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Ubiquitous Research: Integrating library resources into online courses.

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Online learning is transforming the way colleges and universities offer credit bearing courses. Now students are able to finish some or all of a degree online, with courses and programs from the hard sciences to the humanities. Nevertheless, a college education is comprised of a variety of educational and social activities that extend beyond a discrete class. Classroom learning is enriched and supported by services across campus, from the writing center to tutoring services, to the library. This article discusses the experience of librarians working in a small, urban community college in integrating library collections, reference services, and information literacy into the course management system, Blackboard. Specifically, the authors discuss 1) approaches to providing and presenting resources and services within the Blackboard environment, and 2) models for librarian/faculty collaboration in an online learning environment.

Background

Hostos Community College is a small bilingual community college in the South Bronx. It is one of the six community colleges of The City University of New York (CUNY), which is also comprised of major research institutions that grant degrees from bachelors to the PhD level. Hostos is fortunate to be part of a network of libraries with shared licenses to electronic resources--including research databases, datasets, streaming video, and ebooks. In its forty year history, Hostos has historically been known as the campus within the City University that serves the least prepared students. Located in an historically Puerto Rican neighborhood, almost 60 percent of students enrolled identify as Hispanic (Hostos, 2009).

Although Hostos has always served "non-traditional" students, many of whom are older than the average undergraduate or who are admitted to college with remedial needs, in recent years the median age of Hostos students has declined, and many new students are "digital natives," born after 1980 and raised with technology. A recent study by the Pew Center for the Pew Internet and American Life Project found that internet use among Latino adults increased 10 percent between 2006 and 2008 and that an increasing number of Hispanic households have access to broadband connections (Fox, 2009). This rapid adoption of technology among Latinos is apparent on campus, and educators are increasingly encountering students who are proficient using technology for educational and recreational purposes.

The college's administration strongly supports student access to technology and opportunities for faculty to develop skills in educational technology. Technology competency and information literacy are emphasized as core learning goals to be mastered across the curriculum. Hostos uses the course management system, Blackboard, to provide fully online or hybrid courses, which combine both online and face-to-face teaching and learning modalities. In the Fall semester of 2009, the college offered thirteen fully online and fourteen hybrid courses in business, English, sociology, and humanities, among other subjects. Additionally, every instructor has the option of using Blackboard to post course materials such as the syllabus and assignments, and as a forum for communication among students and professors. Recent semesters have seen a sharp increase in enrollment, and the administration is looking to increase online offerings to help ease demand for classroom space.

In response to changes in the student body and administrative priorities, the librarians responsible for technology and collections began investigating best practices for serving e-learners during the Fall 2009 semester. During the next three semesters they focused on selecting and researching information resources that would be beneficial to students in online courses and easily integrate with Blackboard, and developing models for working with faculty who are teaching online.

Models for Librarian/ Faculty Collaboration

Most online learning at Hostos takes place on the course management system, Blackboard, which students enter directly from the college's homepage. Because the online student experience is centered on Blackboard instead of the physical campus, information resources and library services need to be integrated into the virtual learning environment. Susan Karplus (2006) writes about the benefits of bringing library resources into the Intermediate Consumer Community (ICC), which includes Blackboard. She lists the benefits as "1) the research process can be brought closer to the student's everyday world; 2) the ICC can be utilized to provide greater access to library resources" (p. 5). The college library is beginning to develop Blackboard sites for library instruction and maintains a library website with links to learning objects and information resources, but integrating library resources into Blackboard courses reaches students directly in their virtual learning environment.

At Hostos, each full-time librarian serves as subject liaison to one or more academic department. Library liaison responsibilities include developing print and online collections in assigned subject areas, communicating with subject faculty about new resources and services, and providing course-specific library instruction. These relationships have been formalized for years, and faculty are accustomed to working with librarians to develop research-based assignments. Although all of the library faculty are assigned liaison responsibilities, the eight full-time librarians already manage a variety of tasks; most juggle two or three major job responsibilities as there are not enough positions to dedicate a single librarian to tasks like electronic resources, web librarianship, instructional technology, or the many other positions often employed in larger academic libraries. Yet, the library's mission is to support all classes regardless of method of delivery, which necessarily includes providing information resources and services to online courses. Thus, looking for a solution that would have a high impact with less of a time commitment was a priority. The result was the creation of a Library tab that would be visible in all Blackboard course pages. The Library tab is a general gateway to all resources and services independent of subject that appears in all online courses. Benefits of this option are that after the initial set up, it requires little maintenance, and students who take several online courses become accustomed to a uniform presentation of the library's resources and services. The two librarians at Hostos who spearheaded this initiative review the contents of the tab on a biannual basis.

The second method of integrating library resources into online courses is more time-intensive than the Library tab. This method of collaboration involves the development of a subject-specific organization that students majoring in or studying a specific field can join to find information resources on a specific topic. An organization can be co-developed by librarians and faculty in the discipline. At Hostos the liaison librarian for chemistry and a chemistry professor teamed up

to create a Blackboard "Chemistry Learning Place" organization. Both are free to post information such as news items, tutorials, websites, or new ebooks. The idea is that students taking courses, majoring in, or with a continuing interest in a specific subject can join a Blackboard organization site and have access to information resources, social networking, and the expertise of a professor in the subject independent of (or as a supplement to) their coursework.

The third option, more labor intensive but probably the most effective, is for librarians to work with faculty on a specific online course, either as consultants or co-developers. At the Community College of Vermont librarians "began moving away from providing students with a disjointed array of online services... The approach we adopted involved embedding a librarian in an online course. The librarian answered students' questions and posted research help relevant to the course assignments" (Matthew & Schroeder, 2006). Although embedding librarians in online courses may ensure that online students have access to research assistance and guidance in an appropriate context, many libraries do not have the resources to provide this level of support for all online classes.

At Hostos, a librarian consulted with the instructor of a hybrid dental hygiene class to integrate appropriate library databases for only research in the "external links" section of Blackboard. In this consultative role, the librarian not only disseminates information to online students about information resources, but also educates faculty in the disciplines about licensed and free online resources available to them in their subject areas. In an English as a Second Language course, a librarian acted as co-developer with an ESL professor. They integrated online information resources and collaborative technologies such as wikis. The librarian served as information and technology consultant to help the instructor and the students use the technology to meet their learning objectives. Ultimately, the instructor was able to use the technology independently and the information resources available to her. Clearly defining roles is essential to any successful collaboration. When a librarian is empowered to contribute to a Blackboard course, it is important to establish a high level of trust and create clear boundaries between the roles of instructor and librarian.

Finally, librarians can use Blackboard to teach faculty about the resources and services the library can offer to online learners. Librarians at American University used Blackboard to create a "centralized information point about virtual services that may be utilized in Blackboard and models the integration of those services into Blackboard" (Dygert, 2007, p. 307). This site is targeted to faculty who teach online and who, like their students, may not spend much time on campus or be familiar with library services for online learners. Librarians at Hostos are offering a week-long online workshop for faculty on virtual library resources. The workshop, delivered via Blackboard, will provide faculty with the experience of being an online learner as well as useful content for improving research assignments and using information resources effectively in their courses.

Resources and Services for Ubiquitous Research

Choosing a framework for working with faculty is just a preliminary step. Librarians also need to ensure that equivalent resources and services in the physical library could be accessed by students in a Blackboard course. Major areas of activities in most academic libraries involve

providing on demand reference services to students who need help using information resources for an assignment, providing formalized instruction on approaches to academic research and resources for a specific class or assignment, and providing information resources to meet the needs of students and faculty.

Research on behavior of online learners reveals that one of their main activities is information gathering: "[S]tudents used the web extensively to extend their understanding of concepts and supplement course material. Search engines and information sites such as Wikipedia were frequently mentioned. Several reported that searching with Google was their first action when trying to get information for an assignment" (Conole et al., 2008, p. 514). This finding comes as no surprise to educators of digital natives. Library collections, both print and digital, are designed to support the curriculum of the college, and also to provide a breadth of high quality materials representing different perspectives and support academic research. This mission of providing quality resources to learners has become increasingly critical in a context of ubiquitous online information.

Online Licensed Library Collections

Academics have been turning to research tools in digital formats for years. Even institutions with limited financial resources have access to research databases through state libraries and other governmental programs. Hostos library is part of a consortium of the City University of New York that consists of twenty academic libraries that serve students who are preparing for initial entrance into higher education all the way through the doctoral level. Students at Hostos have access to over seventy online databases with nearly 25,000 unique journal titles. Online learners currently enrolled at Hostos have access to a range of online resources, which now include not only full-text article databases, but also streaming videos, audio formats, and electronic books. Currently, Hostos subscribes to only a limited number of subject-specific electronic book collections, primarily for general reference and allied health. This number will grow to over 45,000 titles when the entire twenty-school consortium will subscribe to Ebrary's Academic Complete in the spring semester of 2010. Online learners will have roughly the same access to a comprehensive academic collection as students who use the physical collection. It is too early to tell what kinds of gaps will become apparent in Ebrary's collection. Certainly students in Latin American Studies and other historical disciplines will not have access online to all of the titles they will need to support their research. However, for a small library like Hostos, this addition of academic online monographs will come close to doubling the size of the collection.

Open Access

Libraries identify and organize information that serves teachers and students in academic pursuits. In an online environment, students have access to much of the same content that they would have entering a physical library. However, the online learning environment creates a platform for exchange that extends beyond the walls of a library or the institution it serves. One development in academic publishing that is particularly useful to online teachers and learners is open access, which encourages the free use and exchange of educational materials. Open access content is often created specifically for online learning environments. For example,

Connexions (http://cnx.org) is an open access platform for educational materials hosted by Rice University. Contributors are encouraged to develop content in modules, rather than longer, linear texts, which can be more easily integrated into course management systems. Open access objects in Connexions use a Creative Commons license, which gives credit to the author, but allows the use and reproduction of the content for educational purposes. Another initiative is the Open Educational Resource (OER) Commons (http://www.oercommons.org) which organizes and makes accessible lesson plans, videos, tutorials, articles which are made accessible for educators to use, modify, and exchange. Open access is a multifaceted topic, but in the context of ubiquitous learning, open access educational resources are uniquely positioned to enhance the online learning experience. Libraries can play a role in identifying relevant, high quality resources and making them available to faculty and teachers of online courses.

Reference

For decades, users came into a physical library for their research needs. Reference transactions took place face to face and often involved a series of questions, the "reference interview," that led students to clearly articulate their research question, and allowed librarians to suggest possible resources and services. Students in online courses also have research needs that require the help of a reference librarian, but are not always able to come to the library in person. Hostos library has implemented off-campus reference services: telephone, email and instant messaging. Telephone and email reference are nothing new to libraries. However in recent years, instant messaging (IM) has become the ubiquitous form of communication for our students. As early as 2004, the Pew Internet and American Life Project reported that 42% of online Americans use instant messaging, and 24% of instant messagers say they use IM more frequently than email" (Shiu, 2004, p. 2). The library set up accounts using AOL, Yahoo, MSN, and then Meebo as an IM aggregator. The librarian at the reference desk logs into Meebo, which atomically logs into the popular IM services, and simultaneously monitors IM activity as well as answering questions in person.

Integrating email and telephone reference in Blackboard courses was a matter of publicizing the service. A link to the page on the library's website with policies and detailed information, along with the email address and telephone number prominently displayed immediately give students in online courses access to asynchronous reference service. Instant Messenger offered synchronous service for students, a way for them to chat in real-time with librarians. Meebome is a chat-box widget that can be embedded into any HTML page. Because the library was using Meebo to aggregate IM accounts, it was possible to use Meebome to generate a few lines of HTML that could be copied and pasted into Blackboard. This HTML would display a chat box that would allow students without IM accounts of their own to chat with a librarian in real-time.

Other libraries have experimented with Skype and other real-time audio and video chats for reference. Text messaging reference is also gaining in popularity. Hostos library has not implemented video and audio chat, because there there is insufficient staffing to dedicate a librarian to long-distance reference service. However, as the needs of online learners increase, real-time audio and video chat would provide reference service equivalent to in-person reference.

Technology that allows the librarian to interact with the student is not the only aspect of reference. Once connected, the librarian needs to be able to point students to information that meets their needs. A librarian can, of course, reference a print source, but online reference collections can generally satisfy most research needs. Most academic libraries now subscribe to some sort of general purpose online reference collection. Oxford university press and Gale/Cengage offer most of their highly respected interdisciplinary reference books as ebooks. Services such as Credo reference aggregate general reference titles such as dictionaries, atlases, and subject encyclopedias from major publishers and offer subscriptions to packages of bundled titles. Electronic reference books, which are used to look up information quickly and are rarely read cover to cover, are ideal information resources for the online learning environment.

Information Literacy

Hostos library's information literacy program is composed of a six course workshop based "curriculum" based on the Association of College and Research Library's (ACRL) Information Literacy Competency Standards for Higher Education. Among other things, these standards stress that the need for information literacy instruction is as great for online education as it is for classroom-based education: "[t]he challenge for those promoting information literacy in distance education courses is to develop a comparable range of experiences in learning about information resources as are offered on traditional campuses. Information literacy competencies for distance learning students should be comparable to those for 'on campus' students" (ACRL, 2000, p. 6). The City University libraries responded to this challenge by creating a set of tutorials designed to provide students with basic information literacy skills in an online environment. Instruction and technology librarians adapted a tutorial from the Information Competence Project of the California State University Libraries (http://lib.calpoly.edu/infocomp/), developed a set of online quizzes, and created a bilingual (Spanish/English) version of the tutorial (http://www.hostos.cuny.edu/library/info_lit/library/). These tutorials provide exposure and reinforcement of basic information literacy concepts to students who are unable to come into campus for face to face workshops. The most basic option for including information literacy in a course is to link to these tutorials and quizzes. Assigning different tutorial modules and quizzes as the course progresses would begin to introduce information literacy skills to students.

However, teaching information literacy should never be confined to the context of the library-- either physical or virtual. Across the disciplines, students must be taught how to ethically use information and to critically evaluate it based on where it comes from, who created it, and for what purpose. Librarians have a role in reinforcing these skills, but in the context of online research, they should be introduced by subject instructors as part of a course or discipline overview. Information literacy should not be treated as a "special" or "separate" skill but as inherent to successful online learning, akin to technological fluency or writing and communication skills. In a Blackboard course, this could mean not simply assigning information literacy assignments, such as the quizzes and tutorials, but also integrating them into the course's assignments. For example, a librarian or the instructor could moderate a discussion board thread about critically evaluating resources related to one of the course's research

assignments. Additionally, when students use wikis to co-author group projects, the instructor has access to students' projects in their nascent stages, thereby giving the instructor an opportunity to comment on the sources and research students used early on in their projects.

Working information literacy instruction into the course materials also addresses the different learning styles of online learners. Some students learn well via self-guided tutorials like those described above, but many students will also benefit from the interactivity of discussion board threads, or comments on wikis and blogs. Some students will learn better by downloading podcasts or instructional videos. In the case of Hostos, several other CUNY campus libraries created podcasts and videos that students can download from iTunes University. The Hostos campus libraries responded to the wealth of resources available for mobile technology and began circulating iPod Touch devices in the Fall 2009 semester. Now Hostos students can borrow iPod Touch devices and download library instruction podcasts and videos. Thus, Hostos students have access to many of the same resources as students studying at larger campuses within CUNY, and Hostos librarians were able to point them to resources available elsewhere.

Conclusion and Future Directions

Libraries not only provide information necessary for student research, but also guidance in finding and evaluating it. These skills and resources are of particular importance to online learners who are by definition immersed in a rich and complex information environment. Librarians, educational technology specialists, and faculty must create collaborative models that work in varied contexts and disciplines. Successful online learning depends in part on taking advantage of the wealth of digital educational resources available (both licensed and open access), and teaching learners how to critically appraise and use them in their work.

Instructors and librarians collaborating together to provide a rich educational experience via a course management system such as Blackboard provides a foundation for collaboration that will evolve and develop with the platforms that deliver educational content. Vendors who sell information resources to libraries and educators are increasingly making their products in formats for mobile devices. Ebsco has just released a mobile format for searching and viewing their research databases, and there is an app for Blackboard available for some PDAs and smartphones. Podcasts of lectures, lessons, and tutorials are available through iTunes, which has a section devoted to educational content. Students are increasingly using their mobile devices in academic pursuits, thus making mobile information resources the next frontier for libraries dedicated to providing information to their remote users. Although the devices that students use and the ways they receive their education are changing, it will always be the primary role of librarians and all educators to provide quality, reliable information resources, and teach students the critical skills necessary to use and identify them, whatever the mode of delivery. The lessons learned about librarian and faculty collaboration, and re-visioning library collections and services to serve the online academic environment, will transform to the next iteration of online, which will possibly be the mobile version.

Three semesters after beginning to explore inroads to the college's online learning environment, Hostos librarians identified the resources and services available for students in Blackboard courses, as well as three models for integrating library resources into online courses. Research about practices at other institutions as well as background information about Hostos informed

how the librarians approached the task of integrating the library into the college's online courses. Looking to the future, Hostos librarians plan to continue using all three models, as well as searching for additional content for online courses, on Blackboard and beyond.

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