Faculty and Student Perceptions of Using E-Books in a Small Academic Institution

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Abstract
Libraries and non-libraries are involved in digitization projects. Academic libraries are purchasing access to e-books for their campuses. Are faculty and students using them? This paper will present a review of the discussions taking place in the literature, the results of a survey of the perceptions that faculty and students have of using e-books at a small liberal arts university, and project the future of e-books based on several criteria.

The concept of e-books has been around for a long time, particularly in fantasy and science fiction genre writings. However, it was not until the advances in computer technologies in the late 1980s that the concept moved into the realm of practicality. In the late 1990s, several companies marketed commercially viable e-book systems (Doman 2001). By early 2001, more than 18 e-book systems were available on the market. Most of these systems have since disappeared. There have been a few producers that have continued to develop and adapt their systems in an attempt to garner widespread use (Doman 2001).

In the late 1990s and early 2000s, academic libraries began purchasing e-book collections for students to access copyright protected e-books in addition to providing access to public domain e-book collections. This access was provided with the underlying assumption that students would embrace and read e-books. This might be called the "if we build it, they will come" syndrome. However, as these collections were being made available, early research concluded that that assumption was unfounded (Seybold Survey Studies E-Book Awareness and Attitudes 2000). Higher education students were not embracing the new technology, and did not prefer to read e-books (Lonsdale and Armstrong 2001). In addition, the research concluded that students perceived learning to be more difficult when using e-books rather than books. However, the research study found that there was neither identifiable improvement nor degradation in students' ability to learn when using e-books (Seybold Survey Studies E-Book Awareness and Attitudes 2000).

A review of the literature reveals a short history of e-book research. The majority of the research has been conducted in the last seven to ten years, with a flurry in the late 1990s and early 2000s, and another flurry in the mid-2000s. With such a short history of e-book research, breaking the research into an early category and a late category seems incongruous; however, there

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is a clear distinction between the focus and results of the two time periods. The early research focused on desirable features, pedagogy, and technology issues. The e-books were generally accessible in systems that provided access to one or possibly a few e-books at a time (Bell, McCoy, and Peters 2002; Dearnley and McKnight 2001; Simon 2001, Winter; Wearden 1998). The results of the early research concluded that e-books were not being accepted by higher education students. In addition, the studies concluded that technology issues were the major factor in the lack of acceptance (Seybold Survey Studies E-Book Awareness and Attitudes 2000; Doman 2001; Lonsdale and Armstrong 2001).

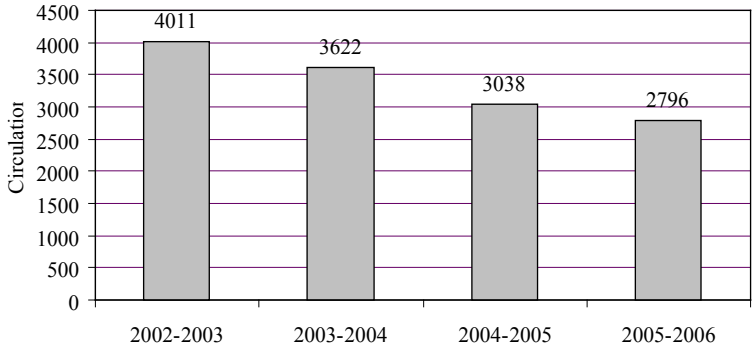

Figure 1: E-book circulation 2002 to 2006

The later research focused on use rather than reading (Anuradha and Usha 2006; Bailey 2006; Gunter 2005; Ismail and Zainab 2005; Littman and Connaway 2004; Safley 2006). The later research concludes that students are using e-books, but not necessarily for the purpose of reading. Students were using e-book collections as a tool to conduct research rather than for reading. Students search through a collection of e-books, scan "relevant" sentences, select a section of text, cut a desired portion, and paste the retrieved content into another application (Brown 2001; Coyle 2003; Safley 2006). Thus, e-books are not being read but are used to find relevant information that will support an argument in a research paper. In this cut and paste environment, critical thinking is lacking. Students are not critically analyzing the material for appropriateness to their arguments, but are quoting a source without contextualizing the author's argument. Bell describes his own experience with research using this "research driven methodology" as "depressingly sloppy scholarship" (Bell 2005).

SBU's Experience

Southwest Baptist University (SBU) is a small liberal arts institution located in southwest Missouri that offers six Associate's degrees, forty-five Bachelor's degrees, three Master's degrees, one Specialist degree, and one Doctoral degree. SBU has an enrollment of 3,500 students, of which 1,500 are full-time students. In June 2002, the university libraries at SBU purchased its first e-book collection with the assumption that students would embrace this new technology. As noted above, the "if we build it, they will come" syndrome was the driving motivation for acquiring the collection. The collection was purchased from NetLibrary™, and contained 16,362 purchased titles and 3,406 free, public access titles for a total of 19,768 titles. Over the course of the next four years, four additional collections have been added. The university libraries provides access to 22,203 e-books. The university libraries' book collections contain 180,115 books. Therefore, the e-books available to the students and faculty represent approximately 10.9 percent of monographs available.

Even though the e-book collection size has increased over the past four years, the number of items circulated has steadily declined. In academic year 2002–2003, 4,011 e-books were circulated, which represents a healthy 20.3 percent use rate of the collection (see figure 1). In academic year 2005–2006, which is the latest year of complete statistics, 2,796 e-books were circulated, which represents a 12.6 percent use rate of the collection. The declining circulation can be attributed to the change in the collection's marketing. During the rollout phase in 2002–2003, an extensive marketing campaign was conducted. The marketing lessened in the second year, and was discontinued in the subsequent years. The current use rate is driven by information-seeking behavior rather than curiosity-satisfying behavior. However, when comparing the use rate of the book collections to the e-book collection, the e-book use rate exceeds the book use rate. In 2005–2006, the use rate of the e-book collection was 12.6 percent as compared to 8.8 percent for the book collection.

Research

During the spring 2006 semester, the university libraries surveyed students, faculty, and staff about their use of e-books. The survey was conducted in order to understand their perspectives on using e-books to conduct research, as textbooks, and for leisure reading. The e-book collection had been available to the university for

Table 1: Preference of students, faculty, and staff for using e-books to conduct research.

	Hardcopy		E-Books		No Preference		No Response		Total	Ratio B/E
Participant	No.	%	No.	%	No.	%	No.	%	No.	
Students	85	56.3	37	24.5	20	13.2	9	6.0	151	2.3
Staff	16	57.1	6	21.4	5	17.9	1	3.6	28	2.7
Faculty	20	80.0	2	8.0	2	8.0	1	4.0	25	10.0
Total	121	59.3	45	22.1	27	13.2	11	5.4	204	2.7

four academic years. The NetLibrary™ system provided use numbers, but the university libraries was interested in understanding the intent of the use, particularly whether the e-books were being used for research, study, or leisure reading.

Methodology

A simple survey was developed using the Survey Monkey website. The survey contained 10 questions. The initial questions were designed to collect demographic information about the respondent. The secondary set of questions was designed to prevent respondents from answering the key questions if they had not used an e-book. The final three questions were the main elements of the survey, which asked their preference for using e-books versus books to conduct research, for use as a textbook, and for leisure reading. The survey was administered the last week of the spring semester. The survey was advertised across campus with posters, on Kwik Chek (a university-wide communication system), and on the university libraries' website. The front page of the university libraries' website was supplanted with a page inviting all students, faculty, and staff to participate in the survey.

Results

There were a total of 204 completed surveys, of which students completed 151 surveys, faculty members completed 25, and staff members completed 28. This represents approximately 10 percent of the full-time student population, 25 percent of the full-time faculty, and 18 percent of the staff.

Using E-Books to Conduct Research

Students indicated that they prefer to conduct research using books at a 2.3 to 1 ratio to e-books, with 85 (56.3%) of the students indicating a preference for books, 37 (24.5%) indicating a preference for e-books, 20 (13.2%) indicating no preference, and 9 (6.0%) not responding. Faculty indicated that they prefer to conduct research using books at a 10 to 1 ratio to using e-books, with 20 (80.0%) of the faculty indicating a preference for books, 2 (8.0%) indicating a preference for e-books, 2 (8.0%) indicating no preference, and 1 (4.0%) not responding. Staff indicated that they prefer to conduct research using books at a 2.7 to 1 ratio to using e-books, with 16 (57.1%) of the staff indicating a preference for books, 6 (21.4%) indicating a preference for e-books, 5 (17.9%) indicating no preference, and 1 (3.6%) not responding (see table 1).

Using E-Books as a Textbook

Students indicated that they prefer textbooks to be in book format at a 3.6 to 1 ratio to using e-books, with 102 (67.5%) of the students indicating a preference for books, 28 (18.5%) indicating a preference for e-books, 12 (7.9%) indicating no preference, and 9 (6.0%) not responding. For the faculty, it is not possible to give a ratio because none of the faculty indicated a preference for e-books; however, one faculty member indicated no preference for either. Thus, 23 (92.0%) of the faculty indicating a preference for books, 0 (0.0%) indicating a preference for e-books, 1 (4.0%) indicating no preference, and 1 (4.0%) not responding. Staff indicated that they prefer textbooks to be in book format at a 9.5 to 1 ratio to using e-books, with 19 (67.9%) of the staff indicating a preference for books, 2 (7.1%) indicating a preference for e-books, 6 (21.4%) indicating no preference, and 1 (3.6%) not responding (see table 2).

Using E-Books for Leisure Reading

Students indicated that for leisure reading they prefer using books at a 30.3 to 1 ratio to using e-books, with 121 (80.1%) of the students indicating a preference for books, 4 (2.6%) indicating a preference for e-books, 17 (11.3%) indicating no preference, and 9 (6.0%) not responding. For the faculty, it is not possible to give a ratio because none of the faculty indicated a preference for e-books; however, one faculty member indicated no preference for either. Thus, 23 (92.0%) of the faculty indicating a preference for books, 0 (0.0%) indicating a preference for e-books, 1 (4.0%) indicating no preference, and 1 (4.0%) not responding. Again, for the staff,

Table 2: Preference of students, faculty, and staff for using e-books as textbooks.										
	Hardcopy		E-Books		No Preference		No Response		Total	Ratio B/E
Participant	No.	%	No.	%	No.	%	No.	%	No.	
Students	102	67.5	28	18.5	12	7.9	9	6.0	151	3.6
Staff	19	67.9	2	7.1	6	21.4	1	3.6	28	9.5
Faculty	23	92.0	0	0.0	1	4.0	1	4.0	25	
Total	144	70.6	30	14.7	19	9.3	11	5.4	204	4.8

it is not possible to give a ratio because none of the staff indicated a preference for e-books; however, three staff members indicated no preference for either. Thus, 24 (85.7%) of the staff indicating a preference for books, 0 (0.0%) indicating a preference for e-books, 3 (10.7%) indicating no preference, and 1 (3.6%) not responding (see table 3).

Conclusions

Overall, the students, faculty, and staff overwhelmingly indicated a preference for using books for conducting research, as textbooks, and for leisure reading. However, similar to the conclusions drawn in the literature review, students are more receptive to using e-books to conduct research and to using an e-book as a textbook. Faculty are much less receptive to using e-books for either of these purposes. Again, similar to the conclusions drawn in the literature review, all three groups indicated a preference for reading books for leisure reading.

Observations

Use Patterns

Use of e-books is driven by course requirements and because the desired title is only availability in e-book format. In October 2006, the university libraries conducted a review of use patterns of the top 20 circulating titles in the e-book collection. Two distinct identifiable patterns were discerned. First, each of the e-books on the list could be linked to specific course requirements. For example, the top item on the list is a gardening book, which one might conclude was being read for personal use. In reality, this title is used by students to complete a biology course assignment on insects. Second, students were forced use the e-book because the university libraries does not provide access to that item in hardcopy format. Only one of the titles in the top 20 list is accessible in book format. An excellent example is the access provided to CliffsNotes. The university libraries' collection development policy prohibits the purchase of CliffsNotes; however, one of the shared collections included a significant number of CliffsNotes. Students only had access to the CliffsNotes in e-book format. There are three CliffsNotes listed in the top 20, which are related to specific English course assignments (see table 4).

Reading Patterns

Just as students rarely read an entire book to complete an assignment, they are less likely to read any significant portion of an e-book. Students use the search features in the e-book system to find terms of interest. Students may only read a small portion of the text before deciding the material is pertinent to their topic of interest. Therefore, it is rare to find a student who has read an e-book cover-to-cover. As noted in the research section, since the e-book system facilitates locating desired terms in a collection of e-books, and the reader can bypass the author's structured arguments to read only a sentence or two of the "pertinent" section, little if any critical thinking has occurred. A question to consider is: how much does the reader read before quoting an author as supporting their position, and does the author actually support the reader's argument? This is a research question left to another project.

Table 3: Preference of students, faculty, and staff for using e-books for leisure reading.										
	Hardcopy		E-Books		No Preference		No Response		Total	Ratio B/E
Participant	No.	%	No.	%	No.	%	No.	%	No.	
Students	121	80.1	4	2.6	17	11.3	9	6.0	151	30.3
Staff	24	85.7	0	0.0	3	10.7	1	3.6	28	
Faculty	23	92.0	0	0.0	1	4.0	1	4.0	25	
Total	168	82.4	4	2.0	21	10.3	11	5.4	204	42.0

Table 4: Top 20 Accessed E-book Titles, 2002-2006.

Rank	Uses	Title	Pub. Year
1	167	*The Gardener's Bug Book: Earth-safe Insect Control*	1994
2	154	*A Commentary On the Plays of Sophocles*	1991
3	145	*Tragedy in Athens: Performance Space and Theatrical Meaning*	1997
4	143	*Introduction to Library Public Services*	1999
5	134	*Tragedy and Civilization: An Interpretation of Sophocles*	1999
6	133	*A Dictionary of Scientists*	1999
7	111	*Musical Design in Sophoclean Theater*	1996
8	109	*Floods: Physical Processes and Human Impacts*	1998
9	107	*The Complete Idiot's Guide to Astronomy*	1999
10	89	*The Chosen: Notes*	1999
11	87	*The History of Baseball*	2000
12	82	*Tragedy and Enlightenment: Athenian Political Thought and the Dilemmas of Modernity*	1997
13	55	*My Antonia: Notes*	1997
14	49	*Best Dives of the Caribbean*	1998
15	41	*Distance Learning Technologies: Issues, Trends, and Opportunities*	2000
16	40	*Adult Learning and Development: Perspectives From Educational Psychology*	1998
17	36	*Bipolar Disorders: A Guide to Helping Children & Adolescents*	2000
18	35	*American Railroads*	1997
19	32	*Hurricane Andrew, the Public Schools, and the Rebuilding of Community*	1995
20	31	*King Oedipus, Oedipus At Colonus, Antigone: Notes, Including Introduction and Backgrounds*	1965

Future

What is the future of e-books? What do libraries need to do to be prepared for the future? Is there an easy answer for the prognosticator? There are five concepts that will help in understanding the future of e-books and how academic libraries should plan to handle that future. The concepts are the relative advantage of e-books over books, the current adoption rate of e-books, cultural norms, publishers' business models, and the understanding that e-books are not competing with books. The first three concepts are extracted from the Diffusion of Innovation (DOI) theory (Rogers 2003). The DOI theory reveals key concepts about how innovations, such as e-books, spread through a population, such as higher education students. The DOI theory addresses the characteristics of the innovation that influence the adoption of an innovation, the rate of adoption process, and the concept of forced adoption that will be helpful in understanding the future of e-books. The last two concepts, concerning publishers' business models and competition with books, are extracted from the current discussions taking place in the literature. Based on these concepts, academic libraries can make some better business decisions regarding e-books.

Relative Advantage of E-Books over Books

The DOI theory identifies five basic characteristics about an innovation that influence the rate of adoption by potential users as relative advantage, compatibility, complexity, trialability, and observability. In the case of e-books, the most significant characteristic is relative advantage. Each of the other characteristics may impact the adoption rate of e-books, but their impact can be easily minimized by the e-book publisher whereas relative advantage tends to be influenced by the user's perspective, and cannot be easily overcome. Rogers defines relative advantage as "the degree to which an innovation is perceived as better than the idea, practice, or object that it supersedes" (Rogers 2003). Rogers further states that "innovations that are perceived by individuals as having greater relative advantage, compatibility, trialability, and observability and less complexity will be adopted more rapidly than other innovations" (Rogers 2003).

Do e-books have a greater relative advantage than books? The simple answer is both yes and no. Yes, e-books have a greater relative advantage because they are digital, portable, searchable, scalable, etc. No, e-books have less relative advantage because they are hard on the eyes, not easy to read, lack portability, are tied to the computer screen's location, etc. Portability is listed on both sides of the argument depending on the system. However, we must look at relative advantage from the perspective of the user. The research gives some clues to the perspective of the users. As stated earlier, the early

research indicated that students were not embracing e-books. The later research indicates students are using e-books.

One of the differences between the early research and the later research was the purpose for which students were using e-books. E-book designers created their systems with the intent of providing access for reading. However, students have been using the systems to conduct research, not to read. In essence, students are using e-books, not for their originally intended purpose, but for the purpose that makes e-books advantageous to them. Instead of using e-books for reading, students are embracing e-books as a tool for research. As noted in the literature review and the research conducted at SBU, students and faculty prefer to read hardcopy text, rather than e-books. Students in particular seem to be interested in having access to e-book collections to search for "relevant" concepts across a large collection of e-books, which is very similar to how students use electronic journals. Journal aggregators intended to provide access to electronic journals on the premise of reading online. Users have adapted that access to conduct research, but normally choose to print the article for reading. Likewise, it is not uncommon for students at SBU to find an e-book title that meets their search requirements, and then ask alibrarian if the hardcopy is available.

Current Adoption Rate of E-Books

The second concept the DOI theory lends to the understanding of e-book adoption is the rate of adoption. The rate of adoption is the relative speed with which an innovation is adopted by members of a social system. It is generally measured as the number of individuals who adopt a new idea in a specified period of time, such as a year. So, the rate of adoption is a numerical indicator of the steepness of the adoption curve for an innovation. (Rogers 2003)

Adopters can be segmented into categories based on their willingness to adopt an innovation. Rogers defines the five adopter categories as innovators, early adopters, early majority, late majority, and laggards. Innovators represent the first 2.5 percent of adopters, early adopters the next 13.5 percent, early majority the next 34 percent, late majority the next 34 percent, and laggards the last 16 percent (Rogers 2003).

To define reading e-books in their entirety as the threshold indicator that a person has adopted e-books, then, based on the research presented above, e-book adoption is still in the innovator stage. To define using e-books for research as the threshold indicator that a person has adopted e-books, then perhaps we have moved to the beginning of the early majority stage. In either case, the reading or use of e-books has not progressed to the point of being a mainstream activity.

Cultural Norms

Rogers indicates that the adoption of an innovation tends to be stymied when the innovation is incompatible with cultural values (Rogers 2003). Cultural values can be conscious and unconscious norms to which a person adheres. These norms can be as important as strongly held religious beliefs that affect the core values of a person to as simple as personal etiquette, such as where the fork appears on the dinner table. In regards to e-books, there seems to be an unconscious norm in Western culture. From an early age, little children are taught to read books. It is ingrained into our culture to value reading books. At the same time, the value of books is ingrained into our society. Why else are people willing to pay thousands to millions of dollars for a first edition copy of a book? The widespread adoption of e-books will have a difficult time overcoming these cultural norms. There must be an overwhelming advantage presented by e-books to overcome the book's hold on culture.

Publishers' Business Models

Perhaps the most interesting development occurring with e-books is the changing business models of book and e-book publishers alike. Publishers are focusing their e-book marketing efforts towards academia because there is a rising demand for e-books in academic libraries.[1] The demand for e-books in other market segments continues to be flat and/or declining. As a result, publishers are focusing their efforts in the market where a demand exists. However, a simple contrast in book and e-book sales will quickly clarify the direction publishers are truly focusing. There was a 23 percent upswing in international e-book sales from 2004 to 2005, to approximately $12 million; however, the revenue for the U.S. book market was between $25.1 and $31.6 billion (Crawford 2006). E-books sales are not driving publishers' profit margins. These sales figures also indicate the adoption rate of e-books continues to be small.

E-Book Competition with Books

There seems to be a widespread perception that e-books will supplant books. However, this perception is proving to be incorrect. As the numbers above indicate,

the book is still the medium of choice for reading. E-books are still considered a distant threat to books with some concern that e-books will become the neglected medium because of sluggish markets (Parolini 1999). Most people indicate a preference for reading hard-copy materials rather than digital materials. Until this trend changes, e-books will not be a viable competitor to books.

Planning for the Future

The concepts of relative advantage, the rate of adoption, cultural norms, publishers' business models, and e-books' noncompetition with books help us to understand the real value of e-books to students and faculty. E-book collections have a stronger relative advantage than do individual e-books because of the capability to search through a collection of materials. E-book users have adapted the original purpose of e-books from a reading tool to a research tool; therefore, the more e-books that are available in a collection, the more useful the tool. The overall adoption rate of e-books indicates that purchasing e-books to provide access to individual titles for reading is not as useful as purchasing collections of e-books for the purpose of research. Cultural norms in Western society concerning reading will make the widespread adoption of e-books for reading a very slow process. If academic libraries purchase e-book systems for the purpose of reading, and not as a research tool, the use rate will be relatively small. Academic libraries also need to be aware that publishers see the academic library as the most viable market for e-books; therefore, expect the marketing of e-books to academics to increase. Finally, academic libraries must realize that e-books and books are not competing for use; therefore, transferring book purchasing funds to e-books is not a viable option. Funding for both formats is required with the focus squarely residing with books, not e-books. Currently, e-books must be viewed as a supplement to the book collection, not as supplanting the book collection.

How should academic libraries plan for the future use of e-books? First, recognize that e-books and books are not an either-or, but a both-and decision. When the choice has been made to purchase e-books, do not expect to reduce the book budget. Students and faculty will continue to use books as their primary reading medium. Second, when choosing to purchase e-books, the system must have a collection of e-books available and must be searchable. Third, do not expect your students and faculty to read an e-book cover-to-cover. If they wish to read an entire monograph, expect them to read a book, not an e-book. In all of this, expect exceptions.

Conclusions

The current research, SBU's experience, and the five discussed concepts of the future indicate that e-book use in higher education is viable. Academic libraries seeking to purchase an e-book collection can find ample evidence that if they do "build it" (provide access to an e-book collection), students will come (use it). Students are beginning to embrace the use of e-books for the purpose of conducting research and are receptive to using e-books as a textbook, but students are still hesitant to embrace e-books as the primary format for leisure reading. However, when students conduct research using e-books, this does not equate to reading an e-book. On the other hand, faculty are much less receptive to using e-books for any of these purposes. For academic libraries evaluating the possibility of adding e-books to their collections, they must face the reality that e-books will not replace the need for purchasing books. Books, rather than e-books, are still the primary format for reading text.

The future of e-books appears to be a slow, steady growth pattern, not an explosive overtaking of the book market. The relative advantage of reading e-books versus reading books is insufficient to cause the widespread adoption of e-books as the primary format for reading. The current adoption rates indicate that e-book use is still in the preliminary adoption stages, not in widespread adoption. The cultural norm of reading books is so ingrained that reading e-books has a significant hurdle to leap before becoming the reading format of choice. Academic libraries are e-book publishers' primary market. E-books have a strong relative advantage to books in a research environment; therefore, academic libraries have a use for e-books that is not relevant to other markets. Finally, e-books are not in competition with books. With these forces at work, e-books will have a slow adoption rate that may take more than one generation to overcome.

Notes

1. These statements are based on personal notes of conversations with eight book and e-book publishers in the exhibit hall at the ACRL 12th National Conference in Minnesota in 2004. The vendors were not interviewed for this paper. However, each of the publishers indicated that the market for e-books outside of academic libraries was very limited;

therefore, their company was focusing their marketing efforts towards academic libraries.

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Usersâ€™ perceptions of e-books include their awareness of e-books as a resource, their attitude and preference of using e-books (or not). Awareness, attitude, and preference jointly affect usersâ€™ intentions to use e-books, which translates into the discovery and actual use. In the discovery phase, users search for relevant e-book titles and identify the ones for further examination. The results of discovery may affect usersâ€™ perception of e-books as a potential resource.Â We recruited 12 participants (two faculty members, three undergraduate students, two master students, and five doctoral students) at Purdue University for the user tests. There are three male and nine female participants, with an average age of 30.3 years and standard deviation of 9.7. E-books revisited: Surveying student e-book usage in a distributed learning academic library 6 years later. Journal of Library Administration, 50(5/6), 543-569. doi:10.1080/01930826.2010.488600. de Oliveira, S. (2012). E-textbooks usage by students at Andrews University: A study of attitudes, perceptions, and behaviors. Library Management, 33(8/9), 536-560. doi:10.1108/01435121211279894. Estelle, L., & Woodward, H. (2009).Â Faculty and student perceptions of using e-books in a small academic institution. Paper presented at ACRL Thirteenth National Conference, Baltimore, MD. Weisberg, M. (2011). students perceive learning to program in an object-oriented style to be, how well they actually learn object-oriented programming (OOP) and how well they .....Â Paper ID #7930. Faculty and Student Perceptions of Project-Enhanced Learning in Early Engineering Education: Barriers, Benefits, and Breakthroughs Prof.Â Dr. Helfenbein has published and edited numerous research articles and book chapters about contemporary education analysis in urban contexts in journal such as Curriculum Inquiry, the Journal of Curriculum Theorizing, Educational Studies, The Urban Review, the Review of Education, Pedagogy, and Cultural Studies, and co-edited the volumes Unsettling Beliefs: Teaching Theory to Teachers (2008) and Ethics and International Curriculum Work: The Challenges.