College Students and Electronic Reading Devices: Perceptions, Attitudes, and Recommendations

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Abstract

New and improving electronic book and e-reading device technology is changing the way that people read, however, most college undergraduate students continue to prefer utilizing traditional print materials and textbooks. This research, conducted through a survey of North Central College students, examined what factors influence students to choose print or electronic reading materials, and what impact this has on Oesterle Library. Data collected in this research indicates that the majority of NCC students do not own e-reading devices, and that few students use the devices primarily for academic work. Factors such as cost and preference for print books were relevant in student’s choice not to utilize an electronic reading format. The conclusions drawn from this research have implications for Oesterle Library in terms of collection development and how the library can provide e-books and e-reading devices in a manner that best fits NCC students’ needs.
Introduction

The typical undergraduate student has to do quite a bit of reading throughout their college career. From textbooks, to research articles, to literature, to their own notes, students are frequently reading for academic purposes. New technology, such as e-reading devices and e-books, are rapidly affecting the way people read. A 2012 Pew Research report found that: one fifth of Americans have read an e-book in the past year; the average e-book reader has read more books in the past year that people who do not utilize e-books; and e-books are read on a number of different devices (Rainie 3). However, many undergraduate students continue to purchase print textbooks and materials in lieu of new devices such as the iPad or the Kindle. Although students are familiar with using the Internet to do research and browse through academic journal databases, many are not as comfortable utilizing e-textbooks or bringing a tablet to class to take notes instead of pencil and paper. This research study set out to examine why this new reading technology is so slow to catch on amongst college undergraduate students.

For the purpose of this research, an e-reading device will be defined as any e-reader or tablet on which an e-book can be read. This definition does not include desktop or laptop computers, or smart phones. Although e-books can be read in these formats, they are either not as portable (desktop computers) or they are too small to read and take notes on for an extended time period (smart phones). In the research survey, examples of e-reading devices included iPads, Kindles, Nooks, and Sony Readers.
To narrow the scope of research, this study focused on a sample of undergraduate students at a specific undergraduate institution, North Central College. NCC is a small, private, comprehensive liberal-arts school located in Naperville, Illinois. To increase the practical applicability of the research, the study was designed to include the campus library, Oesterle Library. The central direction of the research focused on understanding how current NCC students use electronic reading technology in relation to the campus library. The conclusions of the research is then used to further understand how students use Oesterle’s electronic reading resource collections and make suggestions for the library moving forward with e-book and e-reading device technology into the future.

**Literature Review**

Over the past decade, electronic reading materials and various e-reading devices have saturated the market, causing some early observers to conclude that the ‘print book is dead’. However, widespread adoption of this new technology has been fairly slow, especially for the college student population. Librarians and other academics have closely studied the adoption of electronic reader devices in order to better understand the applications and best suited uses of these devices. This research hopes to add to these studies by exploring how NCC students perceive and use electronic books and reading devices.

**Rapid Technology Changes Outdate Research Data**

There are fairly substantial amounts of research literature and studies concerning the application of e-reading devices and electronic reading materials for college students and their needs, but as one researcher pointed out, the technology
changes so fast that more information is constantly needed (Foasberg 119). Older studies, while useful for their research methods, are outdated because the majority of their participants were not knowledgeable about e-book technology, and the study or survey they participated in was often their first experience with the technology (Gregory 269; Hernon 5; Kiriakova 22). This is no longer the case, as popular devices such as the iPad and Kindle are a part of everyday vocabulary. However, increased popularity and general knowledge about e-reading devices has not substantially increased the number of college students utilizing the devices for school-related work and reading.

Many early researchers hypothesized that as information about e-reading devices spread and students became more familiar with the technology, the usage of e-reading devices in the college setting would increase (Dearnley 78). This is clearly not the case, because the small number of college students who own e-reading devices use them primarily for leisure reading or other entertainment purposes, such as internet browsing or movie-watching (Foasberg 113). Also, early researchers argued that once the technology of e-reading devices improved (more added features, lighter weight, easy-to-use menus), and became more cost-friendly, they would be more compatible for academic use (Dearnley 70; Lai 573). Although the newest generations of e-reading devices have improved upon earlier models in size, weight, features, and ease of use; all for a lower cost, they are still not being utilized by a large number of college students. With many assumptions and hypotheses made by early studies on e-reading devices determined to be false, it is
clear that new research is needed to establish what is preventing college students from adopting e-reading devices for academic use on a wide-scale.

**Features of E-readers and Print Books**

Another topic that has been explored somewhat in the current literature, but which needs to be expanded upon, are the features of e-reading devices and e-books that make them preferable to printed texts, and vice versa. Statistically, there appears to be no inherent academic advantage or disadvantage to using digital or traditional textbooks, as one study found college students who used either medium scored similarly on quizzes and tests throughout the semester (Weisberg 193). Student participants of this study cited increased portability and ability to search within an e-book as the primary features that made an e-reading device preferable to a printed textbook (Weisberg 194). However, the study also found that students find it easier to concentrate when reading printed texts, and that they simply preferred print to electronic (Weisberg 194). This implies that even though e-reading devices have added features and technology, they still lack some aspect that makes print books preferable to students.

There have been multiple studies done of younger student populations (elementary-aged) to determine if the features of e-reading devices increase reading comprehension and speed. One study found that although reading comprehension was not statistically different between the two mediums, younger students were more engaged with the digital text and were more likely to use reading resources such as dictionaries and note-taking when using e-reading devices (Wright 367). Other literature and research echo these findings that while comprehension is not
affected by the medium used, students reading on e-reading devices are more engaged with the text and the features of the device (Larson 16). It is important to note that this research regarding reading comprehension is primarily studying younger elementary students, so the results may not apply directly to college students.

Older studies often cited the inability of students to highlight, take notes, skim quickly, or search in e-reading devices as the primary reasons why traditional texts are more effective for college students (Acker 43). However, the current generations of e-reading devices do have these important features, so recent research is attempting to understand what other modifications must be made to e-reading devices in order for them to appeal to college students. One study suggests that e-books must become more media rich, offering color displays, multimedia effects, and embedded hyperlinks (Lai 572). Other research implies that e-books are still more difficult to navigate than print books because of the loss of page numbers, the limited usefulness of many search functions, and the lack of hyperlinked indexes and glossaries (Browne 288). In the future, addition of more media-rich content as well as a reduction in the awkwardness of navigation could make e-books and e-reading devices more advantageous for academic users.

**Importance of Major and Area of Study**

One topic of importance that has been examined is that students in different majors or disciplines have different uses and expectations for reading materials (Hernon 4; Gregory 267; Williams 221). Certain majors, such as business or nursing, that use books for scanning or reference purposes prefer electronic books and e-
reading devices; while other majors that need to read entire books, such as English or Literature students, prefer to read printed texts (Hernon 6). Much of the research analyzing student usage of electronic reading materials has focused on majors like business and nursing, which may skew the data by not representing areas of study that require more thorough reading of materials such as English or psychology (Weisberg 190; Hernon 4; Nicholas 268). Additional research studies are needed to fully determine if e-books and reading devices are academically useful for every major, or if certain populations of students can find greater benefits in using e-reading technology.

**Impact of E-readers Loaned Through the Library**

Oesterle library recently began offering Kindle e-reading devices, pre-loaded with specific electronic books, for students to check out. Several studies in which students were introduced to e-reading devices and allowed to test them out before purchasing their own showed that the students had positive reactions to the devices (Weisberg 192; Kiriakova 23). The study participants enjoyed being able to personally ‘test-drive’ the devices and were quick to note features that would entice them to purchase their own e-reading device. In one particular study conducted by Weisberg, students who were loaned e-reading devices to use for a semester reported at the end of the time period that they preferred to use the e-reading device for class readings because it offered ‘increased efficiency’ in finding information for research papers and preparation for class discussion (Weisberg 195).
Loaning e-reading devices through library programs or academic studies increase awareness about e-reading devices and offer participants first-hand knowledge about how they can be beneficial for academic work. Loaning students the devices can also reduce apprehensions students might have about the e-reading devices, such as fear of eyestrain from reading extended time periods on these devices. Eyestrain is a commonly cited concern of students, but studies have proved that current generations of e-reading devices provide advanced displays that allow comfortable extended reading periods (Siegenthaler 367). Allowing students to give e-reading devices a free trial period may educate them about the benefits of the resources and features, as well as reduce their apprehensions about the comfort of reading from an e-reading device. Although only five percent of public libraries circulate e-reading devices (Duncan 182), students surveyed in research indicate that they would be interested in checking out the devices from their public and academic libraries (Foasberg 117).

**Oesterle Library-Current Situation**

North Central’s academic library, Oesterle Library, is the only library on campus and is a popular study and meeting space for North Central students. Students can access Oesterle’s collection in the physical space or online at the library’s website. Oesterle currently has over 30,000 e-books and 138,968 print books in its collection (Small 1). Oesterle Library does not check out e-books to students, but most e-books in the collection can be downloaded onto a computer or e-reading device, as well as printed if a paper copy is needed. As of May 3rd, 2013, e-books within Oesterle Library’s collection had been used 3,106 time (Prather-
Rodgers). Other electronic resources currently provided by the library include many online journal databases for academic research articles and pre-loaded Kindles with an array of e-books that are available for check out. As of May 3rd, 2013, the pre-loaded Kindles had circulated 53 times since they became available at the beginning of the Fall 2012 school term (Cheek).

Oesterle Library views e-books and Kindle devices as “compliments to the longstanding collections of books, journals, and media titles” according to John Small, director of the library (Small 2). The library continues to purchase print materials it believes are valuable additions to the collection, especially on subjects that do not transfer well to e-books, such as art or oversized books. While the library has no near-future plans to go all electronic, Oesterle Library is dedicated to understanding the needs and expectations North Central students have for the library, and expanding the collections in a way that will be most valuable to the students. The results of this research will help the library determine if its current electronic resource collection is sufficient and beneficial for the students, as well as provide suggestions for future steps the library could take in providing e-books and e-reading devices for students.

Method

As sales and usage of electronic books and e-reading devices have soared over the past few years, many researchers and librarians have begun to study how various populations’ use and benefit from electronic reading. This research study attempts to gain perspective on how undergraduate college students, a population that should be doing large amounts of reading, utilizes electronic reading devices
and what their opinions of new reading technology are. At its core, this study attempts to determine if undergraduate students are using electronic books and e-reading devices for their academic reading; and secondly, what Oesterle Library can do to facilitate students in their use of this new reading technology.

The method of data collection chosen for this research project was a survey. An online survey method was selected because it was the most appropriate and effective way to get opinions and information from the participant group. SurveyMonkey was the tool used to generate and conduct the survey, and the researcher encouraged participation in the survey in several different ways. Participation was solicited through links to the survey sent via email to several 300-level courses and to all member of the College Scholars program, requests for participation made in several 300-level courses, and bookmarks with the survey link distributed at the Oesterle library. Participant information was kept completely anonymous as neither their email address or name is linked to the answers they provided through SurveyMonkey. There was no reward or prize offered to entice participants to take the survey. The survey was open on-line for the months of October and November, during the second half of fall term at North Central College.

**Project Sample/Participants**

The participants in this study were undergraduate North Central College students, first-years through seniors. This group was chosen as the participant sample in order to gain a representative view of undergraduate opinions and usage of e-reading devices and e-books. The survey link was distributed to a large number of NCC students, and although participation was voluntary, 139 students took the
survey. After eliminating 12 incomplete surveys, the survey sample size was 127 participants. This sample, while only representing approximately four percent of the NCC undergraduate population, was evenly split between the grade levels and a variety of academic majors.

**Survey Description**

The survey consisted of 21 questions, although the actual number of questions a participant was expected to answer varied based on their experience with e-reading devices. The survey included open-ended, close-ended, Likert scale, and basic demographic questions. Although including more than 21 questions would have allowed the researcher to gain a better understanding of the topic, questions were kept to a small number in order to increase the amount of completed surveys. See the Appendix for complete survey.

The first five questions on the survey deal directly with Oesterle library and how the student uses the library. This point of this section was to get an understanding of the student’s awareness of the electronic resources currently offered at Oesterle, which include a certain selection of e-books and pre-loaded Kindles that can be checked out. How often the student uses the library and the online catalog to search for e-books were also noted. The second section of questions focused specifically on e-reading devices. Students were asked to rate the advantages and disadvantages print books and e-reading devices offer in terms of academic use. In addition, students were asked which medium they preferred, and if they owned an e-reading device.
At this point, the survey split in two directions, with student participants who owned e-reading devices answering different questions than those who did not. Students who did own e-reading devices were asked how often and for what purposes they used the devices, as well as how they obtained e-books. Students who did not own the devices were asked a series of questions to better understand the reasons why they had not yet purchased a device, and if changes made by Oesterle library would in any way influence their decision to purchase an e-reading device. Finally, the last section of questions included basic demographic questions to ascertain age, major, and whether the student was a resident or commuter.

**Results**

The first section of the survey was intended to gauge students’ understanding of the electronic reading resources Oesterle Library offers, and to get a sense of how students are using them. Fifty-two percent of students have encountered an electronic book while searching Oesterle’s online catalog. However, only 14% of students surveyed had actually used an electronic book through Oesterle Library (Figure 1).

Sixty-two percent of students indicated that they did not learn about electronic books during a library training session, which occur in many English and Interdisciplinary courses. Finally, students were asked to report how many times in a typical week they utilized Oesterle Library. The majority of participants used the library between once and three times per week (Figure 2).
The next set of questions intended to ascertain the students' opinions of print and electronic mediums, especially in regards to the features each medium offers when reading for academic purposes. In a fascinating paradox, 92.5% of students indicated that they preferred to read a print version of a book when both versions are available (Figure 3), but 70% believe that the future of reading materials will be electronic, despite their personal preference for print materials (Figure 4). The data for the second question, however, may be somewhat skewed as a definition for
future was not provided; therefore, participants could have interpreted the time frame differently.

**Figure 3**

If both are available, do you prefer reading a print version of a book or an electronic version of a book?

![Pie chart showing 92% for Print and 8% for Electronic]

**Figure 4**

Do you foresee the future of books and other reading material being primarily electronic rather than print?

![Pie chart showing 70% for Yes and 30% for No]

Category scale questions were utilized in order to evaluate how strongly students felt about the features of electronic and print reading when applied to academics. Students consistently gave high ratings to the features print materials offer, with the majority of participants selecting fives (very appealing) for every feature surveyed. Those features include ease of note taking (64.5% gave a rating of
five), fewer distractions than e-reading devices (59.4%), reliability or never running out of battery (55.1%), and familiarity (52.7%)(Figures 5-8).

Figure 5

![Ability to easily write notes, underline, and highlight](image)

Figure 6

![Less distractions](image)
Participants did not consistently agree with one another as to how appealing or valuable various features of e-reading devices were. The only features of e-reading devices with a majority agreement among participants was the ability to store many books at once (59.8%), and ease of searching through an e-book (52.7%), both highly ranked as very appealing by the students (Figures 9-10). Finally, it was determined that the majority of students, 64.5%, do not own an e-reading device, but 35.4% do (Figure 11).
Figure 9

Ability to search within the e-book

- 3% (1)
- 6% (2)
- 11% (3)
- 28% (4)
- 52.70% (5)

Figure 10

Ability to store many books

- 3% (1)
- 3.90% (2)
- 5% (3)
- 27.80% (4)
- 59.80% (5)

Figure 11

Do you own an e-reading device?

- 65% Yes
- 35% No
At this point, the survey split into two different sections. Students who did own e-reading devices were asked to answer three questions, while students who did not own e-reading devices were asked to answer four different questions. Students who own e-reading devices indicated that they used their device primarily for leisure (95.5%), not academic reading (Figure 12). When asked to rate how much of their overall reading was done on their device rather than print materials, 42.4% indicated they did less than one third of their reading on the device, with only 4.5% of students doing all of their reading on a device (Figure 13).

![Figure 12](image12.png)

**Figure 12**

Do you use your e-reading device primarily for academic or leisure reading?

- **Academic**: 5%
- **Leisure**: 96%

![Figure 13](image13.png)

**Figure 13**

How much of your reading do you do on your e-reading device?

- **All of my reading**: 22%
- **About two-thirds of my reading**: 31%
- **About a third of my reading**: 42%
- **Less than a third of my reading**: 5%
Ninety-seven percent of students who own e-reading devices also indicated that they primarily purchased e-books for their devices through a store specific to their device (Amazon.com, Barnes and Noble, etc). Survey participants rarely borrow e-reading materials from libraries, as only one participant used Oesterle Library e-books on their device, and only 13% had borrowed an e-book from a public library.

Students who did not own an e-reading device were asked a series of questions to determine why they had not purchased one yet, and what factors, if any, could induce them to purchase one. Eighty percent of students indicated that they did not currently plan to purchase an e-reading device before graduation (Figure 14).

Figure 14

<table>
<thead>
<tr>
<th>Do you plan on buying an e-reading device before the end of your college career?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

Overwhelmingly, participants cited cost of the device and a preference for print books over electronic as the main reasons for their decision not to purchase an e-reading device (Figure 15). Participants did not consider the cost of e-books or limited e-book selection important to their decision to not purchase an e-reading device (Figure 16).
Sixty-five percent of students would not be more likely to purchase an e-reading device if Oesterle Library expanded its e-book selection (Figure 17). Sixty percent of students would not be more likely to purchase an e-reading device if Oesterle provided the service of checking out e-books in the same manner that print books are circulated (Figure 18).
If North Central's Oesterle library expanded its e-book offerings would you be more likely to purchase an e-reading device?

![Pie chart showing 34% Yes and 66% No]

If North Central's Oesterle library offered the option of checking out e-books onto a personal e-reading device would you be more likely to purchase an e-reading device?

![Pie chart showing 40% Yes and 60% No]
Discussion

The primary purpose of this study was to determine how North Central College undergraduate students are using e-reading technology such as e-books and e-reading devices. One of the most obvious conclusions that can be drawn from the survey data is that students are not currently using e-reading devices for their academic work. A majority of NCC undergraduate students do not own e-reading devices (64.5%), and cite a variety of reasons as to why they have not purchased one. This implies that the majority of NCC students are not using e-books for their academic work, although e-books can be accessed through other platforms such as desktop or laptop computers and smart phones. Because many students do not own a convenient platform through which to access and use e-books, and might not be aware of other platforms through which e-books can be accessed, it makes sense that only 14% of students have used an e-book in Oesterle Library’s collection.

Of the 35% of participants that do own e-reading devices, only two students indicated that they use their device primarily for academic work. With a majority of students who own e-reading devices doing less than one third of their overall reading on the device, it is clear that they do not view them as an academic tool. This could stem from the fact that many e-reading devices sold currently are tablets such as the iPad and Kindle Fire, devices that do much more than serve as platforms for e-books. With the Internet, movies and television streaming, as well as a large variety of game and entertainment apps, using these devices for e-reading is not the main draw for most users.
Another point that was made very clear through the data is that undergraduate students prefer to read from print books. Over 90% of students indicated they preferred print in a situation where both versions are available, which is an interesting choice in this increasingly electronic world. A preference for print materials was also the key factor in most students’ decisions not to purchase e-reading devices. Even the students who do own e-reading devices choose to do much of their reading in print format, as a majority do only one third or less of their reading on their e-reading device.

Despite their print preference, 70% of students surveyed felt that the future of reading materials would be primarily electronic. As stated previously, this statistic may be slightly skewed, as a time frame definition for the ‘future’ was not provided in the survey questions, and so was left to the participant’s interpretation. This prediction, even though it goes against the participants’ own preference for print materials, could stem from the other physical to electronic transformations this generation has observed in their lifetime. Two notable examples are: academic journals and articles, which are now almost exclusively accessed through online databases; and music, which is primarily bought and streamed online, rather than on the radio or in CD format. The question then remains if books and other reading materials will also make this transition in the immediate or near future, which NCC students view as very likely.

An important issue explored with this research was why students who do not own e-reading devices have not felt the need to purchase one. Reflecting earlier themes, the factor most participants agreed upon was that they preferred print
books, so they do not feel the need to purchase a device which will to read e-books.

This was surprising to the researcher, as these are college students; it was assumed that the cost of purchasing one of these devices would be the primary reason. Cost was the second highest rated factor in the decision not to purchase, but this could decrease even more in the future as the price of these devices continues to drop. Interestingly enough, limited e-book selection was the least important factor in the participants' decision, even though this has been a concern for libraries as not all books are available in e-book format. Oesterle Library, while having a fairly large collection of e-books (30,303) has many more print materials (138,968), so it is surprising that limited e-book options are the smallest concern of college students.

In addition, this research also tried to ascertain what actions Oesterle Library could take to encourage students to purchase and use e-reading devices for academic purposes, and make greater use of the e-book collection the library offers. One possible action would be to make e-books available for checkout in the same way that print books are available. This is done at many public libraries, but students who do not already own e-reading devices were not enthused by this option, with only 40% indicating that it would have an influence on their decision to purchase an e-reading device. Students were even less influenced to purchase an e-reading device if Oesterle added more e-book titles to the collection, this is most likely related to the fact that limited e-book selection was not a large factor in the participants' decision to not purchase an e-reading device.

Even though they were not asked their opinion regarding Oesterle Library providing e-books for check-out or a larger selection, it can be presumed that
students who own e-reading devices would not be particularly enthusiastic either due to their answers to previous questions. The majority of these students (97%) purchase their e-books from the retail store specific to their e-reading device, such as Amazon.com for Kindle devices. Only six students indicated that they had used e-books from public libraries, and only one had used an e-book from Oesterle Library on their e-reading device. Students may not mind purchasing e-books for their e-reading devices instead of borrowing, because e-books are often cheaper than print books. However, this could also stem from a lack of student awareness that many Oesterle Library e-books can be downloaded to an e-reading device. In this case, a program to expand student awareness of how to use Oesterle Library e-books might be helpful in increasing the use of the e-book collection by students with e-reading devices.

Another program Oesterle Library has implemented to encourage students to experiment with e-reading devices and utilizing e-books is providing Kindle devices for checkout. Previous studies have shown that students who have a chance to experiment with e-reading devices before purchasing generally have positive feelings about using the devices and are more likely to purchase one and use e-books in the future. Currently, over half (55%) of the student participants are unaware that Oesterle Library offers Kindle devices for checkout. If this program was more widely known about by the student population, perhaps more students would make use of this easy way to test out an e-reading device before purchasing.

Another major goal of this research was to understand how appealing students find the various features that print materials and e-books offer. It would
appear that e-reading devices and e-books offer features that would make using them for academic work more appealing, and these features have only increased as new devices and technologies continue to be released. Previous studies have found in elementary student populations that students with e-reading devices are more engaged in the text and frequently use features such as dictionaries and note taking. However, NCC students ranked the features that a print book offers as more desirable than those of the e-reading device. Specifically, students indicated that it is easier to underline, take notes, and highlight in a print book. In addition, they felt it was important that a traditional print book has fewer distractions than an e-reading device such as a tablet, which might offer the Internet or applications that could distract from studying.

The feature of e-reading devices that students were most impressed with is the ability to store many books or reading materials on one device. Ability to search within the e-book and automatic citations also ranked highly, probably because these features could save students’ time that they would otherwise have to invest when using a print book. Students seemed to be fairly concerned about the ease of highlighting and taking notes with an e-reading device, as this feature was ranked as the least appealing. Although highlighting and note taking were difficult or not possible on older generations of e-reading devices, most current devices offer this feature in a user-friendly format. This could be one example of how experimenting with a borrowed e-reading device could change a student’s opinion of the devices and their usefulness for academic purposes.
Student awareness of e-books and e-reading technology at Oesterle Library is fairly limited based on the results of the survey data. Just 52% of the students surveyed have come across an e-book while searching for materials on Oesterle’s website. Even worse, only 14% of students have used e-books from Oesterle Library, which as previously discussed could be due to their lack of an e-reading device to fully benefit from the e-book. Without an e-reading device, students are tied to computers, which are not functional for using in class or easy transportation. This data implies that the library’s collection of e-books is an underutilized resource by students, and indicates that Oesterle Library’s current direction of continuing to purchase print materials is correct, as the print collection is utilized more frequently by students.

Overall usage of Oesterle Library is fairly high, with over 80% of students surveyed using the library or its website at least once a week. One interesting question examined whether or not students remember learning how to use e-books in their library training class. Currently, only 38% of students recall receiving training regarding e-books. However, since the e-book collection is fairly new (developed within the past two years), upperclassmen may not have had a library training class that would have included e-books, since the training classes primarily occur in first and second year courses. Regardless, this is certainly an avenue that Oesterle Library could use to make sure students are aware of the e-book collection and how it can be utilized by students with and without e-reading devices.
Implications for North Central College

A central purpose of this research was making it applicable to NCC and the undergraduate students. It is important to use the student opinions and perceptions gathered by this research to improve the resources that NCC students are offered. By discussing the implications of this research for NCC and making recommendations specifically for Oesterle Library, this data can improve the library's understanding of students wants and needs regarding e-reading devices and e-books.

One obvious observation useful for Oesterle Library is that currently NCC students are not particularly excited about using e-books. Only 14% of students surveyed had ever used an e-book through Oesterle Library, so the e-book collection is serving a minority of students. Most students indicate that they would rather utilize a print book, so expansion and maintenance of the print collection is certainly important as students feel most comfortable reading and researching in that medium.

One approach Oesterle Library could take to encourage more academic usage of e-reading devices and e-books is promoting and teaching students about the electronic reading resources offered by the library. Over 60% of students do not recall learning about e-books and how to use them in a library training session. Making a point to add information about e-books to these training sessions is a change that could be easily made to ensure that all students are aware that Oesterle Library does have e-books in their collection. These training sessions should also teach students the different ways that Oesterle Library e-books can be accessed.
There may be a misperception that e-books are only useful if the student owns an e-reading device; but once students are aware that they can access them on a laptop or print out sections, the number of students who have used an e-book from Oesterle Library’s collection will hopefully rise above 14%.

In addition, more promotion of e-reading devices that are offered for checkout could also play a part in changing student attitudes towards e-reading devices. Fifty-five percent of students surveyed are aware that there are pre-loaded Kindles available for checkout, and they have only been checked out 53 times since the Kindles begin circulating eight months ago (Cheek). If more students were to borrow and experiment with the devices, some of their concerns about ease of use, eyestrain, the ability to effectively study and more could be addressed without students having to pay for the device. This could contribute to more students purchasing their own e-reading devices as well as being more comfortable with using e-books. Also, currently the Kindles offered for checkout are pre-loaded with a majority of leisure reading materials; in the future, perhaps textbooks or reserve materials could be loaded onto them to encourage more academic usage.

Finally, it is important to keep in mind that North Central College students are not currently major users of electronic reading technology. With only 35% of students surveyed owning an e-reading device, and the majority of those students primarily using the device for leisure purposes, there does not seem to be a large student need or demand for Oesterle Library to expand their e-book collection. Also, many students who do not own e-reading devices indicated through the survey that they will not be encouraged to purchase one if Oesterle Library makes it easier to
check out e-books or expands the e-book collection. This indicates that Oesterle Library should continue on its current path of purchasing both print and e-books, using the e-books to supplement the large print collection rather than replace it. However, it is important to remember that the students themselves predicted that the future of reading material would be primarily electronic. Thus, Oesterle Library should continue to stay up to date with emerging technology, the benefits it holds for students academically, and student opinion in order to successfully meet the needs of the North Central College undergraduate community.

**Limitations of Research**

The results established in this research study may not be generalized to other college populations because of the small sample size. Also, only students from North Central College’s undergraduate population were surveyed, so students at other undergraduate colleges and universities may not have the same opinions and usage patterns. Because the research was conducted through a voluntary online survey, the participant sample may be unrepresentative of the NCC undergraduate population. Finally, the very process of researching e-books, e-reading devices, and other reading technology is difficult because the technology, available formats and devices changes so rapidly. As the technology continues to improve and price levels drop, attitudes towards and usage of this new reading technology will continue to change, therefore future research on the topic must be completed.
Suggestions for future research

In this area of research, there is room for many more studies to be completed examining college students and their utilization of e-reading devices. Future studies focusing specifically on students that own e-reading devices will be helpful to further analyze how they utilize them and why students use the devices primarily for leisure rather than academic purposes. This population of students should also be further studied to understand if or how reading done on an e-reading device differs from reading of print materials. Specific studies on differences between comprehension, note-taking, and skimming through material in the two different mediums will help researchers understand which medium is better suited for academic purposes.

Additionally, further work needs to be done on the economic cost of e-reading devices and e-books to determine if college students could save money by purchasing their textbooks and other academic materials electronically. With the initial cost of the e-reading device being an important factor in students’ decisions not to purchase e-reading devices, a better understanding of possible future savings through the purchase of e-books rather than print materials could have a large bearing on a student’s decision to switch to electronic reading.

Another important topic to explore is why and how students make the shift from primarily using print materials to purchasing an e-reading device and e-books. This research touched upon factors in students’ decision not to purchase e-reading devices, but more work needs to be done to understand the factors that influence students to purchase the devices and e-books. Finally, as e-reading technology
continues to improve and change more research will be necessary to understand new developments. It is possible that e-books of the future will become more interactive and include multi-media functions such as videos and sound. These possible developments could increase the advantages e-reading technology has versus traditional print books, and so it will be important to observe student reactions to improvements and developments in e-reading technology.

Conclusion

E-reading devices and e-books are rapidly changing the way that people read and access books; however, as observed and analyzed through survey data obtained at North Central College, undergraduate students are slow adopters of this technology and retain a strong preference to reading and studying from print books. A large majority of student participants do not intend to purchase e-reading devices in the near future, and students that do own e-reading devices use them primarily for leisure purposes. North Central College students are fairly unaware of the e-book collections and resources that Oesterle Library offers and are more interested in continuing to utilize the print materials collection. Implications that can be drawn from this data show that Oesterle Library should continue to maintain and expand the print collections, and work to inform and train North Central College students about the electronic reading resources it offers and how to utilize them.
Appendix

The purpose of this survey is to learn how NCC students utilize new reading technology (e-books, e-reading devices) and the impact that this has on Oesterle Library. By collecting students' opinions and perspectives, Oesterle Library will be able to better understand the electronic reading needs of NCC students. Any information you submit will be anonymous. Thank you for participating.

This survey is being conducted by Victoria Volckmann as the research component of her Honors Thesis. If you have any questions about the survey or the subject of the thesis, feel free to contact her at vlvolckmann@noctrl.edu

Faculty Advisor: John Small

1. Have you ever come across an electronic book while searching for materials on North Central’s Oesterle library website?
   a. Yes
   b. No

2. Have you ever come across an electronic book while searching for materials on North Central’s Oesterle library website?
   a. Yes
   b. No

3. Have you ever used an electronic book from North Central’s Oesterle library?
   a. Yes
   b. No

4. How many times per week do you utilize North Central’s Oesterle library, either at the campus location or on the website?
a. Four or more times per week  
b. Two-Three times a week  
c. Once a week  
d. Never during a typical week  

5. Were you taught how to use or made aware of electronic books in a library training class on campus?  
a. Yes  
b. No  

6. Were you aware that Kindles pre-loaded with electronic books are available for check-out from North Central’s Oesterle library?  
a. Yes  
b. No  

7. If both are available, do you prefer reading a print version of a book or an electronic version of a book?  
a. Print  
b. Electronic  

8. Do you foresee the future of books and other reading material being primarily electronic rather than print?  
a. Yes  
b. No  

9. What features of print books make them more appealing than reading on an e-reading device for academic purposes? (With 5 being very appealing and 1 being unappealing)
a. Ability to study in a manner that I am familiar with
b. Ability to easily write notes, underline, and highlight
c. Reliability of a print book (never runs out of battery, etc)
d. Less distraction than when reading from a screen that may offer internet or other options

10. What features of an e-reading device would be helpful when doing academic work that print books lack? (With 5 being very helpful and 1 being not helpful)
   a. Portability
   b. Ability to store many books at once
   c. Connection to the internet, dictionaries, and thesauruses
   d. Automatic citations
   e. Ability to search within the e-book
   f. Ability to highlight, copy, and paste

11. Do you own an e-reading device? (Ipad, Kindle, Nook, Sony Reader, other brands of tablets or e-readers) (excludes smartphones)
   a. Yes
   b. No

12. Do you use your e-reading device primarily for academic or leisure reading?
   a. Academic
   b. Leisure

13. How much of your reading do you do on your e-reading device?
   a. All of my reading
b. About two-thirds of my reading

c. About a third of my reading

d. Less than a third of my reading

14. How do you get e-books for your e-reading device? (Check all that apply)

   a. A store specific to my e-reader (Amazon.com, Barnes & Noble, etc)
   b. An online retailer
   c. A public library
   d. North Central's Oesterle library
   e. Other (please specify)

15. Do you plan on buying an e-reading device before the end of your college career?

   a. Yes
   b. No

16. What factors have impacted your decision not to purchase an e-reading device? (With 5 being very important to your decision and 1 being very unimportant in your decision)

   a. Cost of e-reading device
   b. Cost of e-books
   c. Limited e-book selection
   d. Concerns about eyestrain when reading from a screen
   e. Prefer print books

17. If North Central's Oesterle library expanded its e-book offerings would you be more likely to purchase an e-reading device?
a. Yes
b. No

18. If North Central's Oesterle library offered the option of checking out e-books onto a personal e-reading device in the same manner as checking out a print book would you be more likely to purchase an e-reading device?
   a. Yes
   b. No

19. What is your position at North Central College?
   a. Undergrad Student
   b. Graduate Student
   c. Faculty
   d. Staff

20. What is your major(s)?

21. Are you a commuter or resident?
   a. Resident
   b. Commuter

22. What year at North Central are you currently in?
   a. First Year
   b. Sophomore
   c. Junior
   d. Senior
   e. Graduate Student
   f. Faculty/Staff
Works Cited


