Text Books: ebook Vs. Print

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Abstract

Electronic books or Ebooks are becoming more and more common in colleges.In this research, the student book buying patterns are studied at a public engineering institution. Ebooks are becoming more and more common. Based on a research survey, we analyze whether students prefer ebooks or print editions. Comparisons are done across disciplines, level of the student (freshman to graduate), whether the student owns a laptop / desktop / tablet, student work commitments, financial needs, and age; among other factors. Some professors give the option of using the ebooks, while others do not. Students may or may not know about the availability of ebooks for their courses and this may impact their decision to choose either option. Students may make decisions to purchase ebooks or print edition based on cost, readability, availability, and ability to take notes, impact on the environment, ease of use, logistics and the level of the usage of the book in a given course. Students also take into account the resale value of the book at the end of the semester. These and other factors that lead to the student choice are studied. The goal of this study is to understand student book buying behaviors. Authors hope that both students and faculty members can be made aware of the various text book options available so they can make the best choices given the individual circumstances.

Introduction and Background

The study on Text Books: ebooksvs. print is conducted bythe Research Learning Community (RLC) - a component of the Center for Teaching Excellence at Southern Polytechnic State University.

Members are faculty and staff involved with instruction from diverse disciplines ranging from engineering to arts, law, and sciences among others.

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Members are interested and involved with the Scholarship of Teaching and Learning (SoTL). RLC meetings are held on a monthly basis where topics of interest and discussions regarding ongoing research projects occur.

The topic of ebooks evolved during meetings of the RLC. For the purpose of this study terminology clarification of an ebook is "An electronic book (variations: e-book, eBook, e-Book, ebook, digital book, or evene-edition) is a book-length publication in digital form, consisting of text, images, or both, readable on computers or other electronic devices"(Gardiner & Musto., 2010). As part of this study, various textbookoptions were explored that were available and student book buying patterns were studied.Ebooks emerged as a relatively new aspect of course support material that brought new opportunities, concerns and questions regarding their use. As discussions continued,ebook was deemed a viable topic that could have specific data collected and a formal study conductedto analyze whether students prefer ebooks or print editions. A subcommittee was established for this project.

The topic of ebooks vs. print stems in part from concerns over the costs associated with higher education including administrative mandates requesting reviews of retention, academic achievement and expenses associated with courses. Everyone agrees textbooks are a major investment for college students. Maintaining affordable, current and portable textbooks is a challenge. Technological advances occur rapidly and accessibility to the most current and relevant textbooks is desired. The emergence of ebooks, allows updates along with other aspects such as ease of use, interaction and accessibility; and options regarding fees and associated costs. Types of electronic devices, preferences of instructors and students are also considerations and rationales for use. A survey via an academic research/study provides a framework for evaluation and a way to look at the big picture as well as small details that together provide data regarding the pattern of preference and use of ebooks at the university.

Just as the RLC group had varying opinions regarding ebooks vs. print, it was deemed essential to gather opinions from the ones who use ebooks… the students. Their perspectives and rationale for selecting ebooks over print are essential and so the question to begin the research project was: Do students consider ebooks a viable option?

The subcommittee took the lead to devise an online survey to gather data. By using a survey tool in Google, students could respond directly and the data could be tabulated automatically. A survey was created then presented at a monthly meeting for review. Several changes were suggested and then the questions were put online for additional comments from RLC members. Initially deciding on a format was key and selecting a survey format similar to previous surveys conducted by the RLC proved to be effective. The main challenge was the intent of the questions. Some were open to interpretation and were not clear. Subcommittee members responded to several versions of the questions and format via email. Phrasing was adjusted and reviewed and finally a format and set of questions was ready to post. Once the questionnaire was formalized and placed in Google Docs the link was shared with all RLC members who solicited participation from their students. Every RLC member was charged to get the word out to their classes so a wide range of students from varying disciplines could participate. In some classes it became a required assignment, others incorporated the survey into in-class activity since students had access to internet via cell phones and computers. In other courses professor incentives encouraged student participation in the brief and easy to access survey.

Review of Literature

More students use portable electronic devices to take lecture notes in class rather than hand write. As Buckley and Johnson (Buckley & Johnson, 2013) mention, "more students and faculty [are] using portable electronic devices, and ebook databases now provide more downloading capabilities." However, students still prefer print versions of textbooks although ebooks are usually cheaper to purchase. Kolowich(Kolowich, Pumping the e-brakes, 2011)states, "e-textbooks show signs of finally gaining traction, although they still account for a smaller share of all textbook purchases than any method of acquiring a print textbook." Most e-textbook purchases by students are because of professor mandates. Advantages of e-textbooks are the digital enhancements and interactive weblinks provided by publishers within the e-textbook. Publishers include practice quizzes, flashcards, find options, table of content links, and other resources for content reinforcement whereas the common textbook is not interactive. Rebora(Rebora, 2013)suggests that "e-book publishers are increasingly trying to make their products look and function more like printed books, even as efforts to add cutting-edge interactive enhancements to digital books have seemingly foundered."

Another advantage for e-textbooks is that a large number of books can fit into a single Portable Electronic Device (PED). A student only needs to carry the PED to classes and not twenty pounds of different textbooks. An advantage for a professor is that the e-textbook can also be shown from the computer and overhead projector to the entire class helping with in-class discussion and student engagement.

Some universities are piloting studies with e-books and are negotiating discounts with publishing companies. Thisaides in keeping costs down for students and guarantees sales for publishers. There are always the disadvantages of e-textbooks: expiring codes that disallow students to access the e-textbook in the future whereas once a printed version is purchased, one perpetually owns it; and the technological issues that arise with navigating the e-text. "Though some students easily navigated e-text interfaces and fully utilized digital tools, others struggled with basic e-text functionality like creating a user account, entering access codes, locating readings, creating bookmarks, using highlighting tools, and writing notes"(Kolowich, Pumping the e-brakes, 2011). Now professors must teach and guide their students through technology-supported systems and e-textbooks issues.Many technology savvy students adopt ebooks without any involvement of the instructor.

Several searches were conducted by RLC members during the process. Some looked at online surveys in general, others for specific data available on the topic. Journal articles, abstracts and conference proceedings, were studied.

Survey

An anonymous survey, mentioned above,was given to the students in all disciplines from freshmen all the way to graduate students. The intent was to analyze and compare the book buying behaviors of students across a variety of backgrounds. The hope was that the analysis of the survey and recommendations made based on the analysis would help better serve the faculty and students. Institutional Review Board (IRB) approval was obtained for this study to ensure that no student is identified by this analysis, no personal information is revealed and the publications of the results does not harm any individual. Students are instructed to take the survey with a particular course in mind. Instructors are asked to give the surveys in class. A student could potentially take the same survey multiple times for different courses. To gather the book buying behaviors, following questions wereasked in the survey.

Q1: Is a textbook available in this course?
Q2: Are you using the most current edition of the textbook?
Q3: How did you acquire a textbook for this course?
Q4: What form of textbook did you acquire?
Q5: Do you prefer an eBook or printed textbook?

In addition to these questions, a few opinion based questions were asked. Students were given several choices to pick from and also given the option to create their own answers. These questions and the available responses were as follows:

Q6: Why do you prefer printed textbook (if applicable)? (Top 3 reasons)

❏ Cost
❏ Readability
❏ Availability
❏ Ability to take notes
❏ Impact on the environment
❏ Ease of use (highlighting, finding a particular section)
❏ How much of the book is actually needed (only a few chapters vs. the entire book)
❏ Logistics (easy to carry / logistics)
❏ Others

Q7: Why do you prefer eBook (if applicable)? (Top 3 reasons)

❏ Cost
❏ Readability
❏ Availability
❏ Ability to take notes
❏ Impact on the environment
❏ Ease of use (highlighting, finding a particular section)
❏ How much of the book is actually needed (only a few chapters vs. the entire book)
❏ Logistics (easy to carry / logistics)
❏ Others

Q8: Which of the following devices do you own?

- ❏ Laptop / desktop
- ❏ Tablet (iPad, Android, Windows)
- ❏ eReader (Nook, Kindle etc.)
- ❏ Others

Question 8 was designed to understand whether the choice a student madeinfluenced by the electronic devices they owned. In addition to these questions, several demographic type questions were asked to analyze the difference in book buying behaviors across various backgrounds of students. These questions included those related to their year in college, major, gender, level of course they are taking, whether they received financial aid, whether they worked and how many hours they worked per week, their student status (full or part time) and their age. The survey was made available to all students at the Southern Polytechnic State University. A total 443 unique responses were received for the survey in the spring of 2013. 15%, 20%, 29%, 32% and 5% of the responses received were from freshmen, sophomore, juniors, seniors and graduate students respectively. Additionally, 9%, 18%, 5%, and 68% of the responses received were from the schools of architecture, arts and sciences, computing and engineering and technology respectively. This apparent skew is, in part, due to the relative size of the respective schools.78% of the students reported receiving some sort of financial aid whereas 22% students reported receiving no financial aid. In terms of the number of hours that the students work, responses received are listed in Table 1:

Table 1: Number of hours of work

Work Hours Per Week	% of Students
<10 hrs	48 (11%)
11-20 hrs	77 (18%)
21-30 hrs	55 (13%)
31-40 hrs	43 (10%)
>40 hrs	53 (12%)
Do not work	150 (35%)

In terms of the age, just over 2/3 of the students were between the ages of 18 and 24 but there were older / non-traditional students enrolled in classes who took the survey. The complete breakdown is shown in Figure 1.
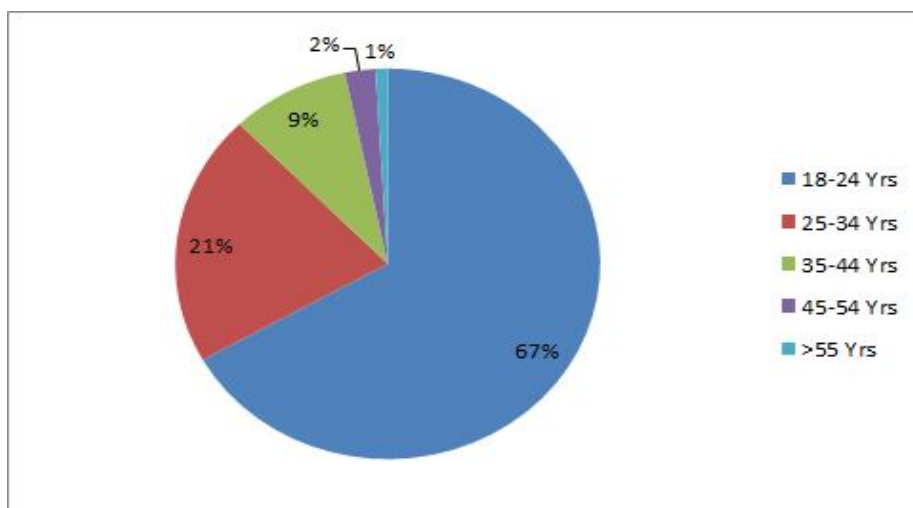
Figure 1: Ages of Students Taking the Survey

The age breakdown of survey respondents was a fair representation of the student population at Southern Polytechnic State University. Additionally, 86% of the students reportedhaving full time studentstatus and 14% reported being part time students. It is important to note that several of the full time students also work part time or full time. Out of those who took the survey, 19%, 27%, 26%, 23%, and 5% of the students reported taking 1000, 2000, 3000, 4000 and graduate courses respectively. These numbers werealso representative of the student population distribution at Southern Polytechnic State University. The detailed results of the survey and the corresponding discussions are given in the following section.

Results and Discussions

The survey results concerning what form of book students acquired, how they acquired it, what form they would prefer to use, and what electronic devices they ownedare analyzed to look for variations according to level in school and by major. From results obtained in survey it is clear that print books werestill the predominant form of text. Readability, ease of use, and portability were the top reasons for the students' preference of printed text books.
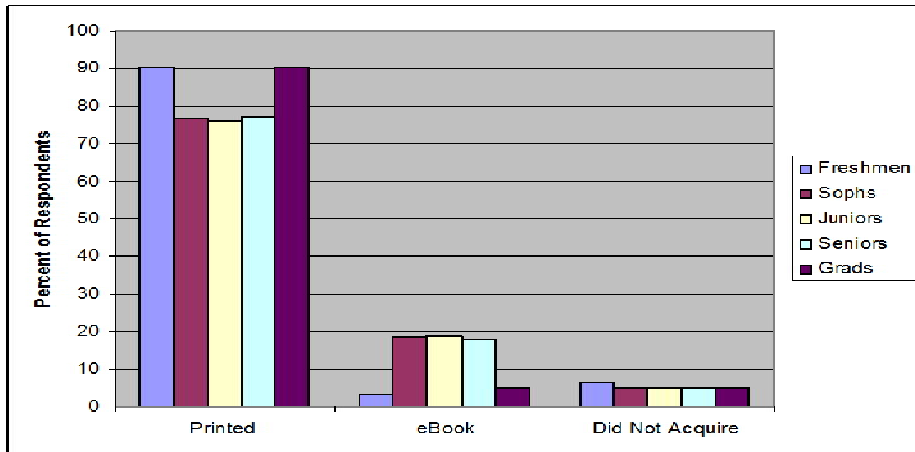
**Figure 2. Form of Book Actually Acquired, by Level**

Analysis of results for the form of text book acquired by students displays an interesting trend as a student progresses through the years. Although students overwhelmingly acquire the print version of their textbooks, in the freshman year the percentage of students acquiring an ebook is less than 5%. This is much lower than the percentage of students acquiring an ebook in any other year. The acquisition of an ebook version of the text picks up right after freshman year, dipping down again in the graduate level.One explanation of this behavior is that in the freshman year, students are not aware that ebook versions of their textbooks are available. This would also depend upon the high school the student came from and if they were exposed to ebooks. A lot of high schools are moving towards ebooks however that may not be an overall phenomenon. The other possibility is that the types of classes a freshman takes may favor the use of a print book. Entry level math and science classes may favor the use of a print text for ease of use. This trend may change as more and more publishers are making their ebooks very usable with added features that mimic the use of a print text book. Also, advertising the availability of ebooks for different subjects and showcasing their features to faculty and students may contribute to more students choosing ebooks in the future.

The decrease seen in acquisition of an ebook by a graduate student may be due to the types of classes being taken by a graduate student, and the fact that print text books are easier to use and it could also reflect the availability of graduate level texts as ebooks.

As return on investment by the publishers in ebook heavily depends on volume sales, graduate level sales of textbooks cannot match those at undergraduate levels thus limiting incentives.

The survey results can be used to observe differences between students by major. The groupings of majors are by schools at SPSU, with the exception that Construction Management is in the same school as Architecture at SPSU, but is grouped with Engineering Technology and Management for the purposes of this analysis. Figure 3 shows howthe type of book acquired varies with major (without regard to what form of book).
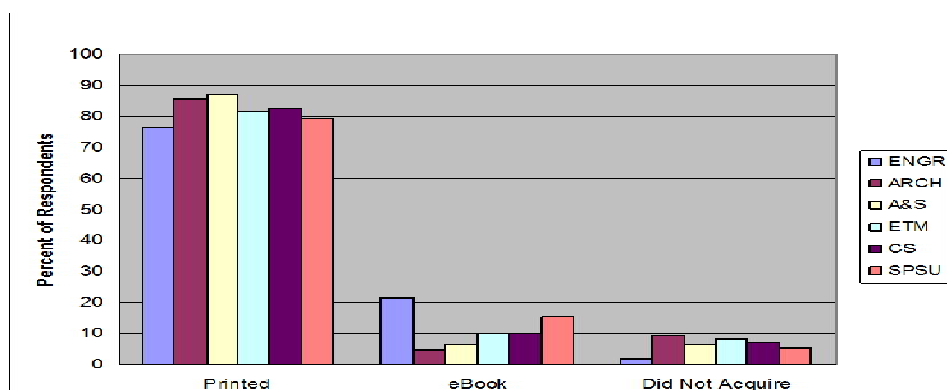
Figure 3: Form of Book Acquired by Major

It can be seen from Figure 3that printed books are the most often used, by far, for students of all majors, but Engineering students are most likely and Architecture students least likely to use ebooks. The next trend to investigate was how students acquired their books, without regard to the form of book to see how that varies with level in school. Figure 4shows those results. Clearly the large majority of students at all levels still purchase their books.

Graduate students are most likely to buy the book, possibly because graduate level books are more likely to be kept for future reference. It is also interesting that both sharing and borrowing seem to increase as students advance through the undergraduate years. This may be because as students advance, they accumulate friends among their classmates in their major.
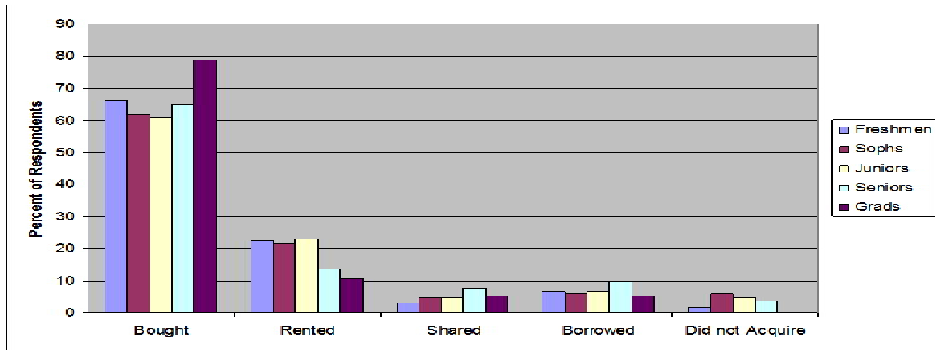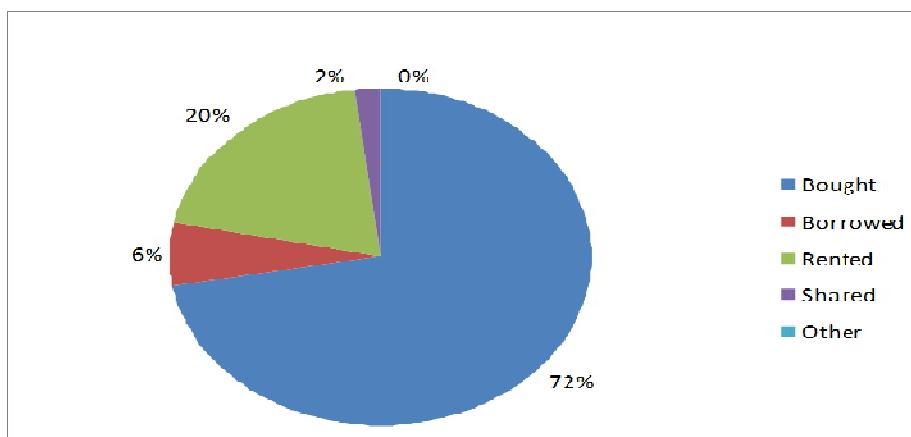
Figure 4: How Books were Acquired

The study also looked at whether the means of acquiring the book varies according to a student's major. Figure 5 shows that there does not seem to be a large difference in the ways students in different majors acquire their books except that none of the Arts and Science students who responded to the survey rented the book for the course about which they were responding.
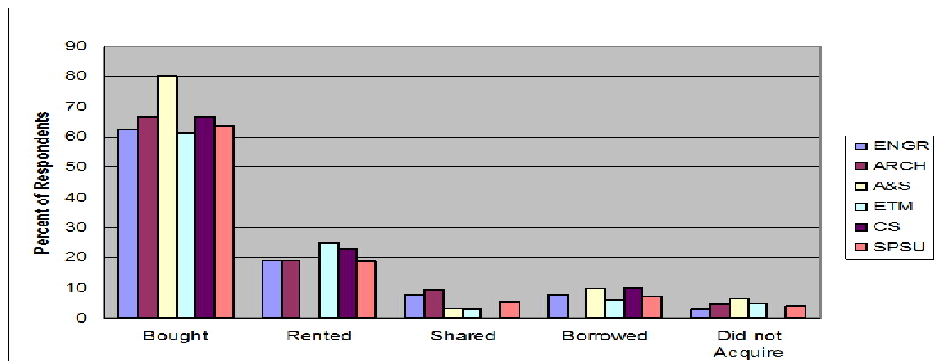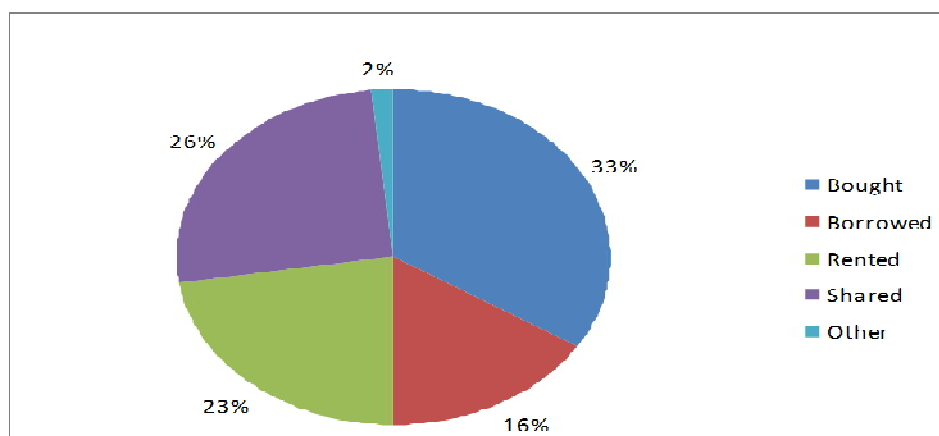

Figure 5: How Books were Acquired by Major

Next, the study considered the relationship between the type of book and how it is acquired. Figure 6 shows the distribution of acquisition channels for printed textbooks and Figure 7 shows that distribution for ebooks.

Figure 6: How Printed Books were Acquired

Figure 7: How ebooks were Acquired

The survey showed that while 72% of printed books were purchased and most of the rest (20%) were rented, the acquisition of ebooks was much more evenly distributed between methods.

It was pointed out above that none of the Arts & Science students responding to the survey rented their textbook. This is consistent with only six percent of A&S students using eBooks.

We also investigated students stated preferences for printed books or ebooks in contrast to what they acquired. Figure 8 shows the variation in students' stated preference by level of student and Figure 9 for students by major.
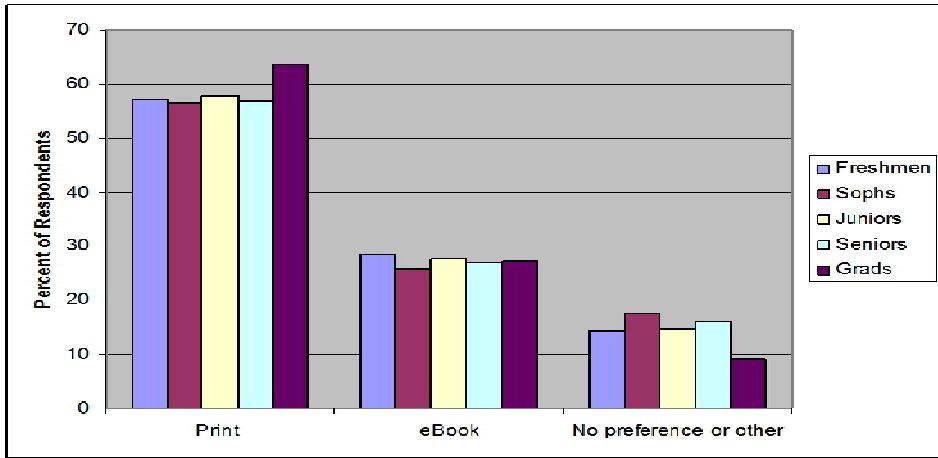
Figure 8: Preference of form of Text Book, by Level

As evident from the graph above, a printed book seems to be the form of text book that is most popular among students all through the years. The results also indicate some level of uncertainty amongst students on whether they prefer e-books or printed texts. This could be due to lack of adequate exposure to e-books and their capabilities and features. The usage of an e-book may also be related to the type of course, some courses being more e-book compatible than others.
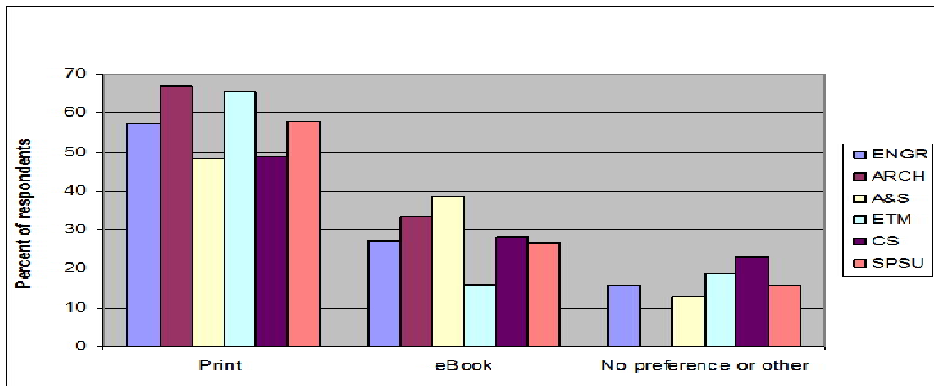

Figure 9: Preference, by Major

The fact that there were no "no preference" responses among Architecture students probably is not significant, as there were only 21 responses from architecture students. The noticeable difference between Engineering and Engineering Technology & Management (ETM) students, with latter group showing a much higher preference for printed books, is surprising. Both groups have enough responses (199 Engineering and 109 ETM) that such a difference is probably significant but the courses that the two groups of students take at SPSU are so similar in both content and teaching methods that this may reflect some anomaly relating to which courses the different groups of students were responding about.

Comparing the graphs of form of textbook students prefer (Figures 8 and 9) with the ones showing form of textbook actually acquired (Figures 2 and 3) it was evident that for all levels of students, preference for ebooks is higher than actual use. The percentage of those preferring eBooks seems to be consistent between all levels of students although levels of use are lower among freshmen and graduate students. Of students who prefer printed books, 72% selected Readability as one of the reasons and of those who prefer ebooks, 79% selected Cost as one of the reasons.

Since the devices—notebook or laptop computer, tablet, e-reader, or other— that students own may influence their preferences and acquisitions and may also reflect their level of technological sophistication or interest, we looked at device ownership overall and by level and major.

Figures 10, 11 and 12 show, respectively, total ownership of each type of device for all students combined, combinations of devices owned by level, and combinations of devices owned by major.
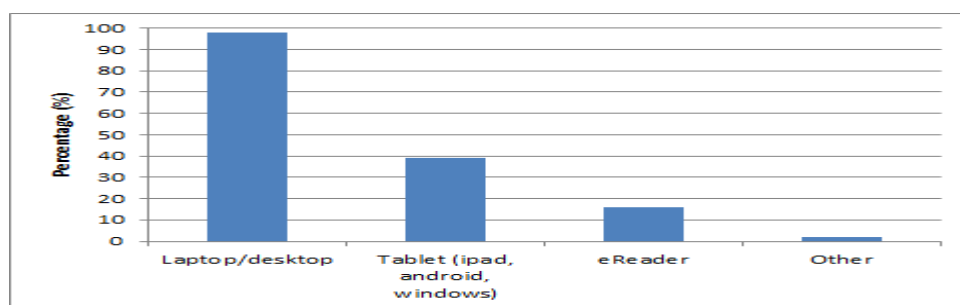
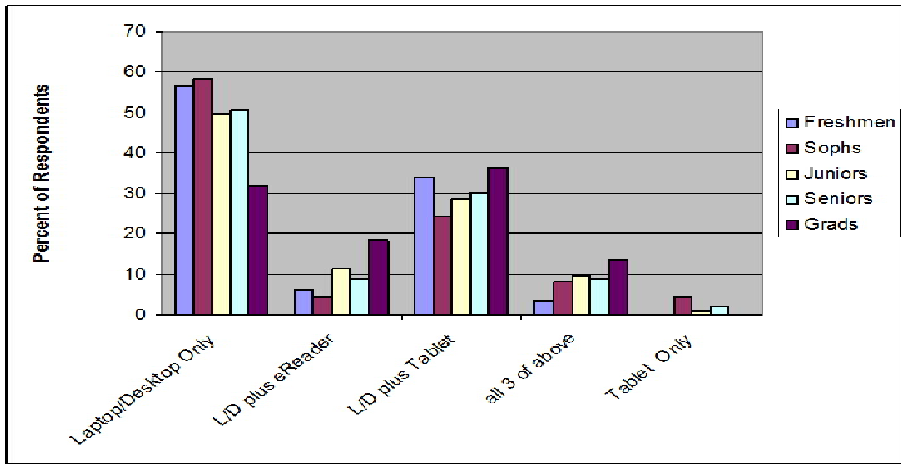**Figure 10: Electronic Devices Owned by all Students**
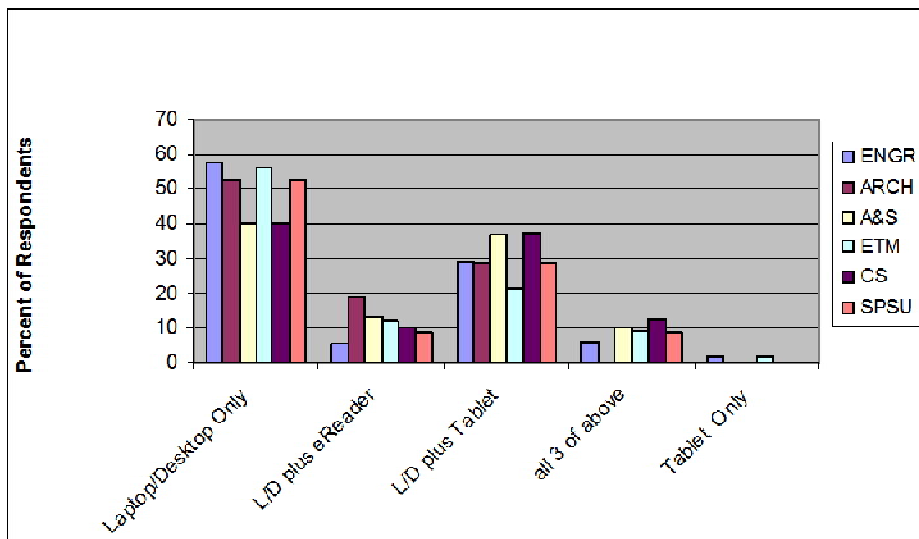
Figure 11: Devices Owned, by Level

Figure 12: Devices Owned, by Major

All of the graphs (figures 10, 11 and 12) show that almost all students of any level and any major own a laptop or desktop computer. Ownership of eReaders in addition appears to increase as students' progress, but at all levels and in all majors, tablets are much more commonly owned than eReaders,with graduate students having both a laptop/desktop and a tablet or an E-reader such as Nook, Kindles etc.

This is not surprising since eReaders, although cheaper, are limited in their features and capabilities when compared to a tablet.

Conclusions

The advent of electronic or ebooks in colleges was studied.The results indicate that a large number of students and faculty members are not aware of the ebook option available for their courses. However this trend seems to be changing rapidly. In this case study, it was also observed that a majority of the students' still preferred printed version of the book. The top reasons for their preference included availability and ease of use in terms of taking notes, highlighting, and finding particular sections. Those who preferred eBooks were so inclined because of their low cost; how much the book was actually needed for a given course; and logistics in terms of portability and ease of access.

It is observed that representatives of publishers that frequent the campus often do not advertise ebooks very enthusiastically. They mention it only when asked. Faculty are not nearly aware of ebooks and among older faculty there is some hesitation in taking on anything that is technology driven. Learning the nuances of an ebook and what it can do maybe time consuming. Older students are generally more resistant because they are more used to the traditional print text. Course specific differences as well as publisher specific differences do exist. Some ebooks are a lot more capable and have features that may not be found in other ebooks. Hence an instructor may recommend an ebook for one particular course but may find that the print version is better for some other course.So there is a lack of consistency in ebooks themselves and that may influence a student and/or faculty's decision for recommending an ebook for their course.

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