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USING TECHNOLOGY TO PROVIDE AN ONLINE ECONOMICS TEXTBOOK

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Abstract:

College textbook costs have risen in the last decade. The development and use of encyclopedic introductory textbooks creates higher monetary cost for students. One method to lower costs is a custom, professor-written online textbook. Issues related to reading an online textbook are explored and future research discussed.

Keywords: online, textbook, economics, business education, cost

I. INTRODUCTION

College costs for tuition and fees have risen over the last three decades (1978-2009). With the rise in tuition and fees has also been a rise in textbook costs. This creates added financial pressure for college students and their families. Average college textbooks cost \$125 with many texts not resalable on the used textbook market. In a typical year of classes, the total textbook cost can be close to \$1,000 (Christopher, 2009; Rampell, 2008). The prices of college textbooks have increased twice as fast as the consumer price index, an average of 6% per year, according to the U.S. Government Accountability Office (2005).

A variety of proposals have been offered to address textbook cost, such as using an extensive electronic materials library, free e-books, textbook rentals, and advertising-supported books (Blumenstyk, 2008; Christopher, 2009; King, 2009; Kingsbury and Galloway, 2006; Rampell, 2008). In addition to rising textbook costs, the relationship between the textbook and the course must be considered. If a textbook is purchased, a student wants to feel like it will be used. What happens when the course outline doesn't match the text or doesn't explain some of the material?

In a traditional introductory course such as economics or management, the text often doesn't flow with the desired course outline. Typical introductory textbooks have a tendency to be big and encyclopedic (Siegfried et al., 1991). Introductory history textbooks present historical knowledge as conclusions without exhibiting the research and deliberation embedded in the conclusions (Voelker, 2008). Without a connection between the course and the textbook, students may decide not to purchase the textbook.

Supplements produced by textbook publishers also affect the cost. Supplements add features to the text such as DVD's, website resources and video clips, all bundled with the textbook. These additional resources increase the price of the text, because of the added time and effort required to develop them (Kingsbury and Galloway, 2006).

Traditional hard copy textbooks from publishers are limited in how quickly they can correct errors or make updates to the textbook (Larson, 2002). The length of time to correct errors is usually dependent on the publisher for revisions. Therefore, mistakes in a textbook can take three or four years to correct. In addition, to save money, cost-conscious students might purchase an older edition of a book not realizing errors are present. Some of these problems can be lessened if publishers adopt the use of a companion web site, which is used (among other things) to highlight errors discovered after the book was published.

It is not as good as a new revision, but it is fast and doesn't require the long waiting period for the new edition to be published.

In an effort to report on experience with an alternative to the traditional textbook, we report here on students at a residential-based, medium-sized, four-year university who used a custom professor-written online textbook. It was used in an introductory economics course where students had access to the text at the course website. The student could access the textbook by downloading the complete text to a computer, printing if desired, or reading the document online. This study investigates the value of the online textbook and how students used the textbook.

The next section discusses the issues about online textbooks. Information on the value of the textbook as a learning tool from multiple course sections is provided, as is information on how students read the text. Finally, we offer some concluding comments and suggestions for future research.

II. LITERATURE REVIEW

The textbook serves an important purpose in the classroom particularly when average class sizes are over 60 students. A challenge in large classes is the ability of the instructor to answer students' questions (Sweeney, Siegfried, Raymond, and Wilkinson, 1983). Due to the ratio of one faculty member to many students, often students need to acquire additional content and clarification outside of the classroom from different sources such as textbooks. With a variety of content access methods available—traditional hard copy textbooks, electronic textbooks, web-based materials and web-search engines—there are additional opportunities to reach students outside of the classroom and increase the understanding of and engagement with class material (Johnson and Harroff, 2006; Rampell, 2008). Different learning styles also suggest that providing different ways of accessing classroom content is advantageous for learning (Dorn, 2007; Huon, Spehar, Adam, and Rifkin, 2007).

Moving toward electronic access of content allows material to be updated or corrected more frequently than waiting for a new edition from the publisher. An issue with traditional texts is that by the time the material is published, it is out of date (Stewart, 2009). This is especially problematic in some dynamic fields, such as information systems or technology, where the rate of change in material is very rapid, or in economics, where events such as the recent financial crisis change the nature of fiscal and monetary policy.

Providers of electronic content access are experimenting with different, lower-cost text pricing models. Some are free, while others have a quarterly or semester fee, or request a donation to a cause/program (Beezer, 2009; Rampell, 2008; Stewart, 2009). A new digital publisher, Flat World knowledge (Flat World Knowledge), is providing interactive, electronic material and is providing it free of charge in a time-limited, online-only format. Other versions of the text, including a bound print format, are available for a fee. The University of Phoenix consolidated all course textbooks in an electronic library, charging \$75 a semester for electronic access to any textbook (Blumenstyk, 2008). Open source programs, such as GNU Free Documentation License (GFDL), allow the authors of the content as well as readers to make suggestions and note errors and corrections (Beezer 2009). Safari Books Online (Safari Books Online Index) allows students to electronically access many online books and other learning materials, including searching, browsing, copying, saving and printing parts of the materials.

In spite of advantages in terms of cost, timeliness of corrections and changes, and multiple methods of displaying content, the shift to electronic material has been slow. The lack of comfort reading from the computer has slowed the acceptance of electronic textbooks (Carlson, 2005; Nelson, 2008). Eye strain from a computer screen and back and neck problems are a concern (Crawford, 2006). Although new electronic readers such as Amazon's Kindle have improved the ability to read electronic textbooks, students were "trained" to use traditional textbooks (Carlson, 2005). Many students want to be able to pick up the textbook as needed, as opposed to being tethered to a computer.

Resistance to electronic texts might be waning, however. The rising cost of tuition and the current economic downturn will likely have an effect on colleges and universities in the future (Debolt, 2008). An increase in tuition will influence students when they purchase their textbooks. Cech (2008) suggests that students facing rising costs may soon be willing to switch methods. Computer ownership, the Internet,

social networking, and short text messaging have become ubiquitous for most current college students (Ellison, Steinfield, and Lampe, 2007). Their acceptance of various communication devices and technology creates the possible impetus for change in college textbooks.

Changing the mechanism for reading textbooks (to electronic) allows an environment where students can interact and engage with the material in a different way. Most digital books are searchable, can be highlighted like a traditional textbook, and often have a comment box or annotation ability on the pages (Ravid, 2008). Many technologies being used in education can be used to enhance students' ability to interact and collaborate with other students as well as the professor (Contreras-Castillo, Favela, Perez-Fragoso, and Santamaria-del-Angel, 2004; Hall and Graham, 2004; Paxhia, 2008). Augmenting the learning experience by using technologies such as wikis helps shift content development from the publishers to faculty, instructors and students (Ravid, 2008). Electronic content is easier to find in an online environment (like Blackboard or Moodle) where students can link to the material. Discussion of the material, particularly if the content is controversial or debatable, engages students more in the material (Conole, Dyke, Oliver, and Seale, 2004; Soekijad, Veld, and Enserink, 2004). Orrill (2000) classifies these types of interactions as learning objects, where knowledge is co-constructed by those interacting with the material based on authentic problems and issues, increasing the motivation to learn. Learning objects are advantageous because of the portability to other learning environments (Koper and Manderveld, 2004). One-time use objects, such as standard hard copy textbooks, are limited in portability.

As discussed above, the impetus for change from traditional textbooks to electronic content is increasing, but the transition is not without challenges. The readability of electronic content, ties to the computer, and breaking the tradition of hard copy textbooks are important considerations which will continue to affect the acceptance of electronic content. Additionally, faculty who develop textbook materials take time away from other activities (e.g., research).

In the next section, a discussion of the analysis of whether a particular online text was a valuable learning tool from multiple course sections is provided. Limitations, conclusions and suggestions for future research are then discussed.

III. OUTCOMES AND REALIZATIONS

Outcomes from the use of a custom, professor-written online economics textbook included reduction in the cost of textbooks to students, better linking of the course material to the flow of the textbook (versus the other way around), and having a more accurate textbook with frequent updates. College tuition is on the rise and financially strapped students will look for ways to reduce costs. Textbook costs can be reduced by borrowing textbooks, buying used copies, or not buying the textbook at all. Faculty can't control whether students use a text, better linking the textbook to the course and more frequent updates can increase the likelihood that they will use it.

An initial, voluntary anonymous questionnaire was given to students in the spring of 2005. The response rate was nearly 100% as questionnaires were distributed three times in the last week of class. Students were interested in changing to a cheaper on-line textbook format, as 53% agreed or strongly agreed with preferring an online textbook. Around 25% of the students disagreed or strongly disagreed with preferring an online text. These respondents did not indicate why they preferred a traditional text and further exploration is needed.

Developing a custom online text presents many challenges. Traditional introductory economics courses are split into micro and macro topics. In this context, the economics course covered both topics in one semester. The textbook had twelve chapters to correspond to the major topics in the course's forty-five modules. Each module contained a video introduction by the author, a combination of motivation, overview and help with the complex aspects of the module. The course and textbook covered a wide variety of standard introductory economics topics. The coverage of the text, while very similar to national standards, conforms exactly to the course schedule and organization. Topic omissions from the course (and text), such as price discrimination, foreign exchange rates and the balance of payments, and productivity and economic growth are covered in an additional two-credit junior-level Managerial Economics course taken by all business majors. Fifty economic vignettes appear across the modules, available in either print or streaming audio form. At the time of text development, the economic vignettes

were being used in other courses and were not included in the online text itself so all students could easily access the cases. The content of both the course and text has changed little over the period of this study, 2005 – 2009.

After development and implementation of a custom, professor-written online textbook, additional data were collected in Fall 2005, Spring 2006 and Spring 2009. The Fall 2005 section was an in-person class and the two spring sections were online. Again, the survey was voluntary and anonymous. The response rates was nearly 100%, as questionnaires were distributed three times in the last week of class. Previous nonresponders were sought out by asking if those who had not responded would like to fill out a questionnaire. In all cases, the voluntary nature of the response, anonymity and confidentiality were offered and enforced.

As seen in Table 1, most students agreed or strongly agreed that the online economics textbook was a valuable learning tool, 86% in Fall 2005, 78% in Spring 2006, and 89% Spring 2009. The questionnaires were identical in all semesters. A few students thought the text was not valuable, 1.9%, 7.1%, and 3% in 2005, 2006 and 2009, respectively. No student in any year strongly disagreed that the text was a valuable learning tool. In preparation for the launch of the online text, students were asked about their current hard copy text as a valuable learning tool, and 52% agreed or strongly agreed that it was. Approval levels increased dramatically for the online text.

Table 1. Student Responses to the Statement, “The Online Text was a Valuable Learning Tool.”

Term	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Fall 05	34.0%	52.4%	10.7%	1.9%	0.0%
Spring 06	21.4%	56.3%	14.3%	7.1%	0.0%
Spring 09	37.1%	51.6%	8.0%	3.0%	0.0%

While all students paid for the text in a course fee, each had a choice on how read the textbook. Students could download the entire text and read it from a computer screen, print the text and read hard copies, or read the text online (active internet connection). A subtle change has occurred from the fall of 2005 to the spring of 2009. The two methods of reading online have increased and the printing of the text has decreased. We see in Table 2 that online use increased from 29.6% in 2005 to 38.8% in 2009.

Table 2. Use of the Online Text

Term	Printed text	Downloaded to computer and read online	Read online	Printed parts and read online	Didn't use the text
Fall 05	57.4%	14.6%	14.6%	12.6%	0%
Spring 06	59.8%	12.5%	9.8%	11.6%	0%
Spring 09	42%	19.4%	19.4%	6.5%	0%

Usability and readability of any textbook is a concern but little research has addressed how to assess textbook usability (Page-Thomas, 2006; Preece, 2000). Online methods can certainly reduce costs and it is suggested in the literature that it might also affect the usability (see, e.g., (Balas, 2006; Carlson, 2005; Crawford, 2006; Johnson and Harroff, 2006). If students have trouble using a new text, or if it lacks necessary content to succeed in a course, the student “grapevine” would recommend not purchasing the textbook. In the introductory economics course, a sampling of three semesters with approximately 250 undergraduate students responded that a custom, professor-written online was a valuable learning tool (Table 1). Inference can be made that the online textbook was valuable because it was usable, readable and coordinated with the flow of the course.

As mentioned above, a benefit of an online textbook is the speed at which it can be updated and changed. Updating of the online textbook to include current events and corrections was relatively easy in this case and appeared seamless to students. For example, the current economic crisis was a development that needed to be added to the text. The online framework facilitated this addition in a timely manner.

Although many of the desired outcomes were realized from the development and implementation of an online textbook; there is a need for additional research. To better understand student's decision-making on choosing one reading method over another, cost as a factor, and the usability and readability of online textbooks, a university-wide questionnaire is being created. The questionnaire will be distributed via email to all students registered for the fall semester. Additional results will be included in a future paper by the authors.

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