Book Lovers, Technophiles, Printers, and Pragmatists: The Social and Demographic Structure of User Attitudes Toward e-Books

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Introduction

E-books are gaining an increasing footprint in the collections of academic libraries. In 2007–2008, our research team conducted a study using Q-methodology to identify clusters of opinions about e-books among the population of library users at Miami University in Oxford, Ohio. Q-methodology is designed to identify and isolate opinion types on a given subject. The research identified four distinct factor types among those surveyed, which we labeled Book Lovers, Technophiles, Pragmatists, and Printers. Briefly, Book Lovers have an inherent affinity for the print form, while Technophiles are primarily interested in the possibilities of new technology as regards the book. Pragmatists are the most neutral of the four types isolated, as they are most interested in content and may see pros and cons to both formats. Printers prefer print books but are distinguished from Book Lovers in that they have specific difficulties with usability of e-books.

However, Q-methodology precludes broadening out inferences about these attitudes and opinions to larger populations as a whole. To gain more information on this topic, including determining the proportions of the target population that fall into each factor and the demographic make-up of the factors, requires a more traditional survey methodology. Thus the researchers undertook a follow-up large-*n* survey of the Miami University population in Spring 2009. This paper presents the preliminary results of that research.

Literature Review

Several studies of e-book users' attitudes and perceptions within higher education have been reported in recent years, with mixed findings. Recently, OnCampus Research surveyed US college students on their use and preferences for e-textbooks, finding a strong overall preference for print books and limited uptake of e-books.[1] The Joint Information Systems Committee (JISC) conducted one of the largest scale studies of e-book use and users to date, with over 20,000 subjects at 120 UK institutions. Their results indicated broad, growing use of e-books and general acceptance of the format.[2-5] Primary Research Group surveyed student views of e-books from approximately 250 US higher education institutions, noting strong links between use of the format and socioeconomic status.[6] Ebrary's 2007 and 2008 surveys of faculty and students worldwide, which included attitudinal questions, revealed overall poor awareness and skepticism toward the format.[7-8] A number of smaller studies using survey or focus group methods at individual institutions have also been undertaken, again with varying results but often revealing considerable user skepticism about e-books.[9-16]

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Methods

During a presentation of the initial findings at ACRL 2009, many of the attendees' questions focused on issues which our Q-methodology research was unable to answer; namely what percentage of the campus population fell into each of the four factor types and the unifying characteristics of each factor.[17] To address these questions, the initial Q-study results were utilized as a basis for a large-*n* email survey. The survey instrument was designed using the original statements taken from oral interviews of participants which formed the basis for defining each factor (see Table 1). Survey participants responded to each of the statements using a 5-point, "strongly agree—strongly disagree" Likert scale. Also included in the survey was an open-ended question designed to elicit qualitative data, as well as questions related to technology and library use and basic demographic information. In all cases respondents were allowed to leave one or more questions unresponded. The survey was conducted using Miami University's Prezza Checkbox license. As such, all responses were stored on university servers. We offered respondents a chance to win 1 of 10 $100 gift cards as an incentive to complete the survey. To ensure confidentiality, contact information necessary to award the gift cards was collected using a separate database. We distributed the survey to the campus community via mass-email. Every faculty member and graduate student received an invitation to complete the survey

TABLE 1 Survey Questions Used to Classify Respondents by Factor Type		
Number	**Question Text**	**Used in Formula for Factor(s)**
Q1	There is just something about sitting down and actually reading a physical book.	Book Lover (+)
Q2	I personally think having e-books would defeat the purpose of having a physical library.	Technophile (-)
Q3	I do not really see a downside to e-books.	Book Lover (-)
Q4	I love that about e-text, that I can do text search.	Technophile (+), Pragmatist (+)
Q5	There are times when it is beneficial to have a paper book, so that I can write on it, or view it anywhere.	Pragmatist (+)
Q6	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.	Technophile (+)
Q7	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.	Printer (+)
Q8	Electronically, I can go back and forth a lot faster. My intellectual process flows more smoothly with the electronic copy.	Printer (-)
Q9	Reading off of a monitor is just as easy as reading off of paper; it would be great for me.	Book Lover (-), Printer (-)
Q10	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.	Pragmatist (-)
Q11	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.	Printer (+)
Q12	I am not comfortable reading e-books on line.	Technophile (-), Pragmatist (1)
Q13	When it comes to my leisure reading, I will probably want to have the actual book.	Book Lover (+)
- respondent must disagree or be neutral with statement to qualify as factor type		
+ respondent must agree or be neutral with statement to qualify as factor type		

as well as a random sample of undergraduates for a total of 15,241 invitations. We received 1,471 survey responses for a rate of 9.65%.

Data Analysis

Survey data were analyzed using SPSS. As a first step, 10 respondents who identified themselves as never having used an electronic book were excluded from further analysis. An open-ended question asking "If the library decided to start primarily purchasing electronic books rather than print, how would you feel about this decision and why?" was coded according to how the researchers could characterize the response as sounding like a Book Lover, Technophile, Pragmatist, or Printer. The researchers used descriptive narratives developed in their first e-book study using Q Methodology as a guide for how to code the open-end responses. Both content and context of the responses was considered. In cases where the scorer was uncertain, the entire team attempted to draw a consensus classification. Approximately 16% left the question blank, and these respondents were effectively removed from further analysis. Additionally 90 open-ended question responses were deemed unclassifiable

and were dropped from further analysis, leaving 1135 respondents. The open-ended responses were categorized as follows: 31% as Book Lovers, 22% as Technophiles, 19% as Pragmatists and 28% as Printers.

To make a final determination of what percentage of the faculty and student body subscribe to one of the four e-book viewpoints or perspectives, four formulae were created using questions from the survey. Respondents were coded as Book Lovers if they answered Question #1 and #13 as No Opinion, Agree, or Strongly Agree and they answered Question #3 and #9 as Strongly Disagree, Disagree, or No Opinion. Respondents also had to be coded as Book Lovers on the open-ended question. Respondents were coded as Technophiles if they answered Question #6 and #4 as No Opinion, Agree, or Strongly Agree and they answered Question #2 and #12 as Strongly Disagree, Disagree, or No Opinion. Respondents also had to be coded as Technophiles on the open-ended question. Respondents were coded as Pragmatists if they answered Question #4 and #5 as No Opinion, Agree, or Strongly Agree and they answered Question #10 and #12 as Strongly Disagree, Disagree, or No Opinion. Respondents also had to be coded as Pragmatists on

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FIGURE 1
Word Cloud of Text Used in Responses to the Open-Ended Survey Question
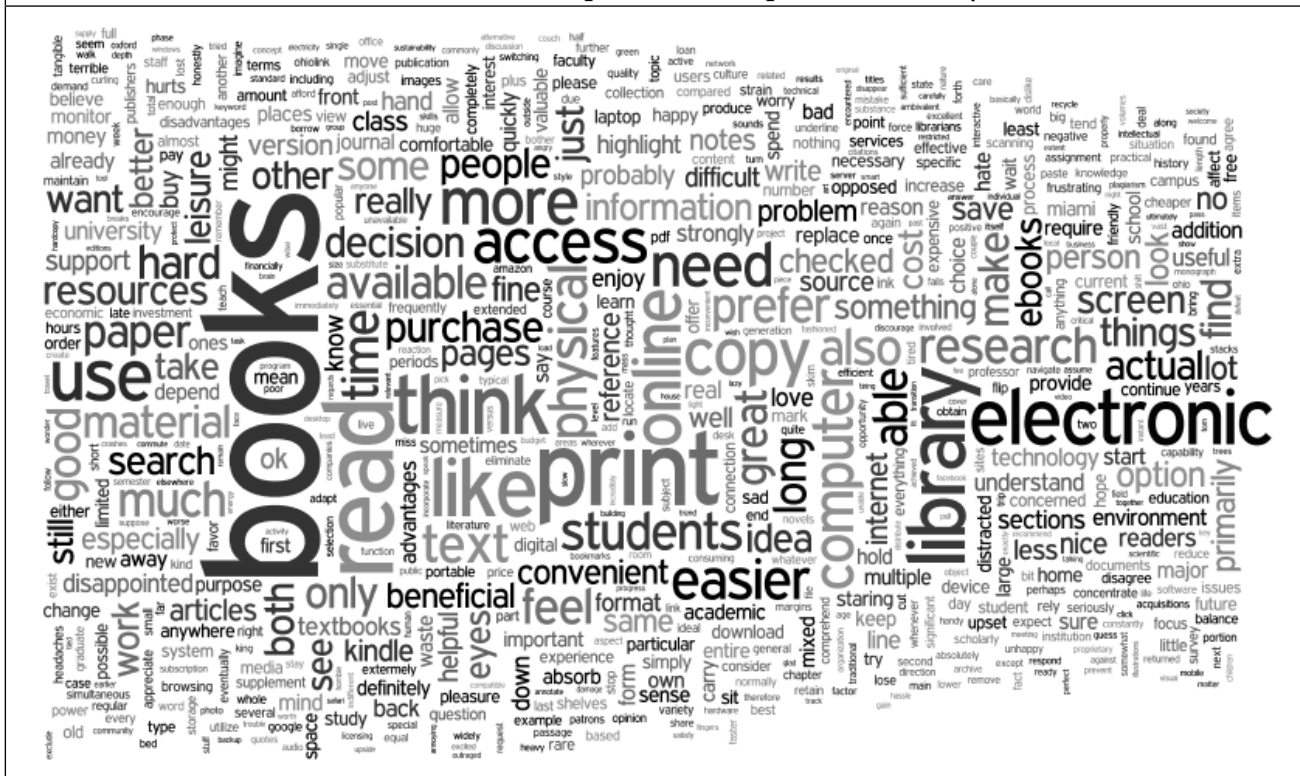
the open-ended question. Respondents were coded as Printers if they answered Question #7 and #11 as No Opinion, Agree, or Strongly Agree and they answered Question #8 and #9 as Strongly Disagree, Disagree, or No Opinion. Respondents also had to be coded as Printers on the open-ended question. Of the 1025 responses fully analyzed, this system allowed 735 (71%) to be classified as one of the four opinion factors previously isolated. The remainder may represent one or more other viewpoints not as yet characterized, respondents with less strongly held viewpoints, spurious responses, or a mixture. In general, the classifications generated by the Likert scale question used in the formulae were very similar to those found using the open-answered question.

The complete body of words used by survey respondents to the open-ended question was analyzed using a Visual Basic for Applications script in MS Excel. Unique words and their frequency were calculated. Common "stop" words were removed and a stemming was conducted to combine words with the same root and sense. The resulting list of words and frequencies was used to generate a word cloud using the web-based tool Wordle (www.wordle.com).

Demographic Analysis

Overall, our initial analysis of the 735 fully characterized respondents indicated that Book Lovers make up 34% (249), Technophiles 23% (168), Pragmatists 17% (126), and Printers 26% (192) of the identified sample.

Examination of the prevalence of the four identified typologies (Book Lovers, Technophiles, Pragmatists, and Printers) within various demographic groups showed several strong correlations. Affiliation with certain factors seems to be in part a function of

gender; in particular, while 32% of women were identified as printers, only 16% of men were. In each case a larger percentage of men than women identified as Book Lovers (37 v. 32%), Technophiles (27 v. 20%), and Pragmatists (20 v. 15%). Thus nearly two-thirds of women identified as preferring either a print book or to make a printout of an electronic version, compared to a little more than half of the men. Pearson's chi-square test of independence indicated a statistically significant difference between the two gender distributions ($\chi^2=0.000$); this was still the case when those survey respondents who did not fit any of the defined factors were included as a hypothetical fifth group.

Looking at university departmental affiliations, we see striking differences as well. In the Natural Sciences the four factors are nearly equally distributed. The Social Sciences had higher and nearly equal prevalence of Book Lovers and Printers, a pattern seen even more strongly in Education. In the Humanities, as we might suspect, there is a substantial skew, with half of the respondents identifying as Book Lovers and smaller numbers in the other three factors; Fine Arts followed a similar pattern. Technophiles were the largest groups only within both Business and Engineering, and by a small margin; interestingly there was only a very small population of Pragmatists in Business. Non-academic department staff were primarily Book Lovers. A chi-square test of independence confirmed that these distributions were significantly distinct ($\chi^2=0.000$), and they remained so when a hypothetical fifth group of unclassifiable respondents was included. Hence it appears that distinct differences exist amongst academic fields for the preference of print books over e-books.

Distinct patterns were seen between the academic statuses of respondents as well. A little over half (54%) of our respondents were undergraduates, 18% graduate students, and the remaining 27% faculty and staff. Undergraduates and graduate students shared a similar distribution with Book Lovers and Printers as the largest groups but a substantial plurality of Technophiles and Pragmatists. Faculty and staff were predominantly Book Lovers. A chi square text of independence confirmed that these three distributions are significantly distinct ($\chi^2=0.001$). This indicates that undergraduates and graduates may be less devoted to the concept of the printed book than faculty but are still likely to want information printed out

FIGURE 2
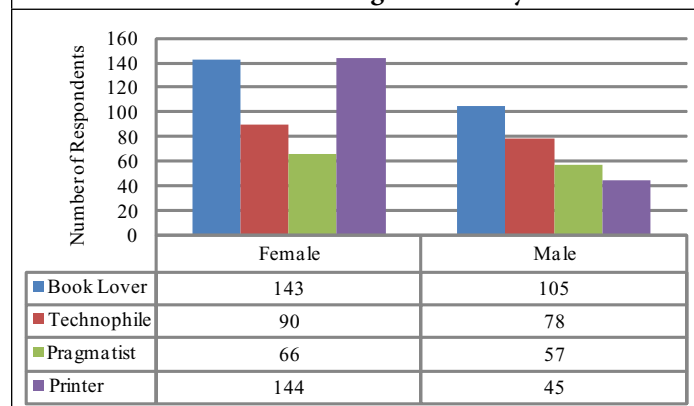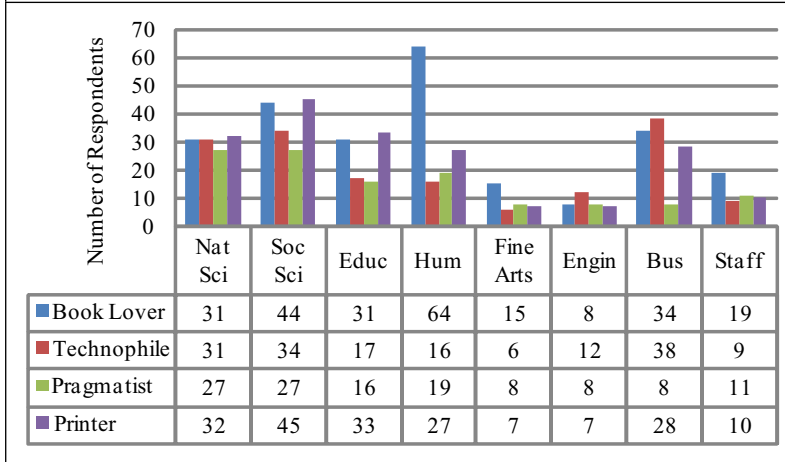**E-Book Factor Categorization by Sex**

	Female	Male
Book Lover	143	105
Technophile	90	78
Pragmatist	66	57
Printer	144	45

FIGURE 3
E-Book Factor Categorization by Field

	Nat Sci	Soc Sci	Educ	Hum	Fine Arts	Engin	Bus	Staff
Book Lover	31	44	31	64	15	8	34	19
Technophile	31	34	17	16	6	12	38	9
Pragmatist	27	27	16	19	8	8	8	11
Printer	32	45	33	27	7	7	28	10

for reading. All three status levels were similar in that approximately 60% of each group identified as either a Book Lover or Printer, the two most "print-friendly" factors in our analysis.

Conclusions and Implications

Both the qualitative and quantitative data reflect the changing nature of book use. While only 23% of the patrons at the time of the study fit into the Technophile typology, 17% were classified as Pragmatists and 26% were in the Printers group. Each of these groups has some level of comfort with or acceptance of electronic books. As this survey was undertaken in Spring 2009 when many patrons were still unfamiliar with specific e-reader devices such as the Kindle, Nook, iPad, etc., many of those who had originally expressed concern about reading off a screen might now have those concerns alleviated. Book Lovers did still remain the largest plurality (34%) of users at this time, however. Many of the open-ended responses reiterated a determined preference for print by stating that they felt the library should purchase both formats, print and e-books. Thus while these patrons may concede to the idea of e-books, there is hesitance, and many still indicated they would also like or prefer the option of print as well (we note the high frequency of the words "both" and "also" in the word cloud, though of course interpretation is limited without the context of the words' use). With extremely rapid changes in technology and an increasing number of e-books and platforms coming online and purchased in our system and broadly in society, we anticipate a repeat of the
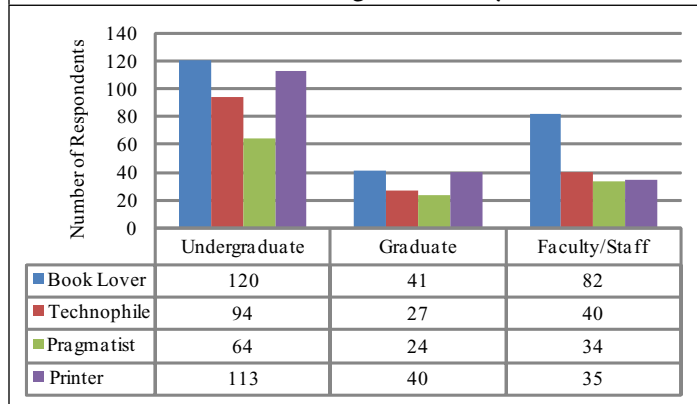
survey would reveal changes in attitudes over time.

The fact that e-book attitudes and opinions seem strongly defined by academic field of study, rather than by status or gender, is another interesting characteristic. For the most part, our findings reflect our stereotypical impressions of the various fields, e.g. humanities scholars, who delve deeply into books as the central object of the studies, prefer the perceived sturdiness and familiarity of the physical book as an object, while engineers are most interested in the latest and greatest technological innovations. At Miami the largest portion of Ph.D. programs are in the natural sciences, indicating a research-intensive focus which may be reflected in the comparatively large numbers of Pragmatists (format agnostics) in that group. The gender disparity we found may be in part a function of still-extant disparities in male-female enrollment in technical vs. arts and education-oriented disciplines.

This has particular implications for collection development. While subject specialists may have intuitive feelings concerning their patrons and ebook versus print formats, this research provides quantitative data that may support or disprove those feelings or biases. Libraries may wish to engage in pilot projects or forays into e-books on a differential subject-specific level with these results in mind. With current interest in Patron Driven Acquisition (PDA) models, librarians can receive immediate feedback of patron interest in specific titles. While these models are typically only available for e-books, they do provide a way to allow

FIGURE 4
E-Book Factor Categorization by Status

	Undergraduate	Graduate	Faculty/Staff
Book Lover	120	41	82
Technophile	94	27	40
Pragmatist	64	24	34
Printer	113	40	35

patrons to select only those titles of interest, potentially saving both space and most importantly funds in these times of ever increasing budget constraints. We are interested to see whether purchases of books in PDA programs follow a distribution of academic subjects that might be predicted from our data.

While we believe that the ability to account for or "type" approximately 70% of our survey respondents is a substantial achievement, we are also intrigued by the remaining 30% who did not fit any of our defined factors. It is possible that some of these respondents do have attitudes similar to one (or more) of the four identified factors, but this was not reflected. It is also entirely possible that some of these respondents represent one or more distinct sets of attitudes not previously detected in our Q study. (Q methodology, as a small-sample method, makes no claim to capture every distinct attitude set within a population.) We intend to further analyze the open-ended responses in our survey, to elucidate any distinguishing characteristics within the unidentified population.

Notes

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