Student Attitudes and Preferences for Cost and Format Options in Personalized, Cost Subsidized Print on Demand Course Materials

STANFORD INTELLECTUAL PROPERTY EXCHANGE (SIPX)

mediaX
at Stanford University

CODEX

Media X is Stanford's catalyst for industry and academic research partnerships on the impact of information and technology on society. Media X is affiliated with the H-STAR Institute (Human-Sciences and Technologies Advanced Research Institute) at Stanford University. A 2005 Media X seed grant in the 'Online Media Content' research theme catalyzed the Stanford Intellectual Property Exchange (SIPX) concept, which has been pursued through CodeX."

CodeX is a multidisciplinary laboratory operated by Stanford University in association with affiliated organizations from industry, government, and academia. The primary mission of the Center is to explore ways in which information technology can be used to enhance the quality and efficiency of the legal system while decreasing its cost.

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1.0 Introduction and Background

Concerns over the high price of course materials have gained renewed attention recently. According to the US Government Accountability Office, over the last two decades college textbook prices have increased at twice the rate of inflation (GAO, 2005). As the College Board reported, in the 2007-2008 academic year the average students spent an estimated $805 to $1,229 on textbooks and supplies (Baum, S., and Ma, J., 2007). These costs were driven by both production costs and copyright fees.

1.1 Distribution methods
Rising costs plague all types of course materials – textbooks, course readers, and electronic resources. In a 2010 investigation into the distribution of course materials (Stanford Publish-on-Demand Initiative/ Stanford Intellectual Property Exchange Preliminary Status Report, 2011) current practices included: textbooks, course readers (print), course packs (print and electronic), reserve reading (print), and electronic distribution through email, and posting of links or actual content on secure intranet sites. Specifically with respect to course readers, some instructors compile all course materials into a course reader available in print or PDF, or a combination of the two. Re-printed course materials were usually produced in black and white, although some instructors noted that color images would be helpful to their students. Instructors or their assistants were generally required to collect together and deliver the necessary course materials to the course reader assembly service, and typically digitized the print materials in the instructor's possession or

shipped the print materials to the assembly service for digitization. Additionally, many instructors are sensitive to the cost of course materials for students and, in order to keep costs low for students, deliver course materials online via campus learning management systems.

1.2 Copyright clearance methods
An additional element to consider in the distribution of course materials is whether such delivery is in compliance with copyright laws. Formal channels of course reader preparation, such as University Readers (an off-campus course reader assembly service) and the Stanford Bookstore, offer fee-based copyright clearance services. These channels manually clear content directly with publishers or licensing agencies and add the agency service charges, copyright royalty fees and their own overhead costs to the cost of each course reader. Less formal copy shops sometimes simply reproduce materials without investigating whether obtaining copyright permissions are necessary. Some instructors choose to distribute small amounts of materials directly to students in class, or make personal copies available for students to make a single copy for their own personal, educational use.

1.3 Problems identified
Copyright infringement issues on campus learning management systems are a major concern for the higher education institutions, as noted by Fisher and McGeveran (2006). Interviews with Stanford instructors highlighted that some prefer not to use Stanford's online campus learning management system because of copyright liability risk. Cross-media distributions can raise copyright and fair use concerns related

to the scope, purpose, nature, and use of the work in question (SULAIR Copyright & Fair Use).

De-centralized license data is a main problem, which results in unnecessary duplicate payments for copyright royalty fees or under-utilization of content. Many of Stanford Libraries and Academic Information Resources' (SULAIR's) existing electronic access agreements grant the right to make course readers to authorized users, such as Stanford professors and students (Stanford Publish-on-Demand Initiative/Stanford Intellectual Property Exchange Preliminary Status Report, 2011). Blanket licenses with publishers, distributors, or licensing agents might be in place to authorize certain uses for the Stanford community – independently or as members of a larger library consortium. Individual professors and departments may also purchase permissions for their students through their department libraries. Would-be users must evaluate whether existing licenses already cover the use they intend to undertake. They often lack adequate background information for this evaluation (Fisher, W., McGeveran, G., et al. 2006).

Current standard systems of making course readers (such as those services that rely on licensing agents like the Copyright Clearance Center) generally do not take these pre-existing rights into account (although CCC has a mechanism to show a user whether their desired use/content is covered under CCC blanket license) (Blanket license tool). In addition, because subscription agreements are constantly re-negotiated, keeping track of the changing obligations and conditions of use is a challenging task that involves assessing and communicating complex and ambiguous legal language. As a result, students often pay again to purchase copyright licenses for

content they may already have the required permission to use.

Similar issues have been noted at other campuses, including UC Berkeley (Report of the Joint Task Force on Textbook and Reader Affordability. 2010). When offering online readings instead of hard copies, faculty often are not aware of or do not take full advantage of subscriptions for journal and e-book resources pre-paid by their institution's library, which sometimes include permission for articles to be included in online course readers.

Elsewhere, studies have been conducted to understand students' preferences and behaviors regarding print versus online information – with respect to newspapers. Format differences in how readers gain information have been shown to influence their comprehension and retention. (d'Haenens, L., Jankowski, N., and Heuvelman, A., 2004) There is some debate about whether students benefit from adequate interaction with digital texts versus printed texts. The choice between printed course materials versus online versions could be influenced by the choice to allow students to personalize their course materials, or to permit students to elect cost subsidy messages to partially defray the cost of the course materials.

Following extensive research on current practices in providing course materials and on legal issues of copyright and intellectual property surrounding those practices, a team of researchers at CodeX (the Stanford Center for Computers and Law) and Media X at Stanford University undertook to build a system to improve on time and cost efficiencies. In doing so, important field insights were gained that have refined

perceptions towards educational content, which are discussed below:[1]

1) Student receptivity to cost subsidy messages in course materials.

2) Student preference of print vs. online course materials.

3) Student attitudes toward personalization of course readers.

2.0 Deployment

Using the first deployment of Stanford Print on Demand, students in three Stanford courses were invited to order a personal copy of a Print on Demand course reader for their course. They were invited to provide feedback for this pilot system, and in exchange receive a cost rebate, and to elect cost subsidy commercial messages to be printed in their course reader (also offering a cost rebate.) As each student picked up his or her course reader, a five question interview was administered.

Stanford Print on Demand is the first deployment of the Media X Publish on Demand initiative. It uses the Stanford Intellectual Property Exchange (SIPX). SIPX facilitates legitimate access to content by providing a copyright registry, a copyright marketplace exchange, and a copyright clearance service that can connect with third party distribution platforms. SIPX reduces the cost of royalties dramatically by both automating the clearance process and identifying any content or pre-existing

licenses students may already be entitled to, so that unnecessary royalty payments are eliminated. SIPX was deployed in connection with Print on Demand on the Stanford campus to assure instant and cost-saving copyright clearance for course readers in three different classes.

The Stanford Print on Demand deployment uses the PrintGroove system on the BizHub 6000, located at a convenient on-campus location. The PrintGroove system has the capability to customize course reader materials for each order. Used on the BizHub 6000, an online interface was available to verify status as Stanford student and for each student to order an individually compiled, single bound copy of course materials. The Stanford Print on Demand system can instantaneously print an order. However, due to staffing constraints in this initial deployment, standard business hours for pick-up were established, and purchased copies of the course materials were available for next day pick-up.

The three pilot professors were selected from a group of professors who had participated earlier in research interviews, based on anticipated course enrollment numbers and type of course content (for example, professors who indicated they were interested in using copies of third-party webpages in their course materials were not included in this pilot phase). The resulting Print on Demand pilot courses for Spring 2011 were Economics 101 (Econ), Physics 161 (Physics), and Psychology 147 (Psych). These pilot professors were asked and confirmed that they would be willing to offer their students the option of purchasing course materials that included cost subsidy messages.

Course reader options available to students in these three pilot courses included:

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1 This team is part of the Publish on Demand research theme of Media X at Stanford University, in conjunction with CodeX – The Stanford Center for Legal Informatics. The goal of this initiative is to contribute insights on questions surrounding human-machine interfaces that will enable automated copyright negotiations in publish-on-demand services.

- Purchase course materials through SIPX, Stanford University Bookstore or University Readers;
- Purchase course reader with and without cost subsidy messages;
- Provide input on experience for research purposes (with cost rebate as exchange).

To inform students about this new course reader distribution option, an email announcement describing this research initiative, basic copyright issues and cost advantage was sent by the research team to the three professors one week before the Spring quarter. The professors distributed the email to their classes and made an oral announcement in the first class to the students. In addition, the research team offered to introduce the project face to face to students, and attended a class to give a brief overview upon invitation by the professor.

At the checkout page concluding a student's online purchase, the following message presented the feedback participation invitation and explained the cost rebate:

CHECK THIS BOX FOR A DISCOUNT! A novel technology developed at Stanford (Stanford Intellectual Property Exchange – SIPX) is being used to deliver your course reader. SIPX automates elements of the copyright licensing processes involved in filling a course reader with content, and lowers transaction costs to facilitate your access to educational materials. Your participation is valuable to us. Check this box to receive a subsidized course reader for free, or to reduce the price of a non-subsidized course reader to $15. We simply ask that you allow us to ask a few questions upon receipt of your course reader and to solicit your feedback once during the quarter.

Table 1 below illustrates the prices offered for each of the three pilot courses, through either the Stanford University Bookstore, University Readers, or POD. POD numbers reflect prices calculated before cost rebates are applied in exchange for student feedback participation.

Table 1 Price options available in first deployment of Stanford Print on Demand[2]

	Bookstore Price	University Readers Price	Print on Demand (PrintGroove Interface with SIPX system)[3]	Total final cost savings to student
Pilot 1 (Econ)	$93	N/A	$20	$73
Pilot 2 (Psych)	N/A	$83	$62	$21
Pilot 3 (Physics)	N/A	N/A	$18	N/A

Table 2 Enrollment and course reader puchases of 3 Stanford course, Spring 2011

	# of students' enrollment	# of course reader orders	# of orders/# of students (%)
Econ	6	6	100%
Psych	18	13	72%
Physics	10	9	90%
Total	34	28	82%

2 Franny Lee, 2011, *An Empirical Analysis Of Costs, Labor And Copyright Issues In Course Reader Preparation: A Case Study Of Sipx Spring 2011 Print On Demand Deployment*. Unpublished Technical Report, Media X at Stanford University.

3 No profit margin was included in the POD price figures.

All students enrolled in the three courses – Econ, Physics, and Psych – were invited to participate. Table 2 shows the proportion of students in each class that chose to purchase their course readers through the Print on Demand service.

Students who chose the option to provide feedback when they placed the course readers or when they picked up the readers provided feedback. Two weeks into the quarter, 28 students had ordered and picked up their course readers. All these students opted in to provide feedback.

3.0 Feedback Summary

Of significance, feedback obtained from the responding students confirmed that cost was a primary factor and gave insights

about tradeoffs students are willing to make for cost reductions. Feedback also provided indication of student preferences between print and online course materials, as well as attitudes toward alternative formats and personalization of course readers.

3.1 STUDENT RECEPTIVITY TO COST SUBSIDY MESSAGES

In open-ended responses, the reason most frequently given by students for choosing the Print on Demand course reader was the cost. When answering the question, "Why did you choose the Publish-on-Demand course reader instead of buying the course reader at the book store?" 89% of the students indicated they chose it because it was cheaper. Nearly two-thirds (63%) also said they had been encouraged by their instructor to choose Print on Demand course readers. Some of
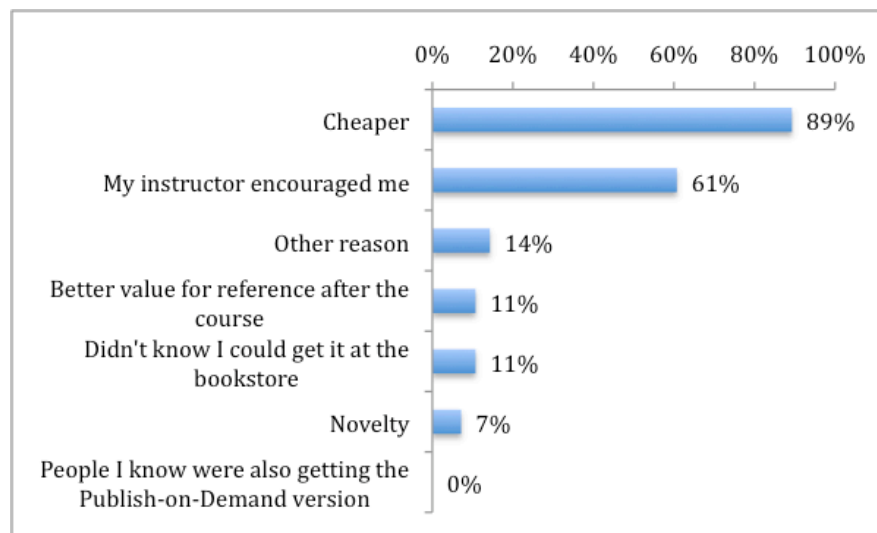

Figure 1. "Why did you choose the Publish on Demand course reader instead of buying the course reader at the book store?" (Open-ended responses categorized by interviewer; multiple responses permitted.) (n=28)

the students recalled that a member of our research team visited their class to introduce the Print on Demand course reader option.

Several students mentioned convenience as another reason to choose the POD course reader instead of purchasing it from bookstore or other course reader providers. They found it was convenient to place the order online and convenient to be able to pick it up at Wallenberg Hall on the following day.

> •*"I have classes at Wallenberg Hall, so it's very easy for me to pick up the booklet here."*

> •*"The other place only provides mailing service. I don't know how long it will take to get my course reader. What if I don't get it before the class begins or I don't get it at all due to some errors during mailing process?"*

Cost was the reason most frequently given by students for choosing the course reader with cost subsidy messages. Twenty-six out of 28 students (93%) chose the course reader version with cost subsidy messages when placing their orders. Of the two who did not initially choose the reader with cost subsidy messages, one failed to do so because of an error (a perceived interface problem during his online experience), and elected the version with commercial messages when given the choice upon pick-up. The second student had thought the cost subsidy messages would be interspersed between the academic content and might interfere with reading. However, upon pick-up when she saw that all cost subsidy messages were collected together at the front of the course reader, she changed her order to the cost subsidy version for the benefit of cost reduction.

In summary, 100% of the students chose a course reader with cost subsidy messages. 80% chose the cost subsidy version because of the cost reduction. The next most frequently given reason (19%) was, "I don't mind ads." Two students mentioned that they selected the cost subsidy version because they were curious to know what the subsidy messages would be.

3.2 Students preferences for print vs. online

As shown in Figure 2, twenty-seven (27) out of 28 students reported they preferred to have their course material in print format. This response is consistent with the results in a 2008 Student PIRG survey, in which "only 33% of students said they were comfortable reading course material on a screen, and 60% said they would buy a low-cost printed textbook rather than using an electronic one for free." (Report of the Joint Task Force on Textbook and Reader Affordability, 2010.) Additionally, a Spring 2010 clicker survey was conducted with 585 UC Berkeley students. Ignoring price and focusing just on preference, they indicated their preferred format for their Econ 1 textbook? Three quarters (75%) of those students choose a bound book (new or used), and 16% choose a 3-hole punch book. Only 3% said they preferred an electronic book (kindle or nook or equivalent), and only 6% preferred E-Book (for laptop) (Report of the Joint Task Force on Textbook and Reader Affordability, 2010.).
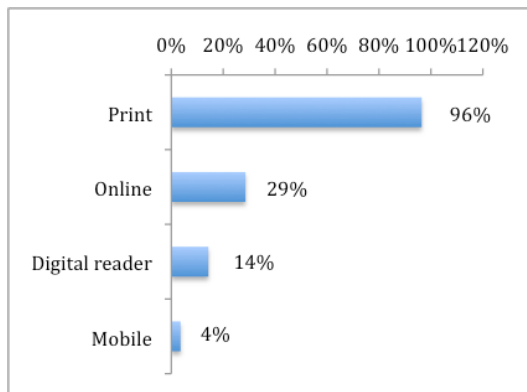
Figure 2. *"If you had choice of format, how would you prefer to have the content of this course reader delivered?" (Multiple responses permitted) (n=28)*

Among the 27 students who preferred the print format, 57% explained that it is easier to read on paper, and that they can highlight, mark up and take notes more easily on paper.

- *"Hard copy is easier to read and markup"*

- *"I understand content better when I read it on paper"*

- *"I like to highlight and write in my books. It's easier to do that if I have it in print"*

This corresponds to certain previous findings about users of e-publishing and their communication behaviors. (Meadows, J., 2006, p.2)

"Print publications are typically more flexible. They can be read under a range of light conditions, and can be adapted to whatever position the reader finds comfortable. ... For readers who wish to annotate the documents they are reading, paper is still the easier way forward. Methods of annotating electronic documents exist, but they are not as straightforward as writing with a pencil

on paper. Various surveys have asked users to specify where they see printed text as having an advantage over electronic text. The answers have typically mentioned – ability to browse, convenience, physical comfort and portability."

Other reasons given by students who choose print as a preference format included:

- Fewer distractions – "print is better because there are fewer distractions (such as online browsing or chatting when reading from a laptop)"

- Transportable – "I can carry print around." "Paper copies are more transportable, and easier to read in the spring sun."

- Backup – "If my computer crashed, I would still have the course material, and I enjoy reading print rather than online."

Among the students who preferred the online or digital reader format, mobility was perceived to be the biggest benefit. Students volunteered the value of being able to access course material everywhere and easily search key words in the readings.

"Sometimes it's helpful to have online versions of the course readers (e.g. to find specific words using Ctrl-F)."

One student mentioned that hard copies were preferred for heavy readings such as an article over 10 pages. For shorter passages, however, he felt that reading on the screen is easier. A similar point of view was identified in a survey of users in Singapore. The survey found that a great majority of users preferred to read books in print form. Books available online present problems to users for reading from a screen, which becomes particularly significant for longer texts (Choo, H. P., et al., 2003).

3.3 Student attitudes toward personalization of course readers

Students were also asked, "To make your course reader fully personal, what else would you like to have included?" Only 30% of students gave suggestions, which included adding some personalized information such as name or phone number, or to add course information such as TA details, the course syllabus, etc. Two students suggested adding some note-taking areas in the reader - either by positioning blank margin space alongside academic content or by inserting some blank sheets between different articles. Two students mentioned that they would like options for course reader bindings.

4.0 Summary

Feedback from students during this pilot deployment of Publish on Demand confirmed the importance of cost of course materials for students and gave preliminary indications of the tradeoffs students are willing to make for cost reductions. Students respond very positively to opportunities to reduce the cost of course materials.

Feedback also provided confirmation that students currently prefer course materials in print format, but appreciate the availability of the content online as well for occasional remote access and key word searching. Most students still prefer the print version of their course readers because of portability and physical comfort in reading, especially for serious reading with long texts. In addition, printed course materials make it much easier for students to highlight, mark up in a print version, and are very important features of course readers. Opportunities to personalize course materials are quite new concepts to the students who participated in this experiment.

A limited number of previous studies have sought to understand users' preferences and behaviors regarding reading course materials in online versus in print formats. The relative advantages and disadvantages of electronic publishing, compared to print publishing, vary with the type of content. (Meadows, J., 2006). In this experiment, the preference for a hard copy of course materials was verified, but the option for accessing some materials online was also attractive to many.

Students are paying high prices for materials and supplies each academic year not only due to printing costs, but also the copyright royalty fees involved in the readers. Because of the de-centralization of current copyright clearance systems as well as the complexity and legal ambiguity inherent in most copyright licenses and in the copyright status of most works, many unnecessary copyright royalty fees are paid. A system that can address these issues will dramatically reduce current course reader costs and allow students to purchase their course reader at a comparatively lower price.[4]

Since cost is the key driver for students when selecting from a choice of course reader providers, the cost reduction feature was extremely compelling in students' decisions. In addition, students show a positive receptive attitude towards having some cost subsidy messages in the course reader. This suggests an additional and effective way to further reduce the cost of course materials. This

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4 Please refer to Franny Lee, 2011, *An Empirical Analysis Of Costs, Labor And Copyright Issues In Course Reader Preparation: A Case Study Of Sipx Spring 2011 Print On Demand Deployment*. Unpublished Technical Report, Media X at Stanford University. In the first deployment of Media X Publish on Demand initiative, course readers printed by BizHub 6000 with PrintGroove using the SIPX copyright clearance system were between 25% to 78% cheaper than the same course readers sold through the Stanford University Bookstore or University Readers.

initial feedback makes us optimistic that, implemented in a manner appropriate for the higher education environment, Print on Demand course materials could be developed into a viable communication channel.

The concept of personalized course materials appeared to be novel to students who participated in this initial experiment. A few students were able to imagine features that would personalize their course readers; others were surprised by the question. Understanding that online formats are preferred for shorter readings and print is preferred for longer readings, one opportunity for personalization might be to permit a student to customize course reader content by choosing articles he might personally prefer to read in print format. This choice would further reduce printing costs by permitting students to choose which articles to read on screen.

5.0 Future Research

Initial feedback from the 28 students participating in the first deployment of Stanford Print on Demand initiative in Spring 2011 has highlighted the importance of a deeper understanding of cross-media

accessibility of various content included in course materials. In other aspects of their lives, students are accustomed to retrieving content across a choice of media platforms. Considerations for the content and conditions under which cross-media accessibility for course materials can contribute to students' learning experiences need further exploration.

Ninety (90%) of the students participating in this preliminary deployment are willing to provide additional feedback at the end of the quarter. We plan to conduct mid- and end of quarter interviews with each student, with course reader in hand, to learn more about their behaviors and preferences with course materials. The effectiveness of the cost subsidy messages in these readers will be assessed as well.

Reference

Baum, S., and Ma, J. 2007. Trends in College Pricing. A report from CollegeBoard. www.collegeboard.org

Blanket license tool. www.copyright.com (last visited April 21/11)

Choo, H. P., Ramaiah, C. K., and Foo S. 2003. Electronic publishing trends in Singapore. In IADIS International Conference: WWW/Internet 2003. 1, 270-277.

d'Haenens, L., Jankowski, N., and Heuvelman, A. 2004. News in Online and Print Newspapers: Differences in Reader Consumption and Recall. In New Media & Society. 6, 3 (June, 2004), 363-382.

Fisher, W. W., McGeveran, W., Palfrey, J., Harlow, J., Gasser, U., and Jaszi, P. 2006. The Digital Learning Challenge: Obstacles to Educational Uses of Copyrighted Material in the Digital Age. Research Publication No. 2006-09, August, 2006. http://cyber.law.harvard.edu/media/files/copyrightandeducation.html (last visited April 21/11)

Government Accountability Office (GAO). 2005. College Textbooks: Enhanced Offerings Appear to Drive Recent Price Increases. http://www.gao.gov/products/GAO-05-806 (last visited April 15/11)

Meadows, J. 2006. The users of e-publishing and their communication behaviour. In Proceedings ELPUB2006 Conference on Electronic Publishing, Bansko, Bulgaria. June 2006

Report of the Joint Task Force on Textbook and Reader Affordability. UC Berkeley. June, 2010. http://teaching.berkeley.edu/textbooks/final_report.shtml (last visited April 15/11)

Stanford Publish-On-Demand Initiative/Stanford Intellectual Property Exchange Preliminary Status Report. Jan, 2011. Unpublished.

SULAIR Copyright & Fair use. Stanford University. http://fairuse.stanford.edu/Copyright_and_Fair_Use_Overview/chapter9/index.html (last visited April 15/11)