devices. Most of the questions in the first three sections of the survey are answer selection questions. The end of each of the main three sections consists of open-ended, free response questions.

The three sections of the survey are mostly in an answer selection format for the purpose of participant convenience. I believe that a survey with a majority of answer selection questions was able to receive more complete, accurate, and exact answers than a survey of entirely free-response questions. The free response questions in the final section of the survey were meant to examine reading habits in greater detail. I think the “list three” format for some of the questions helped participants transition from highly structured answers to more open answers. There were free response questions at the end of each section so that the preceding questions could help the respondents identify their own habits and attitudes. After answering the answer selection questions, participants were familiar enough with their previous answers to identify their other habits in more detail.

After collecting the responses to the surveys, I organized the data collected from student responses. Using the answer selection questions, I was able to sort through the data based on participant habits and preferences. The survey results were coded using an inductive coding scheme I derived from a sample of responses during data collection. The coding scheme consisted of the six primary categories: Physical Effects on the Reader, Ownership, Mental Effects on the Reader, Medium Physicality, Interactivity, Convenience. I also included secondary categories to determine whether or not each response indicated whether it was print
positive, print negative, neutral, electronic positive, or electronic negative. I used these answer coding categories in order to better identify answer trends (see Appendix C for a sample of coded results).

In coding my results, I looked for key words and phrases that would relate to the categories I created. Eye strain and “the feel of a book,” for example, were coded into Physical Effects on the Reader while comments about expense or accessibility were put coded with Convenience. Some responses, however, were more difficult to put into category. One of the most difficult determinations I had to make while coding related to the weight or size of books, which could be interpreted to physically affect the reader, be inconvenient, or be an aspect of the medium’s physicality. To deal with this and other similar overlapping issues, I decided to look at the intent behind each response and code accordingly. If the responder said “books are heavy to carry,” I coded that response into Physical Effects on the Reader, but if they said “books are large and bulky,” I read that more in terms of Medium Physicality. If a reader commented on how a large number of books are not portable, I placed that under the coding category for convenience. After coding my results, I took a sample of responses to Dr. Michael Neal, my research supervisor, to code according to his judgment. An initial comparison of our coding techniques revealed an inter-rater reliability of 83.5%. After discussing our methods for choosing different coding categories for results and a second inter-rater comparison, we reached a degree of concordance of 100%.

At the end of the survey, each participant was given the option to be contacted for a follow-up semi-structured interview in which I discussed the open-ended questions with participants (see Appendix D for interview questions). Any participant who expressed an interest in being contacted for the interview was then given a space in which they can submit a contact email.
The space for the email of students who wished to participate in the semi-structured interview would be the only time in the survey process in which the participants’ personal information was collected. During the rest of the survey, subjects were involved in a voluntary, anonymous process. I used the submitted email information to contact three student volunteers for the semi-structured interview. After conducting the interviews, I disposed of the subjects’ contact information in order to protect their privacy. Prior to beginning the interview, I informed the participants that the interview would be recorded via handwritten notes. Two of the people participating in my interviews chose to be recorded with a taping device, and one chose to be recorded via handwritten notes. After the interview was conducted and recorded, I typed a transcript of each interview to be included in my research (see Appendix E for sample interview transcriptions). In both the transcripts and every other point at which I use the interviews in my paper, the respondents will be referred to with pseudonyms to protect their personal information. The pseudonyms I chose to use at random were Ellen, Jordan, and Anne.

I believe a semi-structured interview after the initial survey allowed both myself and the subjects to form a deeper understanding of independent reading habits. Through an exploration of the open-ended questions in the interview, interview participants were able to better explain their preferences and behaviors. At the end of the data collection process, including the surveys and the semi-structured interviews, I was able to present my research qualitatively through rich descriptions of the open responses and interviews as well as numerically through the closed-ended survey questions.
Findings

My survey reached about 130 people, a vast majority of whom were of a student age in the Tallahassee area. The first section of my survey asked general reading questions that would apply to both electronic and print media. Of those polled, 47% had read between one and four books in the last year, 24% had read between five and eight books, 11% had read nine or ten books, and an impressive 18% had read eleven or more books. Because of the large number of books read by my participants, I felt my convenience sample yielded interesting results in terms of reading preferences.

In another general reading question, I polled to identify which genres my participants read, in order to see how many of them read the lighter sort of fiction genres—typically the biggest sellers for electronic platforms (The Future of the Book, 2014; McMillan, 2013; Milliot, 2015; R.J. et al., 2014). The responses were weighted towards light reading genres, such as Science Fiction, Action/Adventure, Romance, and Fantasy with 65% of responses indicating those types of genres. The nonfiction reading genres of History, Self Help, Religion, Politics, Sports, Biography, and Philosophy received about 30% of responses. Given my interest in how preference for a certain medium might change when the genre shifts from academic reading to recreational reading, I felt my participants were well equipped to confidently declare their recreational reading habits with so many participants gravitating towards common “pleasure” reading genres.

Overall the participants in my survey sample seemed to prefer print. When I coded responses according to the positive and negative aspects of each medium, Print Positives received the highest number of responses out of those secondary coding categories with 236 mentions or about 27% of those type of responses. The category that received the second highest number of
answers was Electronic Negatives at 211 mentions or 24%. Just as Print Positives and Electronic Negatives were comparable, so were their inverses. Print Negatives and Electronic Positives each received about 19% of the responses. With almost as many mentions of print benefits as there were electronic disadvantages, my participants seem to lean to a print preference regardless of genre (see Figure 1).

Yet, the print preference does seem to be slightly less pronounced than the one with textbooks. Both survey participants and interview subjects remarked that they would read cheap fiction e-books, but preferred print textbooks. However, even for recreational reading, the lean towards print media is still strong. In terms of the number of books read in each medium, people reported reading more print books than e-books in the last year. Participants reported that 38% of them had read between one and three print books in the last year, and 14% of respondents had read 13 or more print books. Electronically, 38% of people had read no e-books in the last year, and only 4% had read 13 or more e-books. Respondents also owned significantly more print books than e-books, even though many of them commented on the affordability of electronic
texts. About 55% of participants said they owned 21 or more print books, while only 12% reported owning the same number of e-books.

The whole of my survey seemed to indicate a print preference that remained even without the necessary concentration factor of academic reading. In all of my post survey interviews, the participants responded positively towards reading in print. Interview subjects Jordan and Anne both said they preferred to read in print. Even Ellen, the interviewee with the largest e-book collection and a self-reported ambivalence towards reading medium said, “If someone said you can have an e-book or a print, I would probably take the print.” However, in the survey, I received more responses coded towards convenience factors than any other primary coding category (see Figure 2).

![Figure 2. Primary Coding Category Responses](image)

Of these responses, the majority were geared towards positive aspects of electronic media. Even though all of my interview participants stated a preference for print, they also all said a convenience factor like cost or access was their main factor in choosing between print or digital texts. These contradictory ideas could mean that even though convenience is an important facet
in decision making, a predilection for print remains. My subjects seem to indicate that they prefer print even in a recreational genre with the acknowledgement that electronic versions are frequently more economical, accessible, and portable.

Yet, these attitudes could shift in the future. Some respondents were diehard print fans who claimed they bought print books over electronic books simply to keep the print tradition around. However, if my interviews are any indication, as we move into an increasingly digital age people without a strong preference for print may move to digital.

To better understand all of the factors behind my subjects’ inclinations towards print or electronic media in recreational reading genres, I broke my results down into six primary categories. Using the organization of the Physical Effects on the Reader, Ownership, Mental Effects on the Reader, Medium Physicality, Interactivity, and Convenience I can better discuss responses, negative and positive, that fell into each category.

**Physical Effects on the Reader**

In one of the open ended sections of my survey, I asked subjects to state the things they liked about reading in print. A large portion of the responses related to desirable or undesirable physical stimuli from print and/or electronic texts, respectively. After organizing all of the survey responses according to my deductive coding scheme, I found that the physical effect of a medium was mentioned 187 times. In comparison to 796 responses that were sorted into all of the categories, the mentions of physical effects made up about 28% of the responses.

Some of the most common responses for print in this category related to “the feel of a book,” turning pages, and “the smell of a book” while other responses were about the physical attractiveness of books and the ability to collect. This sentiment was repeated in my post survey interviews. In her survey responses, interview respondent Anne indicated she preferred to read
all in print. Jordan suggested an ambivalence to each medium. Interview participant Ellen read more e-books annually than print books, made comments about the good physical aspects of print books. Anne said “I like that having a book in my hands means I could be in any position,” and Jordan said, “Let’s say you have a book, it just feels nice.” Ellen expressed the same feeling, “The physical experience makes it so that having a book in your hands is something that is not quite the same as having an e-book.” The responses from the interviews and survey seem to echo each other in the positive physical aspects of print texts.

Of course, not all of the responses for print in this category were positive. In the survey, many people mentioned the weight and difficulty of carrying books as an issue for them. Some responders listed lighting difficulties or text size as the reasons they might have for eschewing print. However, not so surprisingly, many of the responders said one of the biggest issues with print is the weight/bulk of a book: “Books can be heavy to lug around or fit awkwardly.” During the course of my interviews Ellen, who according to the survey did much of her reading electronically, mentioned heavier books saying, “If I feel like laying on my back and holding my book up, my arms get tired. I end up switching, a lot of times.” Weight and size of books are important considerations for college students who frequently carry books around for their classes. In her interview, Anne remarked, “Last semester I had to walk across campus from Dirac all the way to Williams, back and forth. And it’s 100 degrees out, it is really, really hard to carry a 10-pound book… You don’t have that much space. All these tables, they’re maybe like a little box, like six inches. Six inches, 12, it’s like a clipboard size, maybe even smaller than that, honestly. You just don’t have that kind of space.”

The survey section that asked people to list the things they liked about print also received some of the things people didn’t like about electronic reading. Some of these responses repeated
similar preferences in a different way. Instead of a participant commenting about liking the smell of print, they said they disliked electronic books because they didn’t have a smell. However, many of the negatives for electronic reading, in both surveys and interviews, were eye-related issues. On couple of answer selection questions, I asked readers how long it took for their eyes to feel strained in print verses electronic reading. Reading on a screen made my responders feel eye strain much more quickly than reading in print. In fact, 57% of all responders reported that their eyes felt tired within 30 minutes to an hour of reading something electronically. Conversely, only about 15% of participants said they felt the same strain in the same amount of time while reading print, and 21% of people said that they never experienced eye strain while reading in print. In my interview with Jordan, she also expressed a dislike of electronic reading based on her vision: “Sometimes e-books hurt my eyes because I have very sensitive eyes. Depending on it, I can read books for six hours straight, and it doesn’t affect me. However, reading on a computer, you’re straining your eyes more because of the brightness.”

Some of the results in this section were straightforward. Weight and eye strain are clear physical responses to a medium. In other spaces, however, the pure physicality of the reader’s reaction is muddled. The smell of a book reflects back on one of the physical senses, but there is an implied emotional response to the olfactory stimulus. The same is true for comments about the feel of a book. On their own, the textured page of a book should not garner a negative or positive physical reaction but the familiarity and comfort responses that come from the touch of print seem to affect a lot of readers in my study. All of that is to say, the physical and subconsciously emotional responses from print and electronic texts seem to have a large impact on my participants that may help to explain why so many respondents indicate a print preference while conceding that electronic texts are more convenient.
Ownership

My coding category of Ownership, which related to lending and collecting, only received a total of 44 responses or about 6% in the survey. In this section, many survey responders commented about print being easier to share with friends and family, whereas electronic books were more difficult to lend. Survey respondents also made ownership related comments about the desirability of having books on a bookshelf. One survey response hinted at the overlap between Ownership and Mental Effects on the Reader, saying “I also like owning a physical version of a book instead of a digital copy because it feels as if I have more ownership.” However, for my interview subjects, this sort of category earned a few mentions. “I do like print, because it’s forever yours. You write your name in it, you can doodle, do whatever, and it’s still yours,” said interview subject Jordan, which relates to the ideas of ownership and collecting with print books.

The category of Ownership, did not yield the same rich quantity of results as I had originally anticipated. Ownership received the fewest comments in the survey, but it is maintained as a legitimate response area because of the significant ways it overlaps with more mental effects and aspects of each medium. Responses like those indicate that there must be some subconscious factor of validity with a print format that is not present with digital alternatives. The physicality factor also gave some readers a sense of reliability. Although many of my subjects noted the the ease with which print can be damaged, many of them seemed to believe that print still had a greater longevity than electronic texts. Participants made comments with e-books about the loss of the text with the loss of the device, internet connectivity, online account information, etc. The survey and interview subjects, on the other hand, expressed a belief in an abiding ownership of print mediums.
Mental Effects on the Reader

Aside from their physical aspects, each reading medium had profound mental effects on the readers. In a more cognitive response strain, people responded about familiarity and similar feelings such as, “I just can't be as emotionally attached to a book on an e-reader” or “more calming/less distracting than digital.” Some of the mental effects respondents listed simply expressed a posterity for print. “I want to keep print alive,” wrote one respondent. Another said they preferred print because reading on screen “feels like a betrayal to the art of reading.” I think comments like these are interesting because they show an emotional attachment to print that wasn’t expressed with electronic texts. Theses sorts of emotional responses could simply be because respondents were raised with print books, but one respondent hinted at a deeper feeling: “I have books that my grandmother owned when she was a teenager from the early 1900's. I can see where she marked the pages. I can understand from her book selection what she enjoyed. I can see the loving messages that her mother or uncle wrote on the title page. Worth gold to me. There is no way my kindle will mean the same to anyone, even if we assume they will be able to access the contents.” This sort of “feel of tradition, that this is something people have been doing for thousand years” that is present with print reading could be why so many participants felt a need to buy print regardless of any sort of convenience factors.

This phenomenon is echoed in other research. In a survey about textbooks, researchers found that students were willing to pay double the price for a print textbook rather than an eTextbook (Direct Textbook, 2015). Students in this surveys gave reasons of concentration and comprehension, but respondents in my survey seem to hint that, while the preference for print is still present in recreational reading, preferring print is linked to more mental, emotional responses.
Other mental responses like “ associating parts of the story with location on the physical pages” relate to the cognitive mapping that happens with print texts. Reading on screen does not produce the same sort of result in associating a particular moment of the document or narrative with the percentage completed of the text that print does. Mapping could be better in print because the tactile effect of flipping each page taps into more of the reader’s senses. While turning a physical page, the reader’s brain adds up the physical movement, the texture, and the visual size of all previous pages with the content of the text to give a better spatial awareness of the text (Keim, 2014).

On the electronic side of mental effects, distractions were a common issue people in the survey listed as a disadvantage of electronic reading. For the most part in the survey, participants wrote very concise answers. For these sort of responses, I typically saw “get distracted more easily,” but in my post survey interview, one of my participants was able to go more in depth about her distractions. Anne first commented about one of her issues with reading on screen: “Online I just can't focus at all. When I read online I automatically have a skim mentality and I get distracted way too easily. I mean, I get distracted with print too, but it’s different.” She then was able to elaborate a bit more saying, “When I’m reading in print and I get distracted, it’s because something the writer or character said makes think. My brain goes off on a tangent and starts thinking about other things that comment sparked, but if I’m reading online the distraction is more like I’m answering text messages or going on Facebook or something totally different.”

The phenomenon Anne describes in this section is discussed by Denis Diderot and Jean D’Alembert as external and internal distractions (as cited in Baron, 2015, p. 174). Internal distractions are the “tangents” Anne described, whereas external distractions take the reader
completely out of the story and into something else. For reading purposes, internal distractions are preferable because they keep the reader working with the text. Internal distractions are also good simply because of the mental exercise it gives the reader. External distractions remove the text from the readers’ mind and have them focus on a new task, eliminating the chance of the reader gaining a deeper understanding of the content. The idea behind this phenomenon is that some distractions are creative and good for the reader, as they are allowed to explore new mental paths. However, reading on screens may make readers more prone to more destructive distractions. For example, activities like sitting or folding clothes leave the brain open to contemplate different avenues of the text, whereas conversing with someone through the internet or watching a show online occupy too much of the brain to allow for any productive distractions.

A mistrust of technology from my participants kept cropping up throughout the project. In my interview with Jordan, she mentioned a fear of alterations without accountability, saying, “A digital one, you don’t know when they’re going to change it. I mean, you probably won’t even notice it, but they could change easily anything. Let’s say the government decides ‘oh these certain words can’t be in a book.’ Your print copy will forever have it, and it will just be like it’s your own. Technically, a digital one, they can retract it at any time. You know how The Catcher in the Rye and all those kinds of books before were not allowed? They could pretty much get rid of it, and you wouldn’t, even though you paid for it, it would be gone even if you loved it or not.” Jordan’s wariness of electronic media was echoed throughout the surveys. Respondents commented on the possibility of their device dying or a website crashing. Others said the author could take down their work at any time if it’s only ever published electronically. All in all, these responses seem to hint that physicality gives readers a feeling of authenticity.
Having a tactile experience with a book as a whole seemed to give many of my respondents the impression that print is more permanent and legitimate.

The idea of more permanence or authority belonging to print books because of tangibility could tie into the desirable experience so many responders mentioned as simply “the feel of a book.” In the same vein, the apparent legitimacy of print books could factor into Ownership. With so many responders feeling a sort of longevity in print books, that could be one of the reason people also liked to have a physical copy in a collection. If print books are perceived as being longer lasting, it makes sense that people would want to own something they see as more of an investment. Echoing back to Jordan’s comment, many of my responders might agree that print books are “forever yours” in a way that can’t be matched with an electronic copy.

**Medium Physicality**

A lot of the more positive aspects people mentioned about electronic reading were those that fixed some of the shortcomings of print books. Whereas bulk and weight are issues with print books, e-books have the ability to carry a multitude of books in one slim device. Some survey participants said “the device itself is small and lightweight; fits in my purse,” or simply “expansive storage.” Another pro to electronic texts, ironically, was also eye related. Many of the people I surveyed were frustrated by the outdoor limitations of print books, and said they liked the backlight that allowed them to read in the dark. Of course, the same respondents also pointed out that the backlight feature becomes a nuisance in bright sunlight. Interview subject Ellen felt the same as many survey respondents saying, “Depending on where I’m reading at, like if I’m reading out in the sun, sometimes e-books are a bad thing because screens and the sun don’t work well together usually… if I’m reading outside, which I do like to do on occasion, print books are preferable, generally.”
Although the ways in which each medium physically affected the readers were important considerations for the people who participated in my project, people also responded to aspects of each medium’s physicality. For example, a lot of people commented on the aesthetic qualities of print texts. In terms of aesthetics, Jordan remarked “Let’s say you have a whole copy of it, there’s a cover there’s everything so nicely done it’s like a work of art.” Anne went into a little more depth with the some of the negative physical aspects of the medium, saying “It sucks how a print book can get old and ripped. And sometimes there’s printing issues, like I got a textbook for my communication class, and I think there was a misprint because some of the words were printed so lightly I couldn’t read them.”

In terms of negatives, print and electronic texts seem to break fairly even in this category. Many respondents were equally worried about damage to the fragile pages of print books versus the expensive hardware of electronic devices. Taking books into different locations also had fairly even downsides. With print books there was an issue of bulkiness while electronic reading devices problems with lighting or battery power. Aesthetically, print texts won out over electronic texts. Electronic books, while on an advanced sort of device, did not have the same appeal of a cover that books had. This idea of having something being pleasing to look at on a shelf connects back to Ownership with respondents wanting a physical copy to collect.

**Interactivity**

The category of Interactivity received the second fewest amount of mentions in the survey, the first being Ownership. My coding scheme found about 76 comments or about 10% relating to interactive features like bookmarking, graphics, annotating. For print books, some of the comments read “I love to read in print because I can highlight, color, underline, and interact with the work more. I also like to put sticky notes in my book for quotes that I particularly like.” In
this way, print books have a certain utility. Readers are able to use their past notes as reminders of their thoughts on the page.

Whereas for electronic texts, comments on interactivity said things like “I love being able to look up a definition just by touching a word” or “I can pull up a page of all my highlights.” In my survey, many of the interactivity responses were related to e-reading activities related to highlighting and word searches, but in my post survey interviews, I only had a couple of responses talking about interactivity.

Jordan commented first that she found print books preferable because she preferred the print style of annotating: “I would say print is just nice because you get to annotate it. I do like to write notes and all that, and I do like the feeling of highlighting. Yes, e-book can do that too, but I feel like it’s easier to find it because then you remember certain colors and all that. Because I know pdf files, they only have yellow, honestly.” Later on in the interview, Jordan mentioned the word search function in passing. She had previously been talking about her tendency to skim things she read on screen. She mentioned how that led to her frequently trying to go back and find the same section. Jordan’s second comment on interactivity came in at the end as a dismissal of scrolling to find her spot on an e-book after skimming: “I’ll just do control F, find everything.”

From both the survey and the interview, my respondents seemed to say that print books had some of the best interactive features. For the e-book industry, this information could be very important. E-books, to try to keep evolving and adapting, are continually incorporating new, interactive features. However, these interactive features keep losing out over the simplicity of print.

Convenience
Of all categories in my survey, Convenience had the most responses with 228 or about 29%. Convenience marked more comments than about anyone else, and as such, there was a wide range of comments that were either favorable or negative to print or electronic media respectively. Aside from being the largest category, Convenience is also set apart from the others because it is the only category with a clear lean to electronic media.

For the survey, people responded with a lot of mirrored comments in terms of whether something was a negative aspect of print or a positive aspect of electronic texts. A lot of respondents marked that some of the downsides to print are the expense, the lack of portability, and the difficulty of access. Conversely, the comments listing the benefits of electronic texts said that books on a screen based media were typically less expensive than print, more portable than print, and more easily accessible than print. “[I] can have hundreds of books in one device,” and another remarked, “the possibility of access is endless.” Yet some of the most prevalent comments in this section simply stated “cheaper” or “economically friendly.”

All three of the post survey interviews garnered similar responses. Ellen, who had read the most e-books of anyone I surveyed, said “I’ve read a lot of e-books, but I find it’s easier to read print books, so it’s just convenience versus affordability.” In my interview with Jordan, she listed a lot of the positives and negatives about each interview even though earlier in the interview she hinted at a print preference. Because I was trying to determine what some of the factors might be that lead readers to choose between print or electronic when reading recreationally, I asked Jordan if she could say what her deciding factor would be for choosing between print or digital. She responded, “At the moment, convenience. Definitely.” I asked a similar question to my interview respondent Anne, and she said “Cost. Cost is the biggest factor overall.”
Participants in the interviews and the survey both report the same sort of conflicting ideas. Many people mentioned the convenience of e-books in the survey, especially in terms of cost, access, and portability. In the interviews, my respondents expanded on this with many of them stating that cost or access was their deciding factor between print and digital texts. However, both the survey and the interviews showed that people have a clear print preference, even with recreational reading. People in my survey still bought more print books than e-books. I think this could mean that, even though e-books are more convenient and have other positive aspects like being lightweight, and even though respondents report those as the most important factors, the physical and mental effects of print books must outweigh the convenience of e-books.
Conclusions

I began my project with questions I hoped my survey and interview subjects would be able to answer. With my research I tried to determine the independent reading habits of college students and how they differed between print and electronic texts. I also examined which factors determine what, when, where, and how students chose to access and read independently when retention and comprehension were not the primary goals of reading.

The independent reading habits of my respondents were a bit different between the two mediums. Aside from seeking knowledge about medium preference and its ties to reading genre, I was also trying to determine simple differences or similarities in my subjects’ reading experiences. Participants owned more print books than they did e-books. People also reported reading more print books in the last year than they did books on a screen interface. Reading habits in my survey were also affected by eye strain. Survey subjects reported being able to read in print without eyestrain for longer periods of time than they could electronically. All these factors could add up to make my respondents prefer print over the clear convenience of digital media.

A majority of my respondents did most of their reading in their own homes. Many of the same people claimed a print preference, and some of them made comments like “my phone is always with me so it's easy to always have something to do if I'm caught in traffic or at an appointment that's running late.” It follows that people would do most of their print-based reading in their homes where transportation, weight, and bulk are not hindrances. Also, participants thought the ease with which print books can be shared was a big advantage. As such, far more respondents said their first point of access to a print books was through borrowing
than those who said the same of electronic. In fact, 15 people listed borrowing as their first print access point, compared to the 5 who said borrowing was their first access point for e-books.

I found multiple varying elements influenced what my participants read. Many people listed physical cues like the feel of the medium or weight as important considerations. Some respondents said they liked the idea of keeping print alive by buying print books, whereas others said they enjoyed the ability to read anywhere with an electronic device. Survey subjects also gave credence to each medium’s physical features such as, aesthetics, lighting, and durability. More mental aspects of each medium were incredibly important in my survey. People talked about the distractibility of either print or electronic texts, and the feelings of ownership that affected their purchases. Convenience was a huge category in my survey. In fact, convenience received the largest percentage of responses of all of the primary categories into which I sorted comments and answers. Convenience was also given a lot of weight with the three participants I spoke to in post survey interviews.

Even though all of these features were important, the interviews pointed out convenience as the biggest factor behind a print or digital purchasing decision in terms of reading. However, for those interviewed and the other people in the survey, print was still preferable to e-books. I believe these contrasting ideas mean that the other qualities of print, like aesthetic appeal, physical feel, utility of annotations, and more mental features outweigh the convenience of e-books in the minds of my participants.

The results of my research were a bit different from what I had expected. Originally, I thought that without a need for concentration, a majority of respondents would choose to read recreational books on a screen based medium because of the convenience. I believed the change in reading genre and intention could lead to a change in medium preference. However, my
research indicates that a change from academically required to independent reading does not necessarily mean a change in medium. People may be less opposed to e-books than eTextbooks, but participants in my survey reported that print is still their main reading medium even outside of required or academic readings.

Of course, my project had its own limitations. The subjects I used in my research came from a convenience sample of students at Florida State University. Also, unintentionally, the majority of my participants ended up being female. Because of this, my project cannot be considered a representation of all people or even all college students. Even though the sample I surveyed and interviewed is not a statistically representative picture of an entire population, it does describe a specific population in greater detail. Further studies can be done of other populations to see whether the results are similar, but I believe my work offers a starting point for future research. For the Florida State students who reported their own reading habits, print was still the favored reading genre even outside of academia. Companies producing e-books and other electronic texts are funding more money towards interesting, interactive features that would be unique to the medium. Yet, they might make better use of their time and money to find new ways to imitate the desirable physical and mental characteristics of print books. I think this project is also useful because it points out some of the obvious advantages of screen reading devices. For my respondents, electronic texts were more convenient, but regardless of convenience or genre, print was preferable. I believe that such ideas could also serve to dispel some of the hysteria that print as a medium is dying and decaying. It may be true that more and more people without a strong preference will switch over to reading electronically, but print does not seem to be in any danger of elimination.
I received some other survey comments I hadn’t expected. A few of the people who participated mentioned audiobooks as a convenient medium. Because my project was more focused on examining the relationship between print and screen based reading, I did not include a section on audiobooks as they were outside the scope of my research. In the survey, I also received two comments about the capacity for print books to be conversation starters. The idea of print books leading to possible interactions did not fit into any of my coding categories. The categories I made had a fair portion of answers spread between them, and I believed that the creation of a new category for only two comments out of nearly nine hundred would not add to the research as much as it would muddle the results. In continuing research, I would like to examine where audiobooks may fit in the print or electronic discussion. The few comments about audiobooks related to the ability to listen while commuting or exercising, so I think I would put those ideas into convenience alongside portability.

In the future, I would like to conduct a similar survey again. With that opportunity, I would try to control the responding population more. I still would like to focus my research on college students because I still believe that the university student population is frequently neglected in studies of non-academic reading. I would also try to distribute my survey to different areas to hopefully receive a larger array of responders who might more closely represent the demographics of the college student population as a whole instead of just that of Florida State University. With my new survey, I’d want to include more demographic questions, and I’d like to also have a place for respondents to select their major field of study to see if people specializing in certain field might have different views on book genre and medium.

I would like to do this new project after a few years to see whether the passage of time affects the results. Andrew Dillon’s 1992 study of reading on screens reported that people read
four times slower on screens than in print (Dillon, 1992). A 2012 study showed that people still read more quickly in print, but the gap in reading time between the two mediums is lessening (Schugar, 2012). I think it is interesting to contemplate the possibility of new brain adaptations for screen based reading. The brain does not instinctively learn to read in the way that it instinctively learns to walk. Over the course of thousands of years, from carving symbols on stones, walls, or wax tablets our brains have learned to read linearly. Electronic mediums seem to propose a change in our brains from linear reading to nonlinear scanning and skimming (Rosenwald, 2014.) The current gap of understanding and distractibility that exists in electronic texts could just be a new way our brain is evolving in a more digital age. In future research, I would like to see how people’s reports of distractibility, retention, and preference change as new generations grow up as digital natives.
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Appendix A

IRB Approval

Office of the Vice President for Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 · FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 11/04/2015
To: Madison Penico <map13c@my.fsu.edu>
Address: 1000 W Brevard Street, Apt 213D
Dept.: ENGLISH DEPARTMENT
From: Thomas L. Jacobson, Chair
Re: Use of Human Subjects in Research

Students Self-Reporting on Independent Reading Habits in Relation to Print and Electronic Texts

The application that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and two members of the Human Subjects Committee. Your project is determined to be Expedited per 45 CFR § 46.110(7) and has been approved by an expedited review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 11/02/2016 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing, any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is IRB00000446.

Cc: Mic Neal <mrmeal@fsu.edu>, Advisor
HSC No. 2015.16515
Appendix B

Survey Questions

GENERAL QUESTIONS

1. How do you identify yourself?
   - Male
   - Female
   - Trans
   - Other
   - Choose not to disclose

2. Please enter your age.
   ______

3. How many books have you read this year for pleasure?
   a) 1-4
   b) 5-8
   c) 9-12
   d) 12+

4. How many hours a week do you read for pleasure?
   a) 1-4
   b) 5-10
c) 10-15

d) 16+

5. Where do you usually read? (Check all that apply)

☐ At a library
☐ At home
☐ Between Classes
☐ On a bus/public transportation
☐ Outside
☐ Other ______________

6. Which genres do you like to read? (Check all that apply)

☐ Romance
☐ Religion
☐ Horror
☐ Crime/Mystery
☐ Politics
☐ Science Fiction
☐ Fantasy
☐ Action/Adventure
☐ Self-Help
☐ History
☐ Sports
☐ Biography
☐ Philosophy
☐ Graphic Novels/Comics
☐ Other ___________

7. Do you read certain things on certain devices? For example: Science Fiction read electronically; Biography read in print. If so, what are your preferences?

________________________________________________________________________

PRINT QUESTIONS

8. Approximately how many of the books you’ve read for pleasure in the last year have been in print?
   a) Between 1-3
   b) Between 4-6
   c) Between 7-9
   d) Between 10-12
   e) 12+ or exact number _______

9. How do you typically access pleasure-reading print books? (Rank from 1 to 5 in order of most common source to least common source)
   ☐ Purchased from Store
   ☐ Borrowed from Library
10. When you read for pleasure in print, how many hours do you typically read in one sitting?
   a) 1 or less
   b) 2-3
   c) 4-5
   d) 6+
   e) It varies

11. When you read in print, how quickly do your eyes feel tired or strained?
   a) After 30 minutes – 1 hour
   b) After 2-3 hours
   c) After 4-5 hours
   d) After 6-7 hours
   e) Never

12. What are your reasons for buying a pleasure-reading print book? (Rank from 1 to 5 in order of most typical reason to least typical reason)
   a) Visual appeal
   b) Like the feel
13. Approximately how many pleasure-reading print books do you own?
   a) 1-5
   b) 6-10
   c) 11-15
   d) 16-20
   e) 21+

14. What are three things you like about reading in print?
   i) 
   ii) 
   iii) 

15. What are three things you dislike about reading in print?
   i) 
   ii) 
   iii) 

ELECTRONIC QUESTIONS
16. Approximately how many of the books you’ve read for pleasure in the last year have been electronic?
   a) Between 1-3
   b) Between 4-6
   c) Between 7-9
   d) Between 9-12
   e) 12+ or exact number

17. How do you typically access pleasure-reading electronic books? (Rank from 1 to 4 in order of most common source to least common source)
   - As an online PDF/Document
   - Purchased on Tablet/E-Reader
   - Rented on Tablet/E-Reader
   - Borrowed device or account from Friend/Family

18. What are your reasons for buying a pleasure-reading electronic book? (Rank from 1 to 5 in order of most typical reason to least typical reason)
   - Cost effective
   - Instant Access
   - Interactive Features (highlight, change text size, animations)
   - Prefer e-Books
   - Other
19. When you read for pleasure electronically, how many hours do you typically read in one sitting?
   a) 1 or less
   b) 2-3
   c) 4-5
   d) 6+
   e) It varies

20. When you read electronically, how quickly do your eyes feel tired or strained?
   a) After 30 minutes – 1 hour
   b) After 2-3 hours
   c) After 4-5 hours
   d) After 6-7 hours
   e) Never

21. Approximately how many pleasure-reading electronic books do you own?
   a) 1-5
   b) 6-10
   c) 11-15
   d) 16-20
   e) 21+

22. What are three things you like about reading electronically?
23. What are three things you dislike about reading electronically?

i)

ii)

iii)

FOLLOW-UP QUESTION

24. If you would be willing for me to contact you with follow up questions to this survey, please provide your email address below.

_________________________________________________________________
Table 1

<table>
<thead>
<tr>
<th>#</th>
<th>Participant Response</th>
<th>Primary Category</th>
<th>Secondary Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Smell (specifically with older books).</td>
<td>101</td>
<td>111</td>
</tr>
<tr>
<td>2</td>
<td>I find it easier to flip back through pages with a book in my hand.</td>
<td>101</td>
<td>111</td>
</tr>
<tr>
<td>3</td>
<td>Love the smell of books</td>
<td>101</td>
<td>111</td>
</tr>
<tr>
<td>4</td>
<td>Sometimes the brightness hurts my eyes</td>
<td>101</td>
<td>115</td>
</tr>
<tr>
<td>5</td>
<td>No physicality, which makes me feel disconnected. The book-feel is lost. It seems fake or inauthentic for some reason.</td>
<td>101</td>
<td>115</td>
</tr>
<tr>
<td>6</td>
<td>Having to carry around multiple heavy books</td>
<td>101</td>
<td>112</td>
</tr>
<tr>
<td>7</td>
<td>So I can keep the physical book in my bookshelf.</td>
<td>102</td>
<td>111</td>
</tr>
<tr>
<td>8</td>
<td>It's easy to pass a single physical story or collection of stories from one person to another.</td>
<td>102</td>
<td>111</td>
</tr>
<tr>
<td>9</td>
<td>Finally, I dislike feeling insecure about whether or not I will own this book in future years since I don't have it in a physical form.</td>
<td>102</td>
<td>115</td>
</tr>
<tr>
<td>10</td>
<td>It's easier for me to remember what I read in print vs. on screen</td>
<td>103</td>
<td>111</td>
</tr>
<tr>
<td>11</td>
<td>Much more enjoyable to read a print book than on electronic</td>
<td>103</td>
<td>111</td>
</tr>
<tr>
<td>12</td>
<td>And associating parts of the story with location on the physical pages</td>
<td>103</td>
<td>111</td>
</tr>
<tr>
<td>13</td>
<td>More calming/ Less distracting than digital</td>
<td>103</td>
<td>115</td>
</tr>
<tr>
<td>14</td>
<td>Feels less authentic than reading a book in print</td>
<td>103</td>
<td>115</td>
</tr>
<tr>
<td>15</td>
<td>Books can be bulky</td>
<td>104</td>
<td>112</td>
</tr>
<tr>
<td>16</td>
<td>I like how I can see the pages. On the kindle I only see one at a time</td>
<td>104</td>
<td>111</td>
</tr>
<tr>
<td>17</td>
<td>The things that happened to me at the time of reading are usually shown on the pages in rips, stains, smells etc.</td>
<td>104</td>
<td>111</td>
</tr>
<tr>
<td>18</td>
<td>Don’t need an external light</td>
<td>104</td>
<td>114</td>
</tr>
<tr>
<td>19</td>
<td>Electronic frailty</td>
<td>104</td>
<td>115</td>
</tr>
<tr>
<td>20</td>
<td>Being able to mark up the pages</td>
<td>105</td>
<td>111</td>
</tr>
<tr>
<td>21</td>
<td>Bookmarks are awesome placeholders. Ability to take little notes.</td>
<td>105</td>
<td>111</td>
</tr>
<tr>
<td>22</td>
<td>It highlights the page, easy access to Google</td>
<td>105</td>
<td>114</td>
</tr>
<tr>
<td>23</td>
<td>The ability to find anything easily</td>
<td>105</td>
<td>114</td>
</tr>
<tr>
<td>24</td>
<td>Quick reading, instant access.</td>
<td>106</td>
<td>114</td>
</tr>
<tr>
<td>27</td>
<td>Portability</td>
<td>106</td>
<td>111</td>
</tr>
<tr>
<td>28</td>
<td>Books can be expensive</td>
<td>106</td>
<td>112</td>
</tr>
<tr>
<td>29</td>
<td>Can't carry whole library with you.</td>
<td>106</td>
<td>112</td>
</tr>
<tr>
<td>30</td>
<td>And the price of hardcover books.</td>
<td>106</td>
<td>112</td>
</tr>
</tbody>
</table>

Notes: In the table, the numbers in the Primary and Secondary Categories represent these coding groups:

- 101 – Physical Effects on Reader
- 102 – Ownership
- 103 – Mental Effects on Reader
- 104 – Medium Physicality
- 105 – Interactivity
- 106 – Convenience
- 111 – Print Positive
- 112 – Print Negative
- 113 – Neutral
- 114 – Electronic Positive
- 115 – Electronic Negative
Appendix D

Interview Questions

SEMI-STRUCTURED INTERVIEW QUESTIONS

1. Do you read certain genres on certain devices? For example: Science Fiction read electronically; Biography read in print. If so, what are your preferences?

2. What do you like about reading in print?

3. What do you dislike about reading in print?

4. What do you like about reading electronically?

5. What do you dislike about reading electronically?
Appendix E

Interview Transcripts

Interview Pseudonym Ellen

MP: To start, I’d like to ask which things you like and dislike about electronic reading.

Ellen: Mostly I like the affordability of electronic reading, and the fact there’s a lot of free e-books online. There’s a service that I have called free books and they send you free books everyday. That’s where I get all my books right now. I’ve read a lot of e-books, but, like, I find it’s easier to read print books, so it’s just convenience versus affordability. Most of it is that I don’t like reading on my phone because I read fairly quickly, so I feel like I’m flipping the page all the time, so if it’s on an eReader usually, that’s usually a big enough of a screen, so I don’t feel like I’m flipping the page more than I’m reading the page, and if it’s on my computer, that’s also fine, because, again, the page size is more suited to how fast I’m reading through the page, but on my phone it gets kind of annoying. Having the text at any size I can actually read means that on my phone, it has to be a smaller number of words. I know for a fact my younger sister, if it’s a book any longer than about 200 pages, she prefers to read it in print because she just can’t force herself to get through it if it’s on an e-book, which I think is interesting.

MP: Would you say convenience or access is the biggest factor for whether you buy a print or e-book?

Ellen: Cost is the biggest factor; access is second after that. There’s actually something interesting where my library at home has a program where they have online books that you can
check out from the library, so that’s useful, especially before I had a license, because ‘well I can’t go to the library today, so let’s see what books I can get from the library right now.’

MP: And what are some of the things you like or dislike about reading in print?

Ellen: I like to re-read books a lot. When I was reading the most, which was probably in middle school because I didn’t have as much homework, I reread books in the library a lot of the time. Probably about half the stuff I was reading at the time was rereads, so I don’t know. It’s just nice to be able to, when you’re rereading a book, to skip over certain sections, and it’s hard to do that with a slider on the bottom of a screen. And I never know specifically what page number it was on, it’s just ‘oh it was about two-thirds of the way through the book.’

MP: Why do you think that is?

Ellen: I think visual first of all. And I’m guessing there’s some tactile element to it as well, but that’s usually something more subconscious, so I’m not sure how much I can claim of that. I know for a fact there was one time with an e-book that I was, since the other books in the series were a certain length, I was expecting the finale one to be about that length, so I was like ‘oh, I’ve got plenty of time to read this before I do my homework.’ It turns out, it was about twice as long as I was expecting. That’s not something that usually happens with print books. It just, I don’t know, the physical experience makes it so that having a book in your hands is something that is not quite the same as having an e-book.
MP: Do you like to read certain genres on certain mediums?

Ellen: I usually like to read fiction or fantasy on whatever one I’m reading, so genre doesn’t really affect me. Textbooks are the only exception, actually, because for textbooks I like to have a physical copy of that, and even though you can search through a textbook online, it doesn’t quite make up for having the textbook there. But, there are some books that you can just burn through, and those tend to be the ones I read online because those are the free ones.

MP: Why do you think you have that preference for textbooks?

Ellen: I don’t know if I can say conclusively. I don’t know if I can say that e-books affect my memory or anything because a lot of the stuff I read, I read once and then don’t come back to ‘cause it’s like ‘oh that was fun,’ and then I have so many other books available on that platform. Whereas, at the point where I was mostly reading physical books, it was stuff that I would go back and re-read it a bunch of times over and over, so as far as retaining information, it helps to read it six times. But, I don’t know, maybe I like textbooks better for that reason. I don’t know that there’s any difference as far as what I remember from reading in physical versus reading in the e-book.

MP: Would you say you have a preference for one medium over the other?

Ellen: I’m kind of ambivalent. If someone said you can have an e-book or a print, I would probably take the print, just because I don’t have as many of them, but I really like the fact that I
can have access to hundreds of books on my phone, right now. But both are good, in my opinion. There’s some things that are better about both. Depending on where I’m reading, if I’m reading out in the sun, sometimes e-books are a bad thing because screens and the sun don’t work well together usually. When I had one of the paper screen kind of eReaders where they move the ink around instead of having lights, that was okay in the sun, but if I’m reading outside, which I do like to do on occasion, print books are preferable, generally. But, I don’t have to have a bookmark all the time which is nice with e-books, and then, especially getting heavier books. If I feel like laying on my back and holding my book up, my arms get tired. I end up switching, a lot of times.
Interview Pseudonym Jordan

MP: First, I wanted to touch on whether you like to read certain things on certain devices.

Jordan: I believe, for instance, news is very good when it’s electronic, because the thing is, I have USA Today and it just gives you the fast notification versus the newspaper you have to get it everyday, or every week, actually, depending on what you’re buying. And then, book wise, yes it’s convenient to read an e-book, but I feel like every time I get an e-book I always get lost. But, let’s say you have a book, it just feels nice. And, you can always know where you are just because positioning, so there’s a benefit to both of them, they have their uses. You would be like, ‘oh I remember this scene from the book just by glancing at the book,’ and you’re like ‘oh I really liked it.’ But, like, from e-book you can’t always tell that. It’s just highly convenient to have an electronic device because minimizing the amount of space, because a Textbook these days, let’s be real, 300 pages? So it just depends how you look at it.

MP: So what would you say are some things you like or dislike about print?

Jordan: I would say print is just nice because you get to annotate it. I do like to write notes and all that, and I do like the feeling of highlighting. Yes, e-book can do that too, but I feel like it’s easier to find it because then you remember certain colors and all that. Because I know pdf files, they only have yellow, honestly. But, sometimes e-books hurt my eyes because I have very sensitive eyes. Depending on it, I can read books for six hours straight, and it doesn’t affect me. However, reading on a computer, you’re straining your eyes more because of the brightness. So, that’s probably it for like and dislike. I mean, this is why I have glasses, ‘cause like, straining
my eyes when I was little, because I always read in the dark, and it was the worst habit, but like, you know, it can’t be broken.

MP: So then, what are some of the things you like and dislike about electronic reading?

Jordan: Definitely, convenience. I know I used to have a flip phone, right? And then I finally switched over to an iPhone, but I was so out of it compared to most teenagers. Definitely on an iPhone I read, like, a lot on it versus, like texting and all that other stuff. So, it’s just convenient. What I dislike sometimes, though, is you pay just as much. You pay just as much, but I mean, like, I get it because copyrighting and all that, it’s fair for the artist and what not, but you would suspect it’s maybe a little less. I don’t know what it is, but that’s probably it. You still have to pay a decent amount, but there are also a lot of free ones. If they’re classic books, they’re so easy to find because sometimes you still, even if they’re like, classics and stuff, in book form it’s still pretty pricey, depending on what you’re buying and all that, so that’s always a benefit. If they have the nice, you know, printing on it, when they do like the stone tablet thingies, those are expensive.

MP: Would you say you prefer print or prefer e-books?

Jordan: I like print because the feel of it. Definitely, the feel of a book is a lot nicer. And also, you can go back to it. I feel like you wouldn’t forget it if you see it. When you see it, let’s say with a digital book, you see the title, but you don’t really see the book. And you’re going to read it, and then you’re probably going to forget about it until you actually have to skim through the
book again. Versus, let’s say you have a whole copy of it, there’s a cover there’s everything so nicely done it’s like a work of art.

MP: So do you think you remember things better on one medium?

Jordan: I think I remember better in print. I’m not going to lie, because I do have e-book textbooks now, but I do find that let’s say you read it, you’re more skimming versus reading. I mean, you should skim, but I feel like information wise, it just doesn’t stay. It doesn’t stay at all. I mean, I would read articles last semester for like, digital age, and sometimes my teacher gives hard copies and then sometimes it’s like, digital books, but you do forget. You’re skimming so fast especially if you’re trying, and you look and ‘oh my god, there’s so many pages.’ It’s just like a long thing, and it’s continuous. It’s not even like there’s a stop when you flip it, so it feels really boring. So, I would say that. And then you’re just like, ‘I give up’ kind of. Like, ‘I’ll just do control F, find everything.’

MP: Do you think that you use different reading methods when you read on different mediums?

Jordan: I definitely do because let’s say leisure reading, I go at a slower pace. I analyze it because, you know, I have the imagination. For school, I’m like ‘get this done as fast as possible, but analytically do it.’ So it’s like you read it, you’re skimming it, but you pull out whatever’s important. I feel like for something that you like, it’s kind of like you absorb it in and you take it slow. It’s not like you’re on a time constraint, six hours reading, 200 pages, go! So, I feel that’s it.
MP: May I ask, what kind of books do you like to read?

Jordan: Fiction. I mean, people want to be entertained. Regardless, I mean, I don’t watch much television, but I do watch it every now and then, and I do watch entertaining stuff. It’s just, you have so much variety these days, it’s not just the news that you can watch. It’s like, “Breaking Bad.” All these television series and there’s different programs running and there’s, come on, like 200 plus channels? So, I feel like just because a variety, people just tend to lean towards what would make them happy versus what would actually educate them. There’s always a bookworm in everybody, and sometimes they choose to learn about the news and a textbook and all that, but everybody wants to have leisure time and just be, like, entertained, I feel. And that’s their method of doing it. And so fantasy and fiction, it’s just it’s make believe, it’s different, it’s out of the ordinary from their own. That’s what I do. I like mysteries and all that, so I wouldn’t be able to experience it, so it’s kind of like watching a murder mystery, but in a book. It’s the same thing.

MP: If you had to name one, what would be your biggest factor in choosing between print and e-books?

Jordan: At the moment, convenience. Definitely. Last semester I had to walk across campus from Dirac all the way to Williams, back and forth. And it’s 100 degrees out, it is really, really hard to carry a 10-pound book. So I feel like that’s definitely the biggest factor in determining all this. Because, you don’t have that much space. All these tables, they’re maybe like a little
box, like six inches. Six inches, 12, it’s like a clipboard size, maybe even smaller than that, honestly. You just don’t have that kind of space.

MP: You mentioned in one of your responses, kind of alteration in digital versus print, like writers going back in?

Jordan: I would say a hard copy is forever. Definitely a digital one, you don’t know when they’re going to change it. I mean, you probably won’t even notice it, but they could change easily anything. Let’s say the government decides ‘oh these certain words can’t be in a book.’ Your print copy will forever have it, and it will just be like it’s your own. Technically, a digital one, they can retract it at any time. You know how The Catcher in the Rye and all those kind of books before were not allowed? They could pretty much get rid of it, and you wouldn’t, even though you paid for it, it would be gone even if you loved it or not. So, I feel that’s one of the issues with it, and why I do like print, because it’s forever yours. You write your name in it, you can doodle, do whatever, and it’s still yours, but some of the other ones, anybody can change it pretty much. It’s kind of like a Wikipedia kind of thing.
Interview Pseudonym Anne

MP: Do you find you like to read certain things in certain mediums?

Anne: I prefer to read in print, but I end up reading fanfiction online, because to my knowledge, that’s the only place I can see it. If I could read it in print I would.

MP: So what are some of the things you dislike about reading in print?

Anne: It sucks how a print book can get old and ripped. And sometimes there’s printing issues, like I got a textbook for my communication class, and I think there was a misprint because some of the words were printed so lightly I couldn’t read them. And I think, too, sometimes print books won’t stay open, but that’s more of a problem with really small mass market paperbacks.

MP: And what about the things you like about print reading?

Anne: I like that having a book in my hands means I could be in any position. Sometimes you can have that with e-books, but if you read on a computer, you just have to sit in the same place. And I just love being surrounded by books. Just looking at them and being around them soothes me.

MP: What are some of the things you like or dislike about reading electronically?
Anne: I like reading online because multiple tabs that I can switch back and forth between pages and chapters. I can pull it up anywhere. All the text is on one screen so I don't have to try to flip back, I can just scroll down. And, I worry about preservation because I'm not guaranteed that the author won't just take down what I'm reading or the website could crash. And, online I just can't focus at all. When I read online I automatically have a skim mentality and I get distracted way too easily. I mean, I get distracted with print too, but it’s different.

MP: Could you speak more to that?

Anne: Well, when I’m reading in print and I get distracted, it’s because something the writer or character said makes think. My brain goes off on a tangent and starts thinking about other things that comment sparked, but if I’m reading online the distraction is more like I’m answering text messages or going on Facebook or something totally different.

MP: What would you say is one of your main reasons for choosing print or electronic texts?

Anne: Cost. Cost is the biggest factor overall, but other things too. Like, one of my main reasons for choosing print is probably it feels better for my eyes and I don't have to rely on an internet connection. And I really prefer print, even though cost is my biggest concern, if I find a book I really love, which is getting more rare as I get more specific tastes, that one thing I will spend money on before fancy clothes, or fancy cars, or even a really nice apartment.