Contradictions and Consensus—Clusters of Opinions on E-books

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Q methodology was used to determine attitudes and opinions about e-books among a group of faculty, graduate students, and undergraduates at Miami University of Ohio. Oral interviews formed the basis for a collection 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 reveal clusters of opinions on e-books: Book Lovers, Technophiles, Pragmatists, and Printers. Two of the four factors take a more ideological approach in their understanding of e-books: Book Lovers have an emotional attachment to the printed book as an object, while Technophiles feel just as strongly about technology. In contrast, the other two factors are more utilitarian: Printers might find e-books more palatable if usability were improved, while Pragmatists are comfortable with both print and e-book formats.

cademic libraries of all types and sizes have increasingly adopted electronic books (e-books). This shift in collection development has not been without controversy, however. Research shows that many library patrons resist e-books. The present study will examine user attitudes about e-books to better understand the source of this resistance. To accomplish this task, we employed Q methodology, a research technique that combines qualitative and quantitative methods to analyze subjects' attitudes about a given topic. Using this method, we isolated four distinct opinions about e-books: Book Lovers, Technophiles, Pragmatists, and Printers. We believe that a better understanding about library patrons' beliefs can inform decisions relating to e-books, which are becoming 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. Library instruction and outreach related to this potentially large change in our col-

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lection can also be guided by an increased knowledge of attitudes and opinions concerning e-books.

E-Books at Miami University of Ohio

Miami University Libraries are in the early stages of the transition to electronic books. As it currently stands, less than 1 percent of the monograph collection at Miami is e-books. Most of the e-books available to Miami University Libraries' patrons come via the statewide consortium OhioLINK, which has been able to negotiate e-book deals at the publisher level. Our general policy is that if a title is included in one of these deals, we do not purchase it in print. Current participating publishers include Springer, Oxford University Press, ABC Clio, Gale Reference, and Safari Tech Books. Materials from these publishers are loaded locally and made available to OhioLINK patrons via the Electronic Books Center (EBC). The EBC is a platform that allows for onscreen reading as well as limited download capabilities, depending on publisher policies. As the e-book collections have grown, so has usage. During the 2010 spring semester, Miami patrons downloaded 12,226 titles from the OhioLINK EBC. The collection with the highest usage in spring 2010 was Springer, with 8,114 downloads. This compares to that same collection being accessed 4,096 times during the spring 2009 semester, an increase in usage of almost 100 percent. In contrast, the usage remained relatively flat between 2008 and 2009, with 3,929 uses during the 2008 spring semester. This may be an indicator that e-book acceptance is finally taking off.

Literature Review

In contrast to studies based on empirical usage data, research aimed at investigating user opinions and attitudes is inherently limited by self-selection of study participants; however, such work is important to shed light on the underlying reasons for use or disuse of materials in ways usage data analysis cannot. The research literature on user perceptions of e-books is modest in size, given the relative lack of everyday user experience with e-books through most of the last decade. However, within the past several years, a number of academic libraries have reported on studies based on substantive user experiences with some form(s) of electronic books.[1] Several cross-institutional studies provide broader perspectives.[2]

This literature indicates a complex and somewhat contradictory landscape of attitudes and opinions about the medium. While several studies have indicated generally positive views of electronic books, many reflect mixed or quite negative user responses. Some of these differences may be related to the particular types of e-books in question. However, since most studies consider e-books broadly, rather than specify a particular brand or technology, this is unclear. We posit that some of this complexity may indicate that user opinions are more nuanced than simple "like vs. don't like" dichotomies.

Q Methodology

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 patrons differ in their reasons for 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?

Once this information is obtained, it can be used to inform collection development policies related to e-books as well as the purchase of any technology on which to read them.

Q methodology is a research method used to study human subjectivity or a person's own point of view about a topic.[3] In a nutshell, a Q study involves three basic steps. First, opinion statements are collected about a topic of interest. Second, individuals are asked to perform a Q-sort. This operation consists of read-

ing through a set of opinion statements, reacting to them, and then ranking them along a continuum of preference (most typically, from "agree" to "disagree"). It is in the ranking of the statements that a person's own point of view is revealed. Last, completed Q-sorts are analyzed using a statistical technique called factor analysis. Each discrete perspective, or "factor," that emerges from the analyzed Q-sorts indicates shared viewpoints, or segments of subjectivity. Unlike survey research that is concerned with patterns across variables, Q methodology reveals patterns across individuals. Thus, people who help define a factor share a common perspective with one another and distinguish themselves from people who help define other factors. To aid in the interpretive process, numerical factor scores are also calculated.

In the field of academic librarianship, however, Q methodology is not well known. Dick and Edelman report on the use of a Q-sort as a technique to prioritize journal titles as candidates for possible cancellation.[4] In another example, Shrimplin and Hurst used Q methodology to investigate reference librarians and their perceptions of virtual reference.[5] Because Q methodology works with small sample sizes and can be conducted with a relatively small budget, it is well suited to the field of library research. Moreover, in a field where anecdotal evidence is more the norm than hard data, a method that provides researchers with a systematic and quantitative means for examining personal viewpoints has the potential to advance research.

Methods

The opinion statements selected for a Q-sort are drawn from what is called a "concourse." A concourse refers to "the flow of communicability surrounding any topic" in "the ordinary conversation, commentary, and discourse of everyday life."[6] While there are a number of ways to capture a concourse, interviews are typically used to collect views on a topic. This study was begun by conducting 17 in-person interviews with faculty and students (both graduates and undergraduates), between November 2007 and February 2008. These 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. An inductive design was employed in the composition of the e-book Q sample. The dimensions built into the design framework that guided the final assignment and selection of statements were suggested by the statements themselves and were not obvious prior to the interviews.

In spring 2008, Miami faculty and students (undergraduates and graduates) were invited to participate in the next stage of the research, the Q-sort. Subjects were recruited using advertisements placed throughout campus, with each respondent scheduled for a 30- to 45-minute time slot. At the beginning of the Q-sort session, participants were given a letter describing the study, a consent form to be signed and returned, and a deck containing the 45 selected 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. Each participant also completed a short questionnaire concerning demographic information and online research habits.

TABLE 1		
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		

A total of 74 Q-sorts were completed, with all participants receiving $20 for their time. Participants were also asked if they would be willing to be contacted for a follow-up interview, with most agreeing. The 74 Q-sorts were input into PQMethod, a statistical program tailored to the requirements of Q studies, and four factors were discovered. In this context, a factor represents a group of individuals at Miami University of Ohio who have sorted the 45 statements about e-books in essentially the same way, thus demonstrating a distinct viewpoint toward e-books. Following this initial analysis of the Q-sort data, we identified participants who helped define distinct viewpoints regarding e-books and contacted them for follow-up interviews to verify our results. These interviews consisted of open-ended questions designed to solicit a narrative intended to confirm or refute our findings. At the conclusion of these follow-up interviews, each interviewee was shown his or her relevant factor description and asked to respond to it.

Observations
The factor analysis of the 74 faculty and students revealed four factors: Book Lovers (Factor 1), Technophiles (Factor 2), Pragmatists (Factor 3), and Printers (Factor 4). Labels are attached to the factors to enhance understanding of each group's 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 factor loadings for each participant. Table 2 presents the factor loadings for each person that sorted the 45 statements about e-books. A factor loading is a measure of how saturated a subject is on a given factor. Only those Q-sorts that significantly and solely loaded on a given factor were taken to define that factor or distinctive viewpoint regarding e-books. A given Q-sort is considered a defining variate when its loading exceeds statistical significance ($+/–39$, $p < .01$) on

only one factor. As table 2 reveals, 50 of the 74 Q-sorts loaded significantly on only one factor. As presented in table 2, 27 individuals loaded significantly upon the factor labeled Book Lovers, 17 upon the factor labeled Technophiles, three upon the factor labeled Pragmatists, and three upon the factor labeled Printers.

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 percent on a factor would order the 45 statements. In table 3, the authors report the scores of all 45 statements in the idealized Q-sort for the four factors. This table reveals, in a general way, how Miami University faculty and students think about e-books. An idealized Q-sort is used in the interpretative process to help compare and describe the distinctive ways of thinking about e-books at Miami University. It also allows the researchers to view how statements are distinguished from each other across the factors. In interpreting the four factors and their respective viewpoints, it is important to understand that this examination is not done simply by pulling out statements with extreme scores on each of the factors. Researchers need to take into account how the statements are placed in relation to one another in each factor and the comparative placement of statements in the different factors. When analyzing the data, the researcher "listens to the data" and tells the story using a qualitative process. While some items may not add up at the individual statement level, when they are looked at holistically, they do make sense. Follow-up interviews were also conducted with individuals who helped define each distinctive viewpoint. These interviews helped validate the researchers' interpretations of each of the four factors. In the narratives below, which aim to capture this story, the first number in parentheses refers to the corresponding statement in table 3, while the second is that statement's rank.

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" (25: +5). They privilege the tangible nature of print books (26: +3) and "if [they] had a choice between a print and an e-book, [they] would go for the print version" (16: +4). Leisure reading is very important to them and they cannot imagine reading an e-book for pleasure (18: +5). They strongly dislike reading off a computer monitor (4: –5) and find that they don't absorb as much when reading text on the screen and therefore tend to print (40: +3). However, printing an entire e-book would cost too much money (45: +3). They don't see an improvement in their workflow by being able to move easily back and forth in an electronic text (1: –4). For academic use, print books have the advantage of portability and the possibility of margin notes (15: +3). Book Lovers do see accessibility as a positive attribute of e-books, but its benefits do not outweigh the failings of the format (11: +2). 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 (13: +4).

Factor Two: "Technophiles"

Technophiles believe that the accessibility and searching afforded by e-books outweighs any losses in tangibility or portability (11: +5). The ability of having multiple users of a single item appeals to them (14: +5). They are thrilled that they are able to conduct research without having to make a trip to the library (2: +4). They find electronic books to be big time savers (20: +3). Technophiles also extol the searching functionality of e-books, believing that "searching would be easier and faster in an e-book" (39: +4; 12: +4). They have no trouble reading text on the monitor or scrolling through e-texts (22: –3; 27: –3; 34: –4; 43: –5). They also have little trouble navigating e-books (7: –4). Because Technophiles do not feel the need

to print electronic documents to be able to absorb them (22: –3), the costs involved in printing out an entire e-book are not a concern to them (45: +1). Although Technophiles do not place as much importance on leisure reading as Book Lovers, they do agree that a print book would be preferable in that case (18: +2).

Factor Three: "Pragmatists"

Pragmatists' use of books is focused on academic monographs; leisure reading has little or no role in their assessment of e-books (18: 0). The feature of e-books that they privilege most is searching for desired content (12: +5; 39: +3). Pragmatists also feel that the ability to filter out unrelated content via searching saves them time (30: +3). However, they like the portability and the ability to make notes in the margins of print books (15: +5). Like Book Lovers, pragmatists cannot see themselves reading an entire e-book online (31: +4). However, when using only a portion of a book, study participants who fall into this factor do not see a problem with reading the desired portions of e-books online (13: +4; 31: +4). They also have fewer qualms with the usability of e-books (7: –5; 43: –4) and believe that the ability to move around in the text has positive effects on their productivity and workflow (1: +2).

Factor Four: "Printers"

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, Printers state difficulties reading onscreen 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 (4: –5) and that, when they are forced to read onscreen, they absorb less information (40: +5). When they do use online library resources, they print them (22: +5), and cost is of little concern to them (45: –2). In fact, they believe that "e-books would

be great if you could print the stuff that you needed" (22: +5). Subscription issues present another usability problem. This group dislikes 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 (44: +3). However, they do appreciate e-books' ability to be used by more than one simultaneous user (14: +4). When a chapter in a book is all that is needed, the instant accessibility of e-books is appealing to them (13: +3). However, they do not believe that the ability to move back and forth in electronic media improves their intellectual process or workflow at all (1: −5). Although leisure reading is less of a priority for Printers than for Book Lovers, they would also want to have a print book for this application (18: +3).

Discussion

Two of our four factors take a more ideological 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 online searching capabilities, and have no problems reading e-books online.

The other two factors are more utilitarian. Those who fall into the Pragmatists group appear to be the most practical 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 the Printers. 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 Pragmatist or even a Technophile way of thinking.

What do these four factors have to say for librarians? First of all, 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 work, 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 accessibility of e-books. Technophiles, Pragmatists, and Printers all cite searchability as a major strength of e-books. To take advantage of this strength, libraries need to place a high priority on searchability when selecting e-book providers and platforms. Pragmatists would like immediate access to as many online journals and e-books as possible. Ensuring that these online documents are accessible through the catalog will go a long way toward pleasing this population. For Printers, interface is as important as content. Libraries need to consider interface issues when they assess the various e-book platforms. In fact, to a portion of library users, the quality of the interface is as important as the content of e-book collections. Printers might also benefit from larger monitors in the library to improve readability. A device such as the Apple iPad may allow its users to "curl up" with an e-book. For users who dislike reading books on a LCD screen, dedicated e-book readers with Electronic Paper Display (EPD) technology, such as Amazon's Kindle, Barnes and Noble's Nook, or the Sony Reader, might be made available for checkout. Although the consumer-based business models of products of this type

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

	Factor Loadings				Selected Characteristics		
Subject	Book Lovers	Technophiles	Pragmatists	Printers	Major	Status	Gender
38	52	39	01	22	Business	U	M
39	(68)	-04	22	22	Anthropology	M	F
40	38	17	38	17	Exercise Science	U	M
41	15	(76)	07	-25	Public administration	U	M
42	00	(46)	-18	20	Communication	U	F
43	(47)	09	08	38	Accountancy	U	F
44	(54)	28	26	26	Accountancy	U	F
45	58	-45	02	22	Nursing	U	M
46	(80)	-07	13	11	Spanish	U	F
47	(83)	06	03	28	Accountancy	U	M
48	42	55	30	02	Psychology	G	F
49	-35	(66)	15	13	Clinical Psych	G	M
50	12	(62)	36	25	Chem&Paper Engin	G	M
51	48	-08	23	47	EDL	G	F
52	(70)	-08	-09	32	EDL	G	F
53	(70)	09	-05	22	EDL	G	F
54	(45)	10	05	10	Psychology	F	M
55	39	26	45	34	Psychology	G	M
56	01	(81)	02	05	Bio Chemistry	G	M
57	(71)	-08	10	36	EDL	G	F
58	(69)	-01	18	-04	Communication	S	F
59	15	18	(61)	20	English	G	F
60	60	-55	17	33	English	G	F
61	58	19	41	30	English	F	F
62	30	(58)	20	27	Computer Science	F	M
63	(55)	31	38	14	Chemistry	M	M
64	(65)	-14	11	16	History	F	M
65	19	22	(67)	-03	Spanish	G	M
66	25	(65)	-12	10	Accountancy	G	M
67	47	-42	11	-06	Political Science	Status	M
68	08	(53)	26	-16	English	G	M
69	(72)	24	17	22	Sociology	F	M
70	45	15	16	54	Microbiology	G	M
71	14	50	21	59	Microbiology	G	M
72	48	18	41	-09	Family Studies	F	F
73	50	-04	46	35	Sociology	F	M
74	46	48	16	54	Sociology	F	F

TABLE 2
Subjects' Factor Loadings

Statement	Factor Arrays			
TABLE 3 **Statement Scores for Each Factor**				
	Book Lovers	Technophiles	Pragmatists	Printers
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

TABLE 3
Statement Scores for Each Factor

Statement	Factor Arrays			
	Book Lovers	Technophiles	Pragmatists	Printers
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
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

Statement	Factor Arrays			
	Book Lovers	**Technophiles**	**Pragmatists**	**Printers**
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

TABLE 3
Statement Scores for Each Factor

are often not compatible with library circulation practices, perhaps we could work with a vendor to make these types of devices work in the library context. Dedicated E-book readers would also address the portability concerns of Book Lovers, Pragmatists, and Printers. Many e-book readers also allow for note taking, which would also address the Pragmatists' concern over the lack of margin notes in e-books. Finally, making sure that any e-book interface employed by the library facilitates printing would assist patrons who lean toward all four factors.

Conclusion

This study uses Q methodology to examine undergraduates', graduate students', and faculty attitudes and opinions about e-books. Four distinct factors were identified, each representing a cluster of opinions on e-books. While two of the four factors took strong opposing philosophical stances on e-books (one attached to the print book and the other excited about new technologies), the remaining two groups were more mixed in their assessments. So, although those scoring strongly on the Book Lover factor will likely remain opposed to e-books regardless of improvements in interface and usability, some library patrons (Printers) 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. Another avenue would be to identify patrons who fall into Factor 4 (Printers) and engage them in usability testing of different interfaces and display technologies, as they would be some of the most discriminating users.

Notes

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