Conflict and Consensus—Clusters of Opinions on E-books

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Abstract

Q methodology was used to determine attitudes and opinions about e-books among a group of faculty, graduate students, and undergraduates at Miami University. Oral interviews formed the basis for a concourse of opinion statements concerning e-books versus print. These statements were then ranked by a second group of research participants. Factor analysis of these rankings found four distinct factors that outline clusters of opinions. These factors were characterized as "Book Lovers", "Technophile", "Researcher-Focused" and "Interface Issues". Each of these factors represents a group of individuals with specific attitudes and opinions (both positive and negative) regarding e-books and their usage.

Introduction

Budgetary and physical space constraints have forced increased adoption of electronic books (e-books) by academic libraries of all types and sizes. This shift in collection development, however, has not been without controversy. Research shows that many library patrons resist e-books. The present study will examine user attitudes about e-books, in order to better understand the source of this resistance. In order to accomplish this task, we employed Q methodology, a research method that combines qualitative and quantitative methods to analyze subjects' attitudes about a given topic. We believe that a better understanding about library patrons' beliefs can inform our policies in implementing e-books as a major part of our collection. Additionally, the components of constituents' reluctance related to e-book usage can guide the transition to electronic texts; everything from types of texts most suited to e-books to selecting specific technologies and interfaces, can be shaped by this additional knowledge. Finally, examining users' attitudes about e-books can guide library instruction and outreach related to this change in the provision of this most core of library services.

Literature Review

The literature on electronic books extends back at least as far as Bush's proposition of the Memex in

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1945, and the early implementation of electronic text with Project Gutenberg in 1971. Prior research on attitudes, interest, and perceptions towards e-books has indicated a complex landscape of user opinion and knowledge about the medium. Some surveys have indicated generally positive views of electronic books, while others have demonstrated quite negative responses to the medium amongst users and potential users.

The recent Ebrary surveys of librarians, faculty, and students are one high profile effort to investigate user and stakeholder attitudes towards e-books.[1] The 2007 survey of 583 librarians indicated a lukewarm adoption of e-books by library customers, slowed by issues including lack of awareness and familiarity amongst potential users, complex and unfriendly interfaces, poor physical portability of e-books, and problematic business models for sales/subscription of these resources. Fifty-nine percent of librarians indicated that their e-book collection usage was "poor" to "fair." Results of the faculty survey were largely consistent with this, with only 54% of faculty indicating they use e-books in research, class preparation, or instruction, well below usage rates for other library media. The final Ebrary survey of undergraduate and graduate students found many of the same themes, including lack of awareness and concerns over readability, with about one third of participants unaware that their academic libraries had e-books available for use. Similarly, Cynthia Gregory's survey of undergraduates at the College of Mount St. Joseph indicated a preference for print book format amongst their population, with 66% preferring to use a print format if both were available.[2] However, 89% of respondents indicated they would use an e-book if that was the only format available.

Much research on e-book use has tended to focus on the analysis of library usage data. Carol Ann Hughes and Nancy L. Buchanan's "Use of Electronic Monographs in the Humanities and Social Sciences" represents one of the earliest studies done by a vendor.[3] The study was conducted in early 2001 and investigated search patterns and book usage for Questia humanities and social science titles. While preliminary in its approach, their study did suggest that readers were willing to read substantial amounts of text online. Nancy J. Gibbs used data from netLibrary to examine usage patterns over a course of a year, and found that particular types of books were used

at predicable points in an academic term.[4] Marilyn Christianson analyzed usage data from five institutions subscribing to netLibrary, finding patterns of high use for a small number of titles, followed by long tails of less frequent use.[5] She also noted that titles in the natural and applied sciences were used more heavily than those in the humanities and traditional social sciences.

Several studies have furthered the investigation of e-book usage by comparing print and electronic usage of the same title. Justin Littman and Lynn Silipigni Connaway conducted a study using Duke University usage figures that compared circulation figures for print titles against netLibrary use data, and found that electronic versions are used more than the print.[6] In all cases, however, these studies have focused more on objective usage data, while unable to ascertain more subjective information about why patrons choose to use (or not use) e-books in the first place.

Q Methodology

Q methodology is a research method used to study people's subjectivity or point of view. In a nutshell, a Q study involves three basic procedures. First, a set of opinion statements about some topic of interest are collected. Next, individuals read the statements, react to them, and sort them along a continuum of preference (usually from "agree" to "disagree"). This operation is known as a Q sort. It is in the ranking of the statements from an individual's own point of view that subjectivity is brought into the picture. Lastly, once viewpoints are modeled in Q-sorts, data are analyzed, typically using a statistical technique called factor analysis. Factors that emerge from the analyzed Q sorts indicate segments of subjectivity and represent points of view. Factor scores are also calculated to aid in the task of understanding.

Q methodology was introduced in 1935 in a letter to *Nature* written by William Stevenson, a British physicist and psychologist.[7] Today, Q methodology is a widely adopted method to investigate subjectivity. In the field of academic librarianship, however, Q methodology is relatively unknown. Dick and Edelman report how a Q sort was used as a technique to prioritize journal titles as candidates for possible cancellation.[8] Shrimplin and Hurst used Q methodology to investigate reference librarians and their perceptions of virtual reference.[9] This preliminary study uses Q methodology to address the following questions:

1) What are the reasons some library users choose to use or not use e-books?; 2) do different patrons have different reasons for their selection or rejection of e-books as a technology; and 3) do some users' negative attitudes about e-books stem from issues that can be addressed by changes in library services?

Methods

The opinion statements selected for a Q sort are drawn from what is called a "concourse." A concourse can be understood as the conversation surrounding a topic or issue. There are a number of ways to capture a concourse. Typically, interviews are undertaken to collect views on a topic. This study conducted 17 in-person interviews with faculty and students, both at the graduate and undergraduate level. The interviews were conducted between November 2007 and February 2008. Interviews were transcribed and over 200 opinion statements were extracted. To reduce the opinion statements to a manageable number yet ensure that those selected were representative of the overall collection, 45 statements were chosen according to the design framework presented in Table 1.

In spring 2008, Miami faculty and students (undergraduates and graduates alike) were invited to participate in the next stage of the research, the Q sort. Advertisements were strategically placed throughout campus. Individuals who were interested in participating in a Q sort were scheduled for a 30 to 45 minute time slot. At the beginning of the Q sort, participants were given a letter describing the study, a consent form to be signed and returned, and a deck of 45 statements about e-books. Also included in the packet was a step-by-step guide for how to sort the statements (known as a "condition of instruction") and a score sheet to record the order of the statements. They also completed a short questionnaire about their demographic information and online research habits. A total of 74 Q sorts were completed.

Data Analysis

Using PQMethod, a statistical program tailored to the requirements of Q studies, each Q-sort was intercorrelated with the others and a 74 x 74 correlation matrix was factor analyzed using the Principal Component method. Four unrotated factors were extracted and rotated using a varimax rotation. McKeown and Thomas provide an excellent description of the statistical procedures used in Q methodology.[10] Factor scores were then computed for all four factors to reveal clusters of opinion. In this context, a factor represents a group of individuals who have Q-sorted the 45 statements essentially in the same way, thus demonstrating a distinctive viewpoint toward e-books.

Observations

A total of 74 persons sorted the 45 statements according to their degree of agreement or disagreement into a forced distribution grid that resembles a normal bell-shaped curve. Table 2 presents the rotated factor matrix and suggests that the four factor solution is adequate given that 50 of the 74 Q sorts loaded significantly on only one factor. A factor loading is a measure of how saturated a subject is on a given factor. Loadings in excess of +/- 39 are significant at the .01 level and are placed in parentheses for convenience. While the authors can make no claim that the four factors brought to light here are exhaustive of all possible points of view, they do represent four distinctive ways of thinking about e-books that exist among Miami faculty and students.

The factor analysis of the 74 faculty and students revealed four factors or attitudinal typologies: Book Lovers (Factor 1), Technophile (Factor 2), Research-Focused (Factor 3), and Interface Issues (Factor 4). Labels are attached to the factors to enhance understanding of each groups' attitudes toward e-books. A description of each group is given below. Each factor represents a group of people who think similarly about e-books. These descriptions and their labels were derived by looking at the Q sorts that help define each factor. To further aid in the interpretive process, an idealized Q sort can be computed for each factor that represents how a hypothetical individual loading 100% on a factor would order the 45 statements. In Table 3, the authors report the scores of all 45

TABLE I				
Design Framework for Q-Sample Composition				
	Main Effects	Levels		
A.	Issues	(a) Readability	(b) Access	(c) Task
B.	Direction	(d) Pro	(e) Mixed	(f) Con
Note: Each of the nine cells in the AxB (3x3) factorial framework is fitted with five statements for a total Q-sample of n=45				

	Factor Loading*				Selected Characters		
Subjects	Factor 1	Factor 2	Factor 3	Factor 4	Major 1	Status	Gender
				TABLE 2 **Factor Matrix: eBook Study**			
1	(65)	-23	11	(40)	Psychology	Undergrad	Female
2	38	-03	(47)	(43)	Psychology	Undergrad	Female
3	(46)	(44)	14	(54)	Math Education	Undergrad	Female
4	(56)	0	37	-24	Psychology	Undergrad	Male
5	(71)	24	15	-11	Bio Chemistry	Undergrad	Female
6	(75)	09	25	10	Anthropology	Undergrad	Male
7	(48)	(42)	28	(50)	Zoology	Undergrad	Female
8	(65)	09	34	17	Electrical Engineering	Undergrad	Male
9	35	-06	34	(67)	Chemistry	Undergrad	Female
10	(48)	(56)	-15	05	Psychology	Undergrad	Female
11	05	(55)	23	07	Chemistry	Undergrad	Male
12	-13	(72)	-11	04	Economics	Undergrad	Male
13	(68)	24	17	(45)	German Lang	Undergrad	Female
14	(59)	30	-18	24	Psychology	Undergrad	Female
15	11	(55)	31	04	Chemistry	Grad Student	Female
16	12	(59)	35	14	Chemical Engineering	Undergrad	Male
17	(61)	-01	30	38	English Literature	Undergrad	Female
18	(53)	(-42)	02	24	Psychology	Undergrad	Male
19	(74)	08	-09	33	Psychology	Undergrad	Male
20	34	-06	05	(71)	Psychology	Grad Student	Male
21	21	(71)	07	08	Speech Communication	Undergrad	Male
22	(64)	01	23	32	Microbiology	Undergrad	Female
23	(77)	-11	-09	06	Music	Undergrad	Female
24	(74)	-04	14	18	Western	Undergrad	Female
25	(41)	27	08	(47)	Psychology	Grad Student	Female
26	05	(61)	(46)	13	Finance	Undergrad	Male
27	25	(67)	03	19	Finance	Undergrad	Male
28	22	(48)	-21	(45)	Marketing	Undergrad	Female
29	33	21	(52)	12	Psychology	Undergrad	Male
30	-25	(79)	02	-19	Journalism/IMS	Undergrad	Male
31	(62)	-01	27	22	Psychology	Undergrad	Female
32	(60)	13	27	26	Family Studies	Undergrad	Female
33	(74)	-21	30	05	Zoology	Undergrad	Female
34	25	23	-06	(64)	Psychology	Undergrad	Female
35	(52)	-26	-24	25	Psychology	Undergrad	Female
36	-13	(69)	35	07	Mass Communication	Undergrad	Female
37	03	(54)	33	37	Zoology	Undergrad	Female
38	(52)	(39)	01	22	Business	Undergrad	Male

	TABLE 2 **Factor Matrix: eBook Study**						
	Factor Loading*				Selected Characters		
Subjects	Factor 1	Factor 2	Factor 3	Factor 4	Major 1	Status	Gender
39	(68)	-04	22	22	Anthropology		Female
40	38	17	38	17	Exercise Science	Undergrad	Male
41	15	(76)	07	-25	Public administration	Undergrad	Male
42	00	(46)	-18	20	Communication	Undergrad	Female
43	(47)	09	08	38	Accountancy	Undergrad	Female
44	(54)	28	26	26	Accountancy	Undergrad	Female
45	(58)	(-45)	02	22	Nursing	Undergrad	Male
46	(80)	-07	13	11	Spanish	Undergrad	Female
47	(83)	06	03	28	Accountancy	Undergrad	Male
48	(42)	(55)	30	02	Psychology	Grad Student	Female
49	-35	(66)	15	13	Clinical Psych	Grad Student	Male
50	12	(62)	36	25	Chem&Paper Engineering	Grad Student	Male
51	(48)	-08	23	(47)	EDL	Grad Student	Female
52	(70)	-08	-09	32	EDL-CS program	Grad Student	Female
53	(70)	09	-05	22	College student personnel	Grad Student	Female
54	(45)	10	05	10	Psychology	Faculty	Male
55	(39)	26	(45)	34	Psychology	Grad Student	Male
56	01	(81)	02	05	Bio Chemistry	Grad Student	Male
57	(71)	-08	10	36	EDL	Grad Student	Female
58	(69)	-01	18	-04	Communication	Staff	Female
59	15	18	(61)	20	English	Grad Student	Female
60	(60)	(-55)	17	33	English	Grad Student	Female
61	(58)	19	(41)	30	English	Faculty	Female
62	30	(58)	20	27	Computer Science	Faculty	Male
63	(55)	31	38	14	Chemistry		Male
64	(65)	-14	11	16	History	Faculty	Male
65	19	22	(67)	-03	Spanish	Grad Student	Male
66	25	(65)	-12	10	Accountancy	Grad Student	Male
67	(47)	(-42)	11	-06	Political Science	Grad Student	Male
68	08	(53)	26	-16	English	Grad Student	Male
69	(72)	24	17	22	Sociology	Faculty	Male
70	(45)	15	16	(54)	Microbiology	Grad Student	Male
71	14	(50)	21	(59)	Microbiology	Grad Student	Male
72	(48)	18	(41)	-09	Family Studies	Faculty	Female
73	(50)	-04	(46)	35	Sociology	Faculty	Male
74	(46)	(48)	16	(54)	Sociology	Faculty	Female
Loadings in parentheses significant (p < .01).							

TABLE 3 Statement Scores for Each Factor				
Statement	Factor Arrays			
	1	2	3	4
1—Electronically, I can go back and forth a lot faster. My intellectual process flows more smoothly with the electronic copy.	-4	+1	+2	-5
2- Thrilled so many books are available on-line, I can do research without moving from my desk.	-2	+4	+2	+1
3—There are certain books that I have passed by, because there was not an electronic resource of it, because I did not want to tote another thing in my bag.	-4	-1	-5	0
4—Reading off of a monitor is just as easy as reading off of paper; it would be great for me.	-5	+1	0	-5
5—I should use more e-books, but I do not see them or do not notice them very often.	-2	0	-4	0
6—I like curling up with both books and a laptop	-1	0	-3	0
7—E- books are hard to use; it is hard to find a specific thing in the index, I like to just flip through books.	-1	-4	-5	-3
8—I feel like electronic resources will make some students more likely to procrastinate, because they can just get it the night before.	-1	-2	+2	-1
9—There is something about having a piece of paper that you can annotate by hand and always have it with you.	+2	-1	+1	+3
10—If I can get it electronically I would be really happy; it would not disappoint me if there was no paper copy, at all.	-4	0	-3	-4
11—Huge benefit is accessibility.	+2	+5	-1	+1
12—I love that about e-text, that I can do text search.	+2	+4	+5	+2
13—If it was a book I knew I would only skim through, then I would be okay with having e-version, but if it was a book I wanted to read and get a lot of use out of, then I would want the print version.	+4	-1	+4	+3
14—It is hard when there is only one copy of a print book and someone else has it; if everything was on-line then that would not be a problem and everyone could have access to it.	+2	+5	+1	+4
15—There are times when it is beneficial to have paper, so I can write on it, or view it anywhere.	+3	0	+5	+2
16—If had a choice between print and e-book, I would go for print version.	+4	-3	-2	0
17—Makes it easier to accidently plagiarize.	-3	-3	+1	-2
18—When it comes to my leisure reading, I will probably want to have the actual book.	+5	+2	0	+3
19—If I can get an electronic copy, then I would be more likely to use it.	-3	+2	+3	-1
20—It would be time efficient to have books on-line.	0	+3	+2	+2
21—Print books take up so much space and are hard to keep organized.	-3	-2	-3	-4
22—I do not like to just read stuff on-line; I have to print it. So e-books would be good if you could print the stuff out that you needed.	0	-3	0	+5
23—I personally think having e-books would defeat the purpose of having a physical library.	-3	-5	-1	-4
24—If I was on a time constraint, it would be a lot more convenient to have an e-book.	0	+3	0	-1
25—There is just something about sitting down and actually reading a physical book.	+5	0	-2	+1
26—I like to have something more tangible.	+3	-2	-2	-2
27—I feel more of a sense of accomplishment with turning pages than scrolling down.	+1	-3	-3	-3
28—I do not really see a downside to e-books.	-5	+1	-4	-3
29—There are book chapters that I want to have access to; it would be nice to have them instantly.	+1	+3	0	+4

TABLE 3 Statement Scores for Each Factor				
Statement	**Factor Arrays**			
	1	2	3	4
30—I can maximize my time, by filtering out the stuff I don't need.	-2	+2	+3	0
31—If I am looking for a specific chapter in a book, then electronic may be appealing, but I would not want to read an entire book on-line.	+4	-1	+4	+4
32—It would change the way I go about getting information or reading information, but it also means that I can have it immediately.	+1	+2	-1	-2
33—Portability is important.	0	+1	0	0
34—I do not like scrolling through the e-text.	0	-4	-1	+1
35—I really like e-journals, because I can have them right there, I but do not feel the same way about e-books.	+1	-2	+3	-3
36—With eBooks students may have a more difficult time sorting through quality and non-quality.	-2	-4	0	-2
37—If I ran across an e-book, I would use it, especially if I needed it right away. I could then skim it to see if it is something that I could use.	+2	+2	+1	0
38—Students are much less likely to use something that they cannot use immediately. If they have to go to the library or have to wait for something, they will probably not use it as part of their paper.	-1	0	+1	+1
39—Searching would be easier and faster in an e-book.	+1	+4	+3	+2
40—I find that when I am reading material on a computer, I absorb it less. I print it so I can absorb more info and refer to multiple articles at the same time.	+3	-2	-1	+5
41—I would want the library to have ebooks and print books, but if it is only online, than I would just have to deal with it.	-1	0	-2	+2
42—I feel that e-books could be used as more of a reference; as more of an assistant.	0	-1	-2	-1
43 -I am not comfortable reading e-books on line.	-2	-5	-4	-1
44—I have become frustrated when I find something that would be perfect for my research but I cannot get it because I would have to subscribe. I am not confronted with the same problem when I go to the actual library.	0	+3	+2	+3
45—I cannot print entire ebooks, it would cost too much money.	+3	+1	+4	-2

statements in the idealized Q sort for the four factors. This table reveals, in a general way, how Miami faculty and students think about e-books. When analyzing the data, the researcher "listens to the data" and tells the story using a qualitative process. The narrative below aims to capture this story.

Factor One: "Book Lovers"

Book Lovers like print books as physical objects. They believe that "there is just something about sitting down and actually reading a physical book." They privilege the tangible nature of print books and "if [they] had a choice between a print and an e-book, [they] would go for the print version." Leisure reading is very important to them and they cannot imagine reading an e-book for pleasure or curling up with a laptop. They strongly dislike reading off of a computer monitor and find that they don't absorb as much when reading text on the screen. When they use electronic journal articles, they tend print the content before reading but printing an entire e-book would cost too much money. They don't see an improvement in their workflow by being able to move easily back and forth in an electronic text. For academic use, print books have the advantage of portability and the possibility of margin notes. Book Lovers do not feel that the accessibility afforded by e-books makes up for their failings. However, they find the searching functionality of e-books useful if they only require a portion of a book, but they would not want to read an entire book online.

Factor Two: "Technophile"

Technophiles believe that the accessibility and searching afforded by e-books outweighs any losses in tangibility or portability. The ability of having multiple users of a single item appeals to them. They are thrilled that they are able to conduct research without having to make a trip to the library. They find electronic books to be a big time saver, not only due to remote access but also as a result of the ability to ascertain relevancy in a more expedient fashion. Technophiles also extol the searching functionality of e-books, believing that "searching would be easier and faster in an e-book." They have no trouble reading text on the monitor or scrolling through e-texts. Because technophiles do not feel the need to print electronic documents in order to absorb them, the costs involved in printing out an entire e-books is not a concern to them. Although technophiles do not place as much importance on leisure reading as Book Lovers, they do agree that the actual book would be preferable in that case.

Factor Three: "Research-Focused"

Researchers' use of books is focused on academic monographs; leisure reading has little to no role in their assessment of e-books. The feature of e-books that they privilege most is searching for desired content; because their book use tends to be targeted and partial, this feature is of real benefit to them. They also feel that the ability to filter out unrelated content via searching saves them time. However, they like the ability to make notes in the margins of print books. Like Book Lovers, they cannot see themselves reading an entire e-book online, but this belief gets much less weight in their overall assessment of e-books because they rarely consume entire books. However, unlike Book Lovers researchers do not see a problem with reading the desired portions of e-books online. They also have fewer qualms with the usability of e-books and even believe that the ability to move around in the text can have positive effects on their productivity and workflow.

Factor Four: "Interface Issues"

Like Book Lovers, printers have a generally negative view of e-books. However, while Book Lovers rank their desire to have a physical book for leisure reading as one of their strongest statements, Interface Issues state difficulties reading on-screen electronic text as their primary motivation for preferring print books. They find that reading on a monitor is more difficult than reading texts on paper, and that when they are forced to read on-screen they absorb less information. When they do use online library resources they print them, and cost is of little concern to them. In fact, they believe that "e-books would be great if you could print the stuff that you needed." Subscription issues present another usability problem; Interface Issues dislike the lack of access that subscription-based materials sometimes present and feel that physical materials housed in a library do not suffer from this problem. However, Interface Issues do appreciate e-books' ability to be used by more than one simultaneous user. They also like the ability to search in electronic texts, and when a chapter in a book is all that is needed the instant accessibility of e-books is appealing to them. However, they do not believe that the ability to move back and forth in electronic media improves their intellectual process or workflow at all. Although leisure reading is less of a priority, Interface Issues would also want to have a print book for this application.

Discussion

Two of our four factors take a holistic approach in their understanding of e-books. Those in the "Book Lovers" group have an emotional attachment to books as physical objects and will select print over electronic materials despite issues such as availability or ease of access. The opposite can be seen with the "Technophiles," who have a similar attachment to technology. They prize accessibility and on-line searching capabilities and have no problems reading e-books online.

The other two factors are more practical. Those that fall into the "Research-Focused" group appear to be the most pragmatic of the participants, seeing pros and cons to both e-books and print. They like the portability of print books, and the ability to make notes in the margins on hard-copies. However, the ability to search quickly and easily through an e-book or online journal is also highly valued. This is a group that will use either medium willingly, whichever is more available and convenient for the time and place. This is in contrast to those of the "interface issues" factor. They too enjoy the ease of access or searching online, yet they have real difficulties and issues with reading on a computer screen. For this group, an improvement in e-book readers or interfaces might easily convert them to more of a "Research-Focused" or even a "Technophile" way of thinking.

What do these four factors have to say for librarians? The findings from this study give credence to what many libraries (and librarians) have known all along; materials still need to be available in various formats whenever possible. Also, the type of resource dictates the preferable format. Leisure reading, for example is still highly important to many of the study's participants. In all four factors, participants' ranked the statement that they would prefer print books for leisure reading as either positive or neutral. Even the Technophiles gave this a positive ranking. On the other hand, when patrons only need a portion of a title, all four factors see the advantage of the ability to search within electronic texts.

By examining the results of each of these factors, we get a better understanding of methods we can use to improve the adoption and accessability of e-books. For instance, those in the "Research-focused" group would like immediate access to as many online journals and e-books as possible. Ensuring that these online documents are accessible and searchable will go a long way towards pleasing this population. Those with "Interface-Issues" might benefit from improved user interfaces, larger monitors or the availability of emerging display technologies, such as the Kindle. Making sure the e-book interface facilitates printing would assist patrons who lean towards all four factors.

Conclusion

This study uses Q methodology to examine how undergraduates, graduate students, and faculty's attitudes and opinions about e-books. Four distinct factors were identified, each representing a cluster of opinions on e-books. Two of the four factors took a philosophical stance on e-books (one attached to the print book and the other excited about new technologies) while the remaining two were more practical in their assessment. So, while one factor will remain opposed to e-books regardless of improvements in interface and usability, some library patrons who are currently reluctant to use e-books might be persuaded by emerging display technologies.

There is much future research that can be based on this study. One logical step would be to reproduce this study at another institution to see if any of our findings are specific to the Miami University community. The findings of this study could also be incorporated into a traditional large-n survey that would facilitate demographic analysis of opinions on e-books. Finally, usability testing with patrons who fall into factor 4 (Interface-Issues) would be a good group to engage in usability testing of different interfaces and display technologies.

Notes

1. ebrary. *Global Faculty E-book Survey*. 2007; available from http://www.ebrary.com/corp/newspdf/ebrary_faculty_survey.pdf; accessed 30 May 2008; ebrary. *2008 Global Student E-book Survey*. 2008; available from http://www.ebrary.com/corp/collateral/en/Survey/ebrary_student_survey_2008.pdf; accessed 24 June 2008; and ebrary. *ebrary's Global eBook Survey*. 2007; available from http://www.ebrary.com/corp/collateral/en/Survey/ebrary_eBook_survey_2007.pdf; accessed 30 May 2008.

2. Gregory, Cynthia L. "'But I Want a Real Book': An Investigation of Undergraduates' Usage and Attitudes toward Electronic Books." *Reference and User Services Quarterly 47*, no. 3 (2008): 266-273.

3. Hughes, Carol Ann, and Nancy L. Buchanan. "Use of Electronic Monographs in the Humanities and Social Sciences." *Library Hi Tech 19*, no. 4 (2001): 368-375

4. Gibbs, Nancy J. "eBooks Two Years Later: The North Carolina State University Perspective." *Against the Grain 13*, no. 6 (2001): 22-26.

5. Christianson, Marilyn. "Patterns of Use of Electronic Books." *Library Collections, Acquisitions, & Technical Services 29*, no. 4 (2005): 351-363.

6. Littman, Justin, and Lynn Silipigni Connaway. "A Circulation Analysis of Print Books and E-Books in an Academic Research Library." *Library Resources and Technical Services 48*, no. 4 (2004): 256-262

7. Dick, Margaret Jorgensen and Marla Edelman. "Consequences of the Budget Crunch: Using Q Methodology to Prioritize Subscription Cancellations." *Journal of Nursing Education 32* (1993): 181–82.

8. Shrimplin, Aaron; Hurst, Susan. "A Virtual Standoff—A Q Analysis of Virtual Reference." *Evidence Based Library and Information Practice 2*, no. 4 (2007): 3-21.

9. Stephenson, William. "Technique of Factory Analysis." *Nature 136* (1935): 297.

10. McKeown, Bruce, and Dan Thomas. *Q Methodology*. Newbury Park, California: Sage Publications, Inc., 1998.