

Abstract

For centuries, readers have added marginal commentary to books for a variety of personal and public purposes. Historians have mined the marginalia of important historical figures to observe their sometimes raw, immediate responses to texts. Now, reading and annotation practices are changing with the migration of content to electronic books. A survey of reader attitudes and behavior related to marginalia for print and electronic books reveals that the majority of readers write in their books and want e-readers to support this feature. However, many readers report that annotating electronic books is too difficult, time-consuming, or awkward with current technology. In addition, the way readers annotate books depends on whether they are reading for pleasure or for work or education. These findings can guide the development of future devices to better satisfy reader needs.

1. Introduction

“Among all the gifts of the electronic age, one of the most paradoxical might be to illuminate something we are beginning to trade away: the particular history, visible and invisible, that can be passed down through the vessel of an old book, inscribed by the hands and the minds of readers who are gone.” (Katz, 2012)

For centuries, readers have inscribed books with handwritten marginal notes, or marginalia. These annotations can serve as ownership indicators, inscriptions, study notes, summaries, or they can facilitate what has been described as *social reading* (Jackson, 2001) in which two or more readers discuss the book’s contents in a margin-based conversation. Samuel Taylor Coleridge coined the term *marginalia* to encompass all such annotations (Jackson, 2001), but the practice is as old as the printed book and even older: marginalia have been found in scrolls painstakingly copied down by medieval monks (Drogin, 1983). Marginalia can serve as an aid to memory, a form of communication, a means of reflection, and a unique glimpse into the past. Scholars have studied the marginalia of famous figures such as John Adams (Jackson, 2010), Samuel Clemens (Gribben, 1978), and Adolf Hitler (Ryback, 2008) to better understand their thoughts and opinions.

The advent of e-books and e-readers is changing how we read and the kinds of interactions that we have with written material. New technologies and reading platforms are enabling readers to engage and interact with a much larger number of other readers in new and transformative ways (Fuller & Rehberg Sedo, 2014; Hartley, 2001; Long, 2003, Marshall, 2005, Rehberg Sedo, 2003; 2009; Swann & Allington, 2009). Contemporary readers are now actively participating in online reading and reviewing platforms, sharing book and author recommendations online, and connecting to other readers, and authors, through social reading platforms and social media (Fuller & Rehberg Sedo, 2014). Social reading, through e-readers, apps, or websites, allows readers to write, save, share, and email comments and to read alongside friends and fellow readers (Braun, 2011; Cordón-García, Alonso-Arévalo, Gómez-Díaz, & Linder, 2013). However, while all printed books provide the ability for the reader to add marginalia, not all e-readers do. Marshall (2005) suggested that the materiality of paper supports the interactive nature of marginalia.

2. Problem statement

While the physical format of a paper book has been fixed for centuries, new digital reading devices are in development and new formats and features are being explored. A feature such as text annotations or marginalia will only be available if it

is explicitly incorporated into the device design. That effort is justified only if designers perceive sufficient demand or interest from modern readers. Anecdotal examples of digital marginalia abound, but there has never yet been a systematic assessment of the prevalence of the practice and how important it is to readers. Such an assessment is necessary for the ongoing and future development of digital reading devices to adhere to reader needs.

The purpose of this study was to determine the importance of marginalia to readers and therefore the importance of providing this capability in future reading devices. The research questions were:

- RQ1. How important to readers is the ability to annotate books?
- RQ2. Do reader attitudes and habits towards marginalia differ for print and electronic editions?
- RQ3. Do current digital reading devices offer sufficient support for marginalia?

3. Literature review

Many scholars have studied print marginalia extensively. The most authoritative study of the subject is that by Jackson (2001), who described the incidence of and motives behind a cornucopia of historical marginalia and illustrated her points with examples selected from 2000 annotated books. Many papers and books analyzing the marginalia of individual famous historical figures have been written (e.g., Gribben, 1978; Jackson, 2010; Ryback, 2008). Marginalia provide a uniquely intimate glimpse into the reader's mind in the process of reacting to a text. "Turning the pages of the books that [John] Adams marked, we feel that we are reading over his shoulder, sharing an experience with him" (Jackson, 2010, p. 15). Marginalia has captured the interest of readers over the years, and now the evolution of digital technologies means that marginalia, particularly digitized collections and exhibitions, can now be shared more widely (Grafton, 2015). For example, the Oxford Marginalia Group, a website dedicated to showcasing a range of marginalia found in Oxford University's libraries, has nearly 6000 members in its Facebook group, while #MarginaliaMonday is a popular hashtag on social media, particularly Twitter.

3.1. *Motives for marginalia*

Historically, why have people written in their books? Jackson stated that "ownership marks are far and away the commonest form of annotation" (2001, p. 19), although she provided no quantitative data to support this claim. Some owners have added anathemas, or "book curses," to warn others not to damage or steal their books (Drogin, 1983).

Second, there is a long-recognized pedagogical benefit for students, or anyone seeking to learn from a text, that derives from marking or commenting while reading. Porter-O'Donnell (2004) noted that student readers use marginalia to "make predictions, ask questions, state opinions, analyze author's craft, make connections, and reflect on the content or their reading process" (p. 82).

Third, there are several motives that arise from social or emotional concerns. Readers in the 19th and early 20th centuries commonly filled a favorite book with marginal comments before gifting it to a friend because "reading was more often than not a *social* activity" (Jackson, 2001, p. 65, italics in original). Sometimes the recipient would augment the book with additional comments and then return it to the original owner. Similar behaviors are beginning to emerge with e-books, as discussed below.

The number of people who own e-readers and tablets has risen in the last few years, which suggests that e-reading continues to grow (Zickhur & Rainie, 2014b). Rainie and Duggan (2012) found that 19% of Americans over the age of 18 owned an e-book reading device, and 25% owned a tablet computer. The subsequent 2013 study found that these numbers had increased to 32% and 42% (Zickhur & Rainie, 2014b). In 2013, e-books accounted for 27% of all adult consumer book sales in the US and 25% of consumer book sales in the UK (Campbell, 2014a, 2014b).

In electronic works, reader modifications are generally referred to as annotations rather than marginalia because there is no margin in which to write. Annotation features for e-books are not standardized, but they commonly include the ability to highlight text, insert bookmarks, and add location-specific comments. Electronic annotations, unlike print marginalia, can be automatically time-stamped, easily searched, aggregated, filtered, copied, pasted, and shared (Wolfe, 2002). They can even be used as input for automated meta-data extraction such as keyword and abstract generation. Such additional functionalities “further transcend the possibilities offered by paper” (Marshall, 2005, p. 140).

The visual format of these annotations is still in flux. Schilit, Golovchinsky, and Price (1998) designed and implemented XLibris: The Active Reading Machine, a digital notebook that organizes and retrieves information based on the reader’s free form writing, digital ink, annotations (p. 2). Pearson, Buchanan, Thimbleby, and Jones (2012) developed the Digital Reading Desk that allows users to add post-its to PDF files by dragging them from an inexhaustible virtual stack. Pearson et al. found that readers were three times as likely to use these virtual post-its as they were to use annotations in a traditional PDF viewer. Liesaputra and Witten (2012) created the Realistic Books software that employs features of physical books such as animated page turning, visual location cues, bookmarks, and annotations to improve the user experience. In a user study, they found that “many users preferred Realistic Books over physical ones because they could move, edit and search the annotations” but that “40% preferred physical books because they are more familiar and feel more comfortable—particularly with regard to the fluidity of scribbling” (p. 606).

3.2. *Reader attitudes*

Attitudes towards the practice of annotating books range from the very negative to the very positive. Librarians tend to frown on the practice, and this attitude persists for e-books: Sheppard (2009), a library director, recommended fining patrons for annotating e-books or training them to remove the annotations before the text is returned. E-annotations are viewed somewhat more positively in academic libraries. Jantz (2001) assumed that student annotations of textbooks and other course materials are essential for learning. He praised e-books for their support of “damage-free annotation” (p. 107).

Jackson observed that “in Western society today there is a strong prejudice against writing in books,” but “we make an exception for notes written by famous people” (2010, p. 59). Adler advocated the practice of marginalia for its benefits to the annotator, regardless of fame, and dismissed those who argue for the maintenance of pristine pages. “Confusion about what it means to ‘own’ a book leads people to a false reverence for paper, binding, and type—a respect for the physical thing—the craft of the printer rather than the genius of the author” (Adler, 1941, p. 11). This critical insight about the separation between the message and its medium suggests that it may be sensible to position marginalia as a third independent component of any particular copy of a text, regardless of its format.

Evidence suggests that annotation habits, motivation, and content differ for readers of print and electronic texts. Marshall and Brush (2004) instructed 11 students to first read and annotate a print copy and then add their comments to an electronic version visible to the entire class. They found that students wrote only one-fourth as many e-annotations as print marginalia (379 versus 1535). Reasons for the reduced volume could include (a) real or perceived additional effort needed to add e-annotations, (b) comfort sharing in personal versus public venues, or (c) instinctive quality-control filtering of first-blush print marginalia for sharing in the online forum. Marshall and Brush also found that the electronic notes were twice as likely to contain semantic content (in contrast to underlines, highlighting, asterisks, etc.) and that they were more likely to employ complete sentences and correct grammar.

3.3. *Social reading and marginalia*

Reading may appear to be a solitary activity, primarily undertaken for individual purposes; however, Taylor stresses that “whether carried out alone or in the context of a group, reading is inherently social” (Taylor, 2012, p. 142). There have been numerous cultural, sociological, anthropological, and sociolinguistic studies of reading undertaken over the last three decades that conceptualize reading as a social practice (Armstrong, 2005; Cherland, 1994; Fuller & Rehberg Sedo, 2014; Griswold, McDonnell, & Wright, 2005; Long, 2003; Rehberg Sedo, 2003; Swann & Allington, 2009). Darnton claimed that “the inner experience of ordinary readers may always elude us,” but continued by stating that “we should at least be able to reconstruct a good deal of the social context of reading” (Darnton, 1989, p. 45). This study examined social interactions in digital marginalia, which can contribute to the reconstruction of this “social context.”

As noted earlier, social interaction was historically a strong motive for print marginalia. Friends exchanged books that were annotated with the recipient in mind. Today, social reading is being rediscovered and reconceived as a hybrid offspring of e-books and social media. Social marginalia are mediated by the Internet (Braun, 2011). For example, Amazon’s Kindle stores all reader annotations on its servers and displays within a book the number of people who have highlighted certain passages (Alter, 2012).

The present research seeks to understand the practices and attitudes towards marginalia, which, in turn, can guide developers of future social reading systems.

4. **Research hypotheses**

The first hypothesis, addressing RQ1 and RQ2, was inspired by Marshall and Brush’s (2004) finding that student annotations differed greatly between print and electronic formats. That hypothesis had not been tested in a larger, heterogeneous sample of readers.

H1. Readers have significantly different marginalia practices for print versus electronic media.

The popularity of the Oxford Marginalia Group highlights the growing interest in marginalia, particularly in educational books (Grafton, 2015). There have also been a number of studies reporting students’ preferences for printed educational books (Baron, 2015; Davy, 2007; Woody, Daniel, & Baker, 2010). This study therefore also undertook an in-depth exploration of the influence of the reading purpose (pleasure versus work or education) on marginalia attitudes and habits.

H2. Readers are significantly more likely to annotate books when reading for work or educational purposes than when reading for pleasure.

Each hypothesis was tested for statistical significance using z -tests to compare observed proportions of respondents.

5. Survey method and overview of respondents

This study consisted of a survey of 510 readers that inquired into their attitudes and practices related to marginalia (both print and electronic) and the features they most wanted to have when reading on a screen. Data were collected using an online, self-completion survey that was distributed in 2013: 510 responses from readers aged 18+ were collected. Because the respondents were self-selected, the sample is not representative of the whole population. However, it is likely to be more representative of the active reader population and those who are current or future consumers of digital reading devices. The results are supplemented, where possible, with additional data from industry reports and other academic research.

The survey was circulated through networks in North America and Europe. It was also picked up and publicized on websites such as Wired.com (Liu, 2013), which resulted in a snowball sample. Although the respondents were predominantly based in the United States (72%), readers from the UK (13%), other European countries (6%), Canada (4%), Australia (2%), and other countries (3%) were also represented. More women (59%) responded to the survey than men (41%). This is consistent with past observations that women tend to read more than men (Tepper, 2000; Zickhur & Rainie, 2014a).

6. Findings

6.1. How people write in books

The main focus of this study was to understand the respondents' habits and attitudes about marginalia. A majority of the respondents (74%) had written in print books before. In contrast, just over a third (35%) had written in e-books, confirming hypothesis H1 (print and electronic marginalia habits differ). This difference is statistically significant, i.e., the null hypothesis that there is no difference between print and e-book marginalia rates is rejected at the $p = 0.001$ level using a two-proportion z -test. Either readers have different goals and needs when using print versus e-books, or the affordances are so different as to change reader behavior (discussed in section 6.4), or both.

Table 1 summarizes the self-reported marginalia practices when reading printed books for pleasure and for work or education. When reading for pleasure, the most common marginalia reported was inscribing the owner's name in a book (72%), which is consistent with Jackson's claim that ownership marks are the most common form of annotation (Jackson, 2001). Inscriptions were also common (62%). Some were more comfortable with non-permanent annotations such as using a blank sticky note to mark a passage (68%). 57% reported having written in the margins of a book.

When reading for work or educational purposes, the most common activity was marking a passage with a blank sticky note (85%). Marginal notes (80%) and writing on sticky notes (81%) were also common. A z -test comparing the proportions of respondents found a significant increase in marginalia when reading for work or education than when reading for pleasure ($p = 0.001$) for marginal notes, highlighting,

writing on sticky notes, and using blank notes. These findings confirm hypothesis H2. The practice of writing an inscription showed the opposite trend: readers were significantly more likely to do this when reading for pleasure than when reading for work or education ($p = 0.001$). No significant difference emerged for writing one's name in the book or dog-eared pages.

<Insert Table 1>

In contrast, for e-books, few differences in annotation behavior were observed when reading for pleasure versus work or education (Table 2). Far fewer respondents annotated e-books, compared to printed books. The most common annotations were digital bookmarks (51% when reading for pleasure and 48% for work or education). Highlighting and adding comments occurred less often, but once again they were employed more frequently when reading for work or education rather than for pleasure. Inscriptions were rare.

<Insert Table 2>

Of the 93% of respondents who had written in any book (print or electronic), the most common reason was as an “aid to memory (note-taking)” (87%), followed by “work through ideas / critical analysis” (67%), “ask questions” (53%), “express your own ideas and thoughts” (52%), and “mark your property (show ownership)” (51%).

6.2. Reader attitudes

The results of this survey correspond with previous studies cited above about attitudes towards marginalia, with responses ranging from the very negative (e.g., Sheppard, 2009) to the very positive (e.g., Jantz, 2001). However, attitudes varied depending whether the book being annotated was print or electronic. When examining marginalia in print books, four major common attitudes emerged.

First, many respondents felt that marginalia could be useful and positive when reading a book for educational or research purposes, but distracting and inappropriate when reading fiction or for pleasure. Section 6.3 investigates this finding in more detail.

Second, many respondents viewed the printed book as a collectable and “sacred” object and therefore held very negative attitudes towards marginalia. To better understand negative reader attitudes towards marginalia, the survey asked respondents who had never written in a printed book ($N = 97$) to indicate why this was the case. The reasons included concerns about reduction in the value of the book, impact to the reading experience, and moralistic views. In decreasing order of popularity, the reasons chosen were:

- Value: It would spoil the book (68%)
- Experience: Other people's writing in the book is distracting (61%)
- Morality: It's wrong to write in books (57%)
- Motivation: I don't feel any desire to write in books (45%)
- **Motivation/morality:** Notes should be taken externally (45%)
- Value: It reduces the value of the book (40%)
- Experience: Writing would interrupt the flow of my reading (32%)

Concerns about the impact to the book's value often combined with prescriptive views about book use. One respondent revealed that “books have always been special to me and to see them written in is almost abuse,” another believed that they “should

be handled carefully and with respect,” and one respondent was adamant that “writing in books is selfish and destructive.” Another respondent made it very clear that they did not “engage in the sordid practice of marginalia!” However, not all of the respondents venerated the book as a sacred object: “Books are tools not sacred artifacts. Use ‘em!”

The division between these two types of readers—those connected to the physicality of the text and those connected to the content—was clear. The stronger the connection to the book as a physical object, the less likely the reader was to write in a book. One respondent, a librarian, appreciated both the content and physicality of the book: “As a rare books librarian I believe that marginalia are as important as the original contents of a book and the physical binding of the book itself.”

A sizeable number of respondents did not like to write marginalia themselves, but did like to read marginalia written by others. One respondent referred to this unabashedly as a “double-standard,” while others cited self-consciousness or feelings of inadequacy as reasons for not engaging in marginalia despite enjoying others’ writings. More respondents reported curiosity (70%) than annoyance (35%) when it came to other people’s marginalia. The vast majority (93%) stated that a book annotated by one of their heroes or a leader in their field would be more valuable than a pristine version. Exposure to others’ marginalia was common: 81% of all respondents had purchased a book containing marginalia, including 40 (73%) of the 55 people who considered it wrong to write in printed books. In most cases, the marginalia came as a surprise to the buyer; only 17% of the respondents had intentionally bought a book because it contained marginalia. Most (82%) of these respondents reported that they’d purchased previously annotated books that were educational (e.g., textbooks). This could be because there is a large used book market for textbooks, because readers feel less desire to retain their educational books, or because annotations in this type of book are simply more common, as indicated by the results reported in section 6.1. However, the annoyance factor was present for these books as well. One respondent wrote, “I have a constant problem with textbooks that other people’s margin notes are wrong, or if that was what they thought was important (highlighting), they clearly failed the class.” In addition to educational books, respondents had purchased other non-fiction (56%) and fiction (44%) containing marginalia.

Existing marginalia can encourage a reader to add his or her own annotations. Almost a third of respondents (29%) stated that they would be more likely to write in a book if it had been written in previously. However, 26% would not be more likely to write in a book if it had been written in previously, and 39% would write in the book regardless of whether someone else had written in it. The remaining 7% insisted that they would never write in a book.

Respondents who did engage in marginalia tended to divide into two major groups in terms of their views on privacy and their intended audience: one group considered marginalia a personal and private creation (akin to journaling), while the other group was motivated by the social aspect of marginalia (connecting to previous and future readers of the same book). The majority (69%) would not be willing to share their marginalia publicly. The most likely people the respondents would willingly share their annotations with were close friends (49%) and family (40%). In addition, a majority (57%) said that the content of their annotations would be influenced by knowledge about who would later be able to see them. However, many other respondents enjoyed how marginalia connected them to the author and other readers. This emphasizes a very different relationship between reader and the book: instead of

looking at the book as a sacred, physical object, some readers connect strongly to the content and the original author of the work.

Attitudes towards annotations of e-books were generally more positive than views of print marginalia. In the open responses, several reasons were given for preferring e-book annotation to writing in printed books. These reasons included the ability to erase comments and annotations easily, i.e., the impermanence of the marginalia, as observed by Jantz (2001) and Pearson et al. (2012), the belief that e-books were not “real books” and thus marginalia would not “deface” or “destroy” them, and practical reasons such as searchability, which corresponds to the emphasis Wolfe (2002) placed on the utility of electronic annotations, and legibility of the notes (as opposed to “messy handwriting”). One respondent confessed that “one reason I don't write in printed books is that I'm embarrassed by my penmanship (even if others never see it), especially in small spaces and without guiding lines” while many expressed opinions such as “[marginalia] can be erased from an e-book” and that “the [electronic] marks aren't permanent.”

6.3. Contextual differences

As reported above in Tables 1 and 2, survey respondents were more likely to write in a book that they were reading for their work or studies than a book they were reading for pleasure. This finding supports H2 (annotations are more likely when reading for work or education than for pleasure). For print books, marginal notes, inscriptions, highlighting, and the use of sticky notes is statistically significantly more common when reading for work than for pleasure, i.e., the null hypothesis that they are equally common is rejected (z -test, $p = 0.001$). For e-books, the differences are much smaller; the only type of annotation that was significantly more common when reading for work was the use of typed comments, and it had a lower significance level (z -test, $p = 0.05$). There could be many reasons for the differences in reader views, but a common opinion (which equates fiction with reading for pleasure) was captured by one respondent as “Fiction books are somehow more sacred to me!” Another respondent went as far as saying, “I have no qualms about writing in books for educational purposes, have used that as study technique. But books for entertainment I like to keep as pristine as possible, no notes, dog ears or cracking of spine.” One respondent outlined how their attitude towards marginalia changed due to educational demands:

“After a long period of disinterest/disgust in marginalia because of the feeling of respect and preservation of a “pristine” copy of a printed work [...] I changed my habits upon entering graduate school late in life. I made a premeditated decision that in order to survive and thrive in the dense reading environment, I would need to cultivate the practice of marginalia and highlighting as a means of note-taking and moment-to-moment comprehension of my texts and assignments.”

Another common view was that educational books elicit more of a conversation than fiction books, which are read more passively:

“They [fiction books] are essentially a one way street experience, from the author, delivered to me. Transaction done. When reading non-fiction though, which I also do frequently, I feel it's a two-way street. The author wrote to elicit my thoughts/feedback, and if I don't engage with the

material as I go through it, the goal is not accomplished.”

“[Fictional] works seem less private and I do not feel I am in a dialogue with the author or trying to organize my thoughts or connections.”

As noted above, a small percentage (17%) of the survey respondents had specifically bought a book because of the previous marginalia inside. Most of these books were textbooks. Some of the reasons given for this purchasing decision include: “Bought a textbook with notes in the margin, hoping that the notes other person had written expanded on the text written in the book”; “It assists in study when someone has already highlight/commented on important sections for the book”; “It may point out useful or key ideas that would aid in studying or make studying easier”; “Note taking reduced my study time”; and “In educational books I love to see other people’s points of view and/or ideas on things”. This shows that marginal notes are not only part of a conversation, for students, but they can also be used as a study guide.

6.4. *Desired features*

The majority of respondents (84%) used at least one e-reader or tablet. The Kindle was the most popular e-reading device (41%), and the iPad (a non-dedicated device) was the next most popular choice (34%). These reading device patterns differed according to the age of the respondents (Table 3). Respondents aged 18-24 years were most likely to read e-books on their mobile phones (29%). Respondents between 25 and 64 years old consistently preferred Kindles, while respondents 65 and older preferred iPads (43%). It is clear that the 25-54 year olds, particularly the 25-34 years old subgroup, are the key target market for companies that create devices for digital reading since this age range is more likely to employ multiple e-reading devices (Table 3).

<Insert Table 3>

To lead the e-reader market, companies should be constantly evaluating the design of their products to make sure that they continue to cater to the needs of the consumers. This study sought to explore which features respondents use, or would like to use, the most on their devices. 385 respondents (75%) expressed opinions about desired e-reader features (Table 4). Placing bookmarks (73%) was the most popular feature. Other popular features were text searching (69%) and highlighting passages (65%). 40% of those who responded to this question voted for the ability to make marginal notes.

<Insert Table 4>

Many respondents reported obstacles that prevented them from using these features, even when they were present. 16% of respondents did not know how to make an annotation with their e-device, and 24% said it was too difficult, time-consuming, or awkward. These findings suggest that current e-devices do not provide sufficient support for annotations. Increasing the ease with which annotations can be added would likely increase their usage, given that more than half of respondents expressed the desire to annotate (53%) but only 35% had actually done so (Table 2). Respondents reported finding e-readers “generally awkward to read and to annotate,” that “the mechanisms for [annotation] are often clumsy,” and that e-book marginalia

was “too limiting” because the respondent could not “change the font size or draw pictures and customize” they way they did “with a pencil in my print books.” In particular, one respondent found that the annotation mechanism was “especially difficult (as are most touch-screen tools) for the elderly with hand motion difficulties.” One of the main suggestions for an improved e-reading experience was the ability to preserve comments and attached notes across devices and to export them to an external document. The ability to assemble marginalia across different e-books on a single device is a positive attribute, as one respondent attested:

A key feature of notes and highlight in the Kindle system is the ability to fetch all of my annotations across all the ebooks that I read. They are available in my personal storage area at kindle.Amazon.com for copy and paste and word processing tasks such as writing book reviews. This is a powerful new extension of annotations compared with notes and highlight made in paper books.

In addition to supporting individual reading, e-readers can also offer features that support group reading activities such as book clubs or other collaborative reading experiences. The survey asked which e-reading device features could support group reading practices and found the following: 36% of all respondents thought that the ability to write marginal notes is a feature that could improve reading in a group and should be supported by e-readers or tablets. 26% of all respondents considered markers that indicate the location of each reader in the book to be a feature that could improve a group experience and should be supported by e-readers or tablets. 13% of the respondents thought that built-in chat is a feature that could improve reading in a group and should be supported by e-readers or tablets. Although only 14% of respondents were active in a book club, 47% expressed opinions about desired features to support book club activities. Clearly readers, even those not currently involved in group reading, are interested in technological support for different types of digital reading.

7. Discussion

Marginalia is a practice that continues to divide the opinions of readers. Although people are increasingly reading e-books, especially for education or work, the printed book remains an enduring, and often elevated, object for contemporary readers. Marginalia is a practice that has transferred into the digital sphere, especially for education or work purposes (H2). Many people feel that printed books, particularly those read for pleasure, are sacred and should not be written in, but that annotating e-books is acceptable and beneficial (H1). However, in practice, far fewer respondents had engaged in digital annotations compared to the number who wrote in printed books. This seeming contradiction between attitudes and habits could be explained by the relative difficulty of digital annotation in current e-reading devices. It is therefore important to consider how digital marginalia practices can be supported and improved.

Many of the respondents stated that digital marginalia tools, such as bookmarks, highlighting passages, and making marginal notes, were desirable features of their e-readers. However, their e-readers often did not support such tools or made these practices difficult, which relates to RQ3. O’Hara and Sellen (1997) found in 1997 that while annotations were an “integral part of the reading process,” technology did not facilitate it: “on-line tools simply did not support the seamless integration of note-

taking while reading” (p. 340). Sixteen years later (in 2013), improvements to e-reading devices are still needed, especially in the context of digital marginalia practices. Research suggests that making an e-reading experience more like reading a physical book increases annotation activity (Liesaputra & Witten, 2012; Pearson et al., 2012).

This survey highlighted a number of ways in which e-readers are serving the needs of digital marginalia and how they can improve. For example, respondents either used, or would like to have supported by their e-reading device, the following features in order of popularity:

1. Bookmarks
2. Text search
3. Highlighting passages
4. Definitions/dictionary access
5. Ability to copy selections for later use
6. Marginal notes

Although many of the respondents used their marginalia as a personal diary or conversation with the text, others found it to be a social experience. The practice of marginalia, whether in print or digital format, has also historically been a social experience: it provides a way to connect to past and future readers. While the readers of print books may never get to meet, and talk to, the anonymous markers of their books, digital readers now have the opportunity to engage with other readers through their e-readers and reading apps. Social media and networks are now prevalent in the digital landscape, and it is important to consider whether e-readers can create niche social networks for readers of e-books.

7.1. Limitations and future directions

An important caveat to these results is that they represent self-reported annotation practices rather than actual recorded behavior. Respondents may not perfectly recall the details of their lifelong reading and annotation practices. However, these results do capture their views of their own practices, which connects with their more general attitudes towards marginalia and their desire for its support in e-devices.

The findings of this study motivate several additional research directions. Given reader desire for e-annotation support, it is vital to develop a standard for storing and sharing annotations that is not device-specific. There is a promising effort underway to standardize annotations by extending the EPUB standard (Deltour, Garrish, Gylling, & Sanderson, 2015). There remain significant challenges to be solved in terms of how best to preserve annotations, enable sharing of annotations, and address privacy-related concerns for those who create them. Second, the pedagogical utility of annotations for students and informal learners merits further study. The survey captured attitudes but did not measure outcomes. Finally, it would be very useful to complement these self-reported attitudes and practices with an observational study that records actual behavior over a designated period of time.

8. Conclusion

Marginalia is an ongoing and evolving practice. Reader motivations for adding marginal notes and commentary remain fixed, but annotation practices are changing due to the development of new digital and social reading technologies. As the popularity of e-reading devices and e-books grows, so does the demand for the replicating the traditional reading experience in digital environments. Consequently, it is important to investigate contemporary reading and annotation practices in order to

understand whether and to what degree support for marginalia is important to readers and how those desires can be met.

For e-reading to continue to increase in popularity, it is important that e-readers have good usability (Siegenthaler, Wurtz, & Groner, 2010) with respect to features that readers want, including annotation. Previous studies have found that poor usability prevents readers from enjoying e-reading (Lam, Lam, Lam, & McNaught, 2009; Thompson, 2009). The findings from this study can guide the development of future devices to better satisfy reader needs and to help improve the reading, and annotating, experience. This research not only furthers understanding of the changing nature of reading and marginalia but also enables an indirect examination of the evolution of relevant technology. Robert McCrum, the former editor at Faber & Faber, asked “What happens to marginalia in the age of the Kindle?” (McCrum, 2012). This study suggests that the Kindle and other e-reading devices must improve their support for reader annotations if marginalia is to continue its long history into the digital world.

References

- Adler, M. J. (1941, July 6). How to mark a book. *The Saturday Review of Literature*. pp. 11-12.
- Alter, A. (2012, July 19). Your e-book is reading you. *The Wall Street Journal*. Retrieved from <http://online.wsj.com/article/SB10001424052702304870304577490950051438304.html>
- Armstrong, P. B. (2005). *Play and the politics of reading: The social uses of modernist form*. Ithaca, NY: Cornell University Press.
- Baron, N. (2015). *Words onscreen: The fate of reading in a digital world*. Oxford, England: Oxford University Press.
- Braun, L. W. (2011). Now is the time: E-books, teens, and libraries. *Young Adult Library Services*, 9(4), 27–30.
- Campbell, L. (2014a, March 19). UK e-book purchases ‘up 20% in 2013’. *The Bookseller*. Retrieved from <http://www.thebookseller.com/news/uk-e-book-purchases-20-2013>
- Campbell, L. (2014b, April 2). US e-book sales grew 3.8% in 2013, says AAP. *The Bookseller*. Retrieved from <http://www.thebookseller.com/news/us-e-book-sales-grew-38-2013-says-aap>
- Cherland, M. (1994). *Private practices: Girls reading fiction and constructing identity*. London, England: Taylor & Francis.
- Cordón-García, J.-A., Alonso-Arévalo, J., Gómez-Díaz, R., & Linder, D. (2013). *Social reading: Platforms, applications, clouds and tags*. Oxford, England: Chandos.
- Darnton, R. (1989). What is the history of books? In C.N. Davidson (Ed.), *Reading in America: Literature and social history* (p. 45). Baltimore, MD: Johns Hopkins University Press.
- Davy, T. (2007). E-textbooks: Opportunities, innovations, distractions, and dilemmas. *Serials*, 20(2), 98–102.
- Deltour, R., Garrish, M., Gylling, M., & Sanderson, R. (2015). Open annotation in EPUB. Retrieved from <http://www.idpf.org/epub/oa/>
- Drogin, M. (1983). *Anathema!* Totowa, NJ: Allanheld & Schram.
- Fuller, D., & Rehberg Sedo, D. (2014). “And then we went to the brewery”: Reading as a social activity in a digital era. *World Literature Today*, 88(3), 14-18.
- Grafton, A. (2015, February 19). Scrawled insults and epiphanies. *New York Times*. Retrieved from <http://www.nybooks.com/daily/2015/02/19/marginalia-insults-epiphanies/>
- Gribben, A. (1978). “A Splendor of Stars & Suns”: Twain as a reader of Browning’s poems. *Browning Institute Studies*, 6, 87–103.
- Griswold, W., McDonnell, T., & Wright, N. (2005). Reading and the reading class in the twenty-first century. *Annual Review of Sociology*, 31, 132.
- Hartley, J. (2001). *Reading groups*. Oxford, England: Oxford University Press.
- Jackson, H. J. (2001). *Marginalia: Readers writing in books*. New Haven, CT: Yale University Press.
- Jackson, H. J. (2010). John Adams’s marginalia then and now. In R. C. Baron & C. E. Wright (Eds.), *The libraries, leadership, & legacy of John Adams and Thomas Jefferson* (pp. 59–80). Golden, CO: Fulcrum Publishing.
- Jantz, R. (2001). E-books and new library service models: An analysis of the impact of e-book technology on academic libraries. *Information Technology and*

- Libraries*, 20, 104–113.
- Katz, A. (2012, June 21). Will your children inherit your e-books? *National Public Radio*. Retrieved from <http://www.npr.org/2012/06/21/155360197/will-your-children-inherit-your-e-books>
- Lam, P., Lam, S. L., Lam J., & McNaught C. (2009). Usability and usefulness of ebooks on PPCs: How students' opinions vary over time. *Australasian Journal of Educational Technology*, 25(1), 30–44.
- Liesaputra, V., & Witten, I. H. (2012). Realistic electronic books. *International Journal of Human-Computer Studies*, 70, 588–610.
- Liu, J. H. (2013, March 21). Do you write in the margins? *Wired*. Retrieved from <http://archive.wired.com/geekdad/2013/03/do-you-write-in-the-margins/>
- Long, E. (2003). *Book clubs: Women and the uses of reading in everyday life*. Chicago, IL: University of Chicago Press.
- Marshall, C. C. (2005). Reading and interactivity in the digital library: Creating an experience that transcends paper. In D. Marcum and G. George (Eds), *Digital library development: The view from Kanazawa* (pp. 127-145). Westport, CT: Libraries Unlimited.
- Marshall, C. C., & Brush, A. B. (2004). Exploring the relationship between personal and public annotations. In H. Chen, H. D. Wactlar, C. Chen, E.-P. Lim, & M. G. Christel (Eds.), *Proceedings of the 4th ACM/IEEE Joint Conference on Digital Libraries, Tucson, AZ, June 7-11, 2004* (pp. 349–357). New York, NY: Association for Computing Machinery.
- McCrum, R. (2012, January 12). On margins. *The Guardian*. Retrieved from <https://www.theguardian.com/books/booksblog/2012/jan/12/on-margins-marginalia-robert-mccrum>
- O'Hara, K., & Sellen, A. (1997) A comparison of reading paper and online documents. In S. Pemberton (Ed.), *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, March 22-27, Atlanta, GA* (pp. 335-342). New York, NY: Association for Computing Machinery.
- Pearson, J., Buchanan, G., Thimbleby, H., & Jones, M. (2012). The digital reading desk: A lightweight approach to digital note-taking. *Interacting with Computers*, 24(5), 327–338.
- Porter-O'Donnell, C. (2004). Beyond the yellow highlighter: Teaching annotation skills to improve reading comprehension. *English Journal*, 93(5), 82–89.
- Rainie, L., & Duggan, M. (2012). *E-book reading jumps; print book reading declines*. (PEW Report). Retrieved from <http://libraries.pewinternet.org/2012/12/27/e-book-reading-jumps-print-book-reading-declines/>
- Rehberg Sedo, D. (2003). Readers in reading groups: An on-line survey of face-to-face and virtual book clubs. *Convergence: The Journal of Research into New Media Technologies*, 9(1), 66–90.
- Rehberg Sedo, D. (2009). *Badges of wisdom, spaces for being: A study of contemporary women's book clubs* (Unpublished doctoral dissertation). Simon Fraser University, Burnaby, British Columbia, Canada.
- Ryback, T. W. (2008). *Hitler's private library: The books that shaped his life*. New York, NY: Alfred A. Knopf.
- Schilit, B.N, Golovchinsky, G., & Price, M. N. (1998). Beyond paper: Supporting active reading with free form digital ink annotations. In C-M. Karat & A. Lund (Chairs), *Proceedings of the ACM CHI 98 Human Factors in Computing Systems Conference, April 18-23, Los Angeles, California* (pp. 249-256). New York, NY: Association for Computing Machinery.

- Sheppard, B. M. (2009). Diktuon: The Kindle 2, risk and promise. *Theological Librarianship*, 2(2), 3–8.
- Siegenthaler, E., Wurtz, P., & Groner, R. (2010). Improving the usability of e-book readers. *Journal of Usability Studies*, 6(1), 25–38.
- Swann, J., & Allington, D. (2009). Reading groups and the language of literary texts: A case study in social reading. *Language and Literature*, 18(3), 247–264.
- Taylor, J. B. (2012). Producing meaning through interaction: Book groups and the social context of reading. In A. Lang (Ed.), *From codex to hypertext: Reading at the turn of the twenty-first century* (pp. 142–158). Boston, MA: University of Massachusetts Press.
- Tepper, S. J. (2000). Fiction reading in America: Explaining the gender gap. *Poetics*, 27(4), 255–275.
- Thompson, C. (2009, June 1). *Digital readers: Fact and fiction*. Paper presented at the IATUL Conference in Leuven, Belgium, June 1–4. Retrieved from http://www.iatul.org/doclibrary/public/Conf_Proceedings/2009/Thompson-text.pdf
- Wolfe, J. (2002). Annotation technologies: A software and research review. *Computers and Composition*, 19, 471–497.
- Woody, W., Daniel, D., & Baker, C. (2010). E-books or textbooks: Students prefer textbooks. *Computers and Education*, 55(3), 1–13.
- Zickhur, K., & Rainie, L. (2014a). *A snapshot of reading in America in 2013*. (PEW Report). Retrieved from <http://www.pewinternet.org/2014/01/16/a-snapshot-of-reading-in-america-in-2013/>
- Zickhur, K., & Rainie, L. (2014b). *E-reading rises as device ownership jumps*. (PEW Report). Retrieved from <http://www.pewinternet.org/2014/01/16/e-reading-rises-as-device-ownership-jumps/>