

Contradiction and Consensus – Clusters of Opinions on E-books

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 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. While two of the four factors took opposing philosophical stances on e-books (one firmly attached to the print book and the other excited about new technologies), the remaining two were more mixed in their assessment.

Introduction

Academic 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 in order 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. We believe that a better understanding about library patrons' beliefs can inform decisions relating to the addition of 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

Much research on e-book use has focused on quantitative analysis of usage data. This type of analysis enables researchers to address such questions as the amount of time users spend engaged with online books,¹ at what times books are more or less heavily used,² and which books within a collection are more or less heavily used.³ Other studies have furthered this line of investigation by comparing print and electronic usage of the same titles, including analyses indicating stronger use of e-books over print equivalents,⁴ and steadily increasing use of e-books following adoption of a collection.⁵ Citation analysis has been used to investigate apparent author preference for print or electronic sources.⁶

Prior work concerning the attitudes and perceptions of users towards e-books indicates a complex, somewhat contradictory landscape of opinions about the medium. Several studies have indicated generally positive views of electronic books, while a great many reflect quite negative user responses to the medium. Some of these differences may be due to the particular types of e-books under consideration; however, since many studies consider e-books broadly, rather than limiting discussion to a particular product or vendor, it is difficult to draw conclusions. It should also be noted that, in contrast to studies based on empirical usage data, most opinion studies are inherently limited by self-selection of study participants; however, this body of work can shed light on the underlying reasons for use or disuse of materials in ways usage data analysis cannot.

Clusters of Opinions on E-books

The recent ebrary surveys of librarians, faculty, and students represent a recent, high-profile effort to investigate user and stakeholder perceptions of e-books.⁷ The original 2007 ebrary survey of librarians indicated lukewarm uptake of use of e-books; uptake was seen to be hampered by issues including lack of familiarity, complex and unfriendly interfaces, and poor portability of files. Fifty-nine percent of librarians indicated use of their e-book collections was “poor” to “fair.” Results of the faculty survey were consistent with this, with 54% of respondents indicating they have used e-books -- a majority, but still well below reported use rates for other library media. Interestingly, while the faculty survey indicated a broad preference for online over print resources, (50% preferring the former, 18% the latter), this preference did not carry over to e-books. E-books were perceived negatively by faculty compared to both print books and to e-journals. In open-ended questions, print resources were widely characterized as being “easy to read and digest” and “portable,” while electronic resources were characterized as “more accessible anytime, anywhere, immediate” and “easy to search, find, browse, and retrieve,” but also “difficult to read online.” The final ebrary survey of undergraduate and graduate students revisited these themes of lack of awareness and concerns over readability, with about one-third of participants unaware whether their academic libraries had e-books available for use.

Several other studies have noted similar broad user preferences for printed book material. The 2006 Ithaca study of faculty attitudes toward the electronic environment indicated relatively low use and interest in e-books, and suggested faculty do not expect e-books to be widely adopted in the near future.⁸ Surveys by Levine-Clark⁹ and Ramirez and Gyeszly¹⁰ also found majorities of users prefer print books over e-books, though e-books were

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considered useful for certain applications. Carlock and Perry's faculty focus group found generally unsatisfactory experiences due to access problems, platform inflexibility, and other usability issues; however, there was a general consensus that e-books had great potential if such issues could be resolved.¹¹ Bennett and Landoni's offer further analysis of negative reception of e-books, indicating that e-books were poorly known and difficult to use; to succeed, they find that e-books must offer much greater functionality over print, while e-books that are simply flat electronic "versions" of print books will fail.¹² Towle et al. note several market barriers to e-book acceptance in the marketplace.¹³

Gregory surveyed undergraduates in a liberal arts college environment and found a preference for the print book format amongst this population.¹⁴ However, 89% of respondents also indicated they would use an e-book if it were the only format available. (This contradicted the author's practical experience that students declined to use e-books entirely). Hernon reported similar attitudes amongst students – e-books were used for reading only when print was unavailable, though they were considered useful for searching within the text and for printing small sections.¹⁵ Langston found general but perhaps begrudging acceptance of a NetLibrary collection, with 60% of users still stating that they would prefer print.¹⁶ Lonsdale predicted e-books would be poorly adopted by students because of perceptions that reading online was difficult and unenjoyable.¹⁷ Walton interprets such findings of user preference for print in the Framework of Diffusion of Innovation theory,¹⁸ and criticizes over-interpreting high use of e-books as high acceptance, considering such e-book use the result of "forced adoption" of these resources in the absence of print.¹⁹ (Studies demonstrating higher use of electronic

versions of texts over print equivalents would, however, seem to argue against this conclusion.⁴⁾

While the above body of work paints a rather gloomy picture for the broad acceptance of e-books, other studies have been considerably more positive about user perceptions of the medium. One of the largest-scale studies of e-book use (taking place across UK universities), analysis of the ongoing JISC National E-book Observatory project has published in several interim reports.²⁰ While much of this project focuses on usage log analysis of a test bed of e-books; it has included probes of user opinions and attitudes. Rowlands et al. found that a large minority of survey respondents had used e-books, with a strong demographic trend of greater uptake among younger slices of the population.²¹ The authors noted a tendency of e-book users to read directly from the screen, primarily for academic or professional purposes, and respondents found e-books easier to make copies, more up-to-date, more space-efficient, and more available. However, most respondents still preferred to read paper copies. The investigators also noted genderedness in their results, with males being more positive about the electronic format. Interestingly, respondents indicated most of their e-book readings were not acquired through their library but by other means. Jamali's more recent results were largely consistent, showing that convenience of online access was an overriding factor in user preference for e-books, while noting significant usability limitations that continued to hamper wider adoption.²² However, only 6% of survey respondents volunteered in open response that they would prefer print books. Milloy noted upward year-to-year trends amongst the study population in self-reported adoption of e-books, with increasing preference for library-supplied e-books.²³

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Several other studies also have reported broad acceptance of e-book technologies. Gibbons discussed a pilot project to implement e-book/e-book reader collections in a cross-section of library settings.²⁴ The findings were generally encouraging, with 35% of survey respondents citing a preference for e-books over print. Readability features such as backlighting and font size customization were noted as positive drivers, an interesting contrast to common assertions that e-text is poorly readable. McKnight et al. more recently surveyed user responses to e-books in a public library setting.²⁵ They found 21- to 30-year olds to be the strongest adopters, with use varying widely depending on subject/genre. They also noted marketing as a major problem for library e-book collections. Summerfield's report on the Columbia Online Books Evaluation Project indicated popularity of online texts for course reserve readings, noting that a critical mass of online texts was needed for users to view collections as viable.²⁶ A preference for online text for short readings and reference purposes was also cited. Appleton reported successful test cases of placing e-textbooks within higher education courses, asserting the targeting of resources to specific groups as instrumental to success.²⁷ A 2007 white paper sponsored by Springer surveyed six large university library customers on the state of e-book adoption, with participants agreeing that "immediate, permanent, 24/7, simultaneous access to up-to-date content" were the primary benefits provided by ebooks.²⁸ "Enhanced user access," "Enhanced book functionality," and "Access to more content" were rated as the most significant benefits of e-book offerings.

Anuradha and Usha also found about 35% of their university users "very satisfied," with their use of electronic books and less than 10% unsatisfied.²⁹ Of those unsatisfied, specific problems mentioned included incompatibility between files and platforms, difficult interfaces,

use restrictions, and frustration with the e-book reader device market. Most e-book use was at the computer screen, not on independent devices, and respondents noted ergonomic difficulties with reading e-books in this fashion. Noorhidawati and Gibb still found a strong preference for print for extended reading, but found that electronic sources were preferred for reference use, and fact- and content-finding.³⁰ Based on this, they assert that e-book interface development should play to its natural strengths, e.g. searchability. In a similar vein, and perhaps indicative of the overall tension between the promise some see, and the performance to date, in the current e-book market, Connaway notes interest expressed in focus groups in the convenience of electronic sources generally and the usefulness of e-text for reference purposes; but also frustration at publisher and library constraints placed on access to e-resources.³¹

Q Methodology

Q methodology is a research method used to study people's subjectivity or point of view.³²

Typically, a Q study involves three basic procedures. First, a set of opinion statements about a topic are collected. Next, individuals are asked to read a sample of 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, and it is in the ranking of the statements that a person's subjectivity is revealed. Lastly, once viewpoints are modeled in Q-sorts, data are analyzed using a statistical technique called factor analysis. Factors that emerge from the analyzed Q sorts indicate similar viewpoints, or segments of subjectivity. Factor scores are also calculated to aid in the interpretative process.

Q methodology was introduced in 1935 in a letter to *Nature* written by William Stevenson, a British physicist and psychologist.³³ Today, Q methodology is a widely adopted method to investigate subjectivity.³⁴ In the field of academic librarianship, however, Q methodology is not widely used. Dick and Edelman report how a Q sort was used as a technique to prioritize journal titles as candidates for possible cancellation.³⁵ Shrimplin and Hurst used Q methodology to investigate reference librarians and their perceptions of virtual reference.³⁶ Brown has written several excellent introductions to Q methodology.³⁷ 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 refers to "the flow of communicability surrounding any topic" in "the ordinary conversation, commentary, and discourse of everyday life."³⁸ 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. (insert table 1) An inductive design was employed in the Clusters of Opinions on E-books

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 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 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. They also completed a short questionnaire about their demographic information and online research habits. A total of 74 Q sorts were completed. All participants were also asked if they would be willing to be contacted for a follow-up interview, with most agreeing. Upon the completion of the analysis of the Q sort data, we selected participants who helped define distinct viewpoints regarding e-books and contacted them for a follow-up interview 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 the interview, the interviewee was shown the relevant factor description and asked to respond to it.

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 components method. McKeown and Thomas provide an excellent description of the statistical procedures used in Q methodology.³⁹ According to McKeown and Thomas, “it makes little difference whether the specific factoring routine is the principal components, centroid, or any other available method.”⁴⁰ A variety of statistical criteria can be used to determine whether or not a factor is significant. The most common practice is to apply the eigenvalue criterion where factors with eigenvalues greater than 1.00 are considered significant. In Q studies, the eigenvalue criterion is used with caution and, as a general principle, Q methodology emphasizes the theoretical rather than the statistical significance of factors.⁴¹ Four factors were extracted and rotated using a varimax rotation. In Q-studies, the varimax method of orthogonal rotation is most frequently employed.⁴² Factor scores were then computed for all four factors to reveal clusters of opinions. 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 (insert table 2). 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 $p < .01$ level.⁴³ 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 University faculty and students.

The factor analysis of the 74 faculty and students revealed four factors or attitudinal typologies: 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 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 statements in the idealized Q sort for the four factors (insert table 3). This table reveals, in a general way, how Miami University faculty and students think about e-books. Q methodology is an intensive form of analysis and involves small numbers of subjects and makes no claims about being statistically representative of some larger population. Since Q has confidence in its individual observations, we expect that small groups of subjects reflect the structures existing in some larger population of subjects. Because our unit of analysis is a point of view about some topic and not individuals, adding more individuals to the study will at some point not yield any new information unless the extra individuals are truly different. That is, they express a different point of view. If we suspect that other perspectives exist, we could simply cast the person-sample "net" a little wider. Nothing precludes adding more subjects to the study. Q lets us say with confidence, then, that there exist a number of perspectives on e-books. It does not, however, tell us what proportion of the larger population

(Miami University faculty and students) subscribes to the point of view in question. That question could be answered with a traditional, large-n sample survey. Also, due to the non random nature of the person sample in a Q technique study, inferences concerning demographic profiles must always be tentative, but suggestive relationships often appear. When analyzing the data, the researcher “listens to the data” and tells the story using a qualitative process. In the narratives below, which aim to capture this story, the first number in parenthesis refers to the corresponding statement in Table 3 while the second is that statements 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 of 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 not feel that the accessibility afforded by e-books makes up for their failings (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 in order to absorb them (22: -3), the cost involved in printing out an entire e-book is not a concern to them (45: +1). Although Technophiles do not place as much importance on leisure reading as Book Lovers, they do however 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 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 (4: -5), and that when they are forced to read on-screen 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 on-line searching capabilities, and have no problems reading e-books online.

The other two factors are more utilitarian. Those that 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 towards 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 an important as the content of e-book collections. Printers might also benefit from larger monitors in public computing labs in the library to improve readability. One additional way to reach this group might be to make dedicated e-book readers with Electronic Paper Display (EPD) technology, such as Amazon's Kindle or the Sony Reader, available for checkout.

Although the consumer-based business models of current products of this type are 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. Current 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 towards 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

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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 (Interface-Issues) 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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41. Ibid.
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43. The standard error for factor loadings is represented by the expression $SE = 1 / \sqrt{n}$, where n = the number of statements; for $n = 45$ statements, $SE = 1/\sqrt{45} = 0.15$. Loadings in excess of $2.58(SE) = 0.39$ are significant at the $p < .01$ level.

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

Table II. Factor Matrix

Subjects	Factor Loading*				Selected Characters		
	Factor 1	Factor 2	Factor 3	Factor 4	Major 1	Status	Gender
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	Biochemistry	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

Table III. 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 accidentally 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

Statement	Factor Arrays			
	1	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
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