PREFACE

Welcome to the *Sixteenth Distance Library Services Conference Proceedings*. The manuscripts in this volume were evaluated and selected for inclusion by the Conference’s thirty-two member Program Advisory Board using a juried abstracts process. These papers represent the many types of initiatives, programs, and new directions being presented to our profession by the librarians currently engaged in delivering library resources and services to distance and online library users.

Jennifer J. Rundels
Rebecca Hill Renirie
Co-Editors
The Sixteenth Distance Library Services Conference is the result of significant amounts of time and effort on the part of so many individuals. A special thank you goes to the presenters and authors who have shared of their experiences and expertise for the benefit of their colleagues and their profession.

Thank you to the Central Michigan University Libraries and CMU’s Global Campus Programs for their continuing sponsorship of this respected national gathering.

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Abstract
Far from being dusty old relics who are guardians of the book, embedded librarians need to be proactively leading students through the digital maze of the virtual library. Working with students more than 7,000 miles away changed perceptions of how to teach and learn, and how people interact online. We will share how as embedded librarians we repositioned ourselves, and our services, to be an integral part of the educational experience. Working with students whose cultural norms are centuries different than our own and for whom English is a second or third language, librarians must be information gurus.

Background
Librarians need to change their perspective from being providers of information to becoming teaching faculty. Faculty librarians provide so much more than the steps to open and use a database. They teach students to find information, organize information, create new knowledge in the synthesis of information, document, and publish that new knowledge. Multicultural students, with vastly different communication norms and cultural differences, feel disenfranchised because of distance and the challenges presented by a website portal. In the online environment with diverse students, the embedded librarian can be the information counselor who builds an atmosphere of inclusion and develops distance learners into expert users of the virtual library.

Although embedded in other classes, this is the first opportunity to work entirely with a group of international students. For two years the focus was on the needs of this group of distance students and how to overcome the difficulties of time and space. New techniques were tried, such as giving each student a librarian mentor and developing an online area specifically for this group of students.

Interviews were conducted with the students, observations were made of them in the online and in-person environments, and online reference and instruction interactions with them were examined to determine how to meet the challenges of working in a world that was unfamiliar and uncomfortable. The jargon of the digital library environment and ability to navigate the technology are even more challenging for students for whom English is a second language.

The experience helped to redefine what an embedded librarian could and should not do. It also helped us understand the huge impact of cultural differences in the exploration of
resources. What was learned will help all distance and online students and help the distance services librarian become a more valued resource in a digital world.

**The Challenge**

Librarians’ success and effectiveness in teaching students can be improved by adopting the perspective of teaching faculty. Traditionally librarians’ training prepared them for passively waiting for students to come to them at the reference desk and for faculty members to contact librarians requesting instruction. Librarians can change this model of waiting to be called to participate by taking the initiative and going forward to faculty and students with information literacy instruction. According to Meulemans and Carr (2013), many “librarians do not recognize their expertise and professional responsibility” to be a part of this conversation and to not hesitate to make “…a shift from the service-centered orientation to collaborative instruction” (p. 88). This shift of perspective would require taking the initiative to take a position at the table with researchers and faculty. It would also encourage librarians to have a new awareness of their professional value and worth as “full collaborators and partners in the teaching and learning endeavor” (Murphy, 2011, p. 211).

In the normal academic setting the initial challenge is to meet and develop rapport with faculty members. During these conversations with faculty, librarians may present a structured plan to incorporate information literacy skills into the syllabus. Librarians can request that faculty members announce that the librarian is part of the teaching team, visiting the class and providing instruction. The faculty member’s introduction of the librarian and endorsement of library instruction can make a significant difference in the students’ reception of the librarian and instruction provided, “faculty members are the prime motivators of student library use” (Slutskaya, Salter, Masce & Rose, 2013, p. 23). Librarians need to become familiar with the course syllabi and assignments to determine when bibliographic instruction is needed. Librarians will work with the faculty member to schedule time to teach the necessary skills, such as basic library orientation, the scope of the collections, students’ access, specialized resources, subject databases, citation management systems, writing style guides, etc.

**Teaching Faculty**

Librarians and teaching faculty can develop great working relationships as they continue in these collaborations. Continuity over several semesters will allow for creative development of new ideas, different assignments, and opportunities to enrich the teaching and learning experience. These collaborations have the added benefit of making teaching faculty aware of the services and resources available from the library (Slutskaya et al., 2013). More in-depth knowledge of the courses in the curriculum will enhance the librarian’s ability to provide the best possible collection management. Becoming part of the instruction team and being informed on the subject enables the librarian to suggest new resources and assist with defining the topics and assignments.
Embedded Librarian

The term “embedded librarian” is used throughout library literature with various meanings, including librarians who have offices within an academic department; librarians who are a part of a particular classroom research project; or librarians who are part of information literacy education throughout the curriculum (York & Vance, 2009). Kearley and Phillips (2004) describe embedded librarianship as the practice of course-level participation in online classes.

Having an embedded librarian in online library science courses has been in effect at the University of North Texas (UNT) for five years; and a similar level of integration is widely applied by several of UNT’s liaison librarians, or subject specialists, in on-campus classes in varying degrees. One librarian’s full-time office is in the college department; one holds office hours in the classroom building’s lobby; one’s office hours are in the department; and another holds hours in the lobby of the biggest dormitory. In order to serve the students, a mash-up evolved of all these various methods of being embedded and a few additional methods were added, such as social media, email mentoring, Skype conferences, Facebook, and phone calls.

Librarian Mentors

Another unique level of support was developed. Several librarians were selected and assigned to mentor two students each from the Institute of Museum and Library Sciences (IMLS) Laura Bush 21st Century Librarian Program grant cohort. These mentor librarians had to meet several requirements. They had to communicate with students at least once a semester by email; get to know them personally by exchanging personal and professional backgrounds; answer any reference questions; provide support for assignments as needed; and help locate textbooks, etc. Never before had the opportunity to provide this saturation-level of librarian/student ratio existed. The expectations were high for outstanding results of this very available and dedicated support of students’ research and studies.

Taking a more assertive approach to being part of the syllabus created this extremely connected classroom of students, faculty, and librarians. This unique setting allowed the two librarians present during the Web Institute to form collaborative partnerships with the instructional faculty and together examine the components of information literacy to incorporate into the syllabus (Meulemans & Carr, 2013). By working closely with the remainder of the teaching team, librarians were able to provide an information literacy plan that was comprehensive and had no overlap between courses. This literacy plan was reinforcing basic skills and building new skills.

Being embedded allowed librarians to be more accessible to students in real time in the Blackboard course management system, in a generic discussion board chat, and on Facebook, Skype, and blogs. A separate online classroom was developed that was not connected to any course where students could interact with librarians and ask questions; and librarians could post generic answers and instruction developed to solve the problems many students were encountering. Librarians also established an online classroom as a location for one-on-one chats and reference consultations with individuals or groups requesting assistance.
Paradigm Shift

In order to change the image of the librarian and to get them into the classroom, a more assertive approach will garner more immediate respect and attention from students and faculty. This approach provides opportunities for scaffolded learning with incremental instruction that increases in complexity and the sophistication of the tools used and search strategies applied. Students come away with a deeply rooted understanding of the critical thinking skills required to make multi-level decisions throughout the research process.

Librarian faculty members can teach students to find and organize the information, determine a direction and then narrow the focus of their research, locate and use reliable sources, and create new knowledge in the synthesis of information, and finally document and publish that new knowledge. They can also assist with overcoming technological problems, such as navigating websites and uploading software, etc. The creation of a solid foundation of research skills will provide students with the tools they need carry on lifelong learning.

After years of reinforcing the model of librarians as retrievers of articles, books, and links can the paradigm be changed? In today’s stringent economic conditions, it is imperative that librarians reposition themselves to work efficiently and effectively, to teach the required skills sets to our students. The transition from the customer service self-view, where we wait to be approached, to that of information leadership in a global economy where knowledge management is highly valued, will provide a new prospective and impetus for growth (Meulemans & Carr, 2013).

Not Our Purview

As part of the teaching team working closely with the faculty members teaching the subject content, there are some areas that are not in the purview of librarians. Some things that librarians should not take on include, interpreting the syllabus/assignments; doing student’s literature searches/assignments; delivering an unrealistic expectation of availability; providing office support for faculty and the students; and doing the research for the student and then scanning, sending, and interpreting the data. Academic librarians’ responsibility is to teach students how to do research, not to do it for them.

Leap Cohort

The opportunity to change our thinking, techniques, and schedules came about serendipitously when we participated in writing an Institute of Museums and Libraries grant to provide library instruction for the purpose of developing degreed librarians in the U. S. Affiliated Pacific Islands. A teaching team from the University of North Texas, Denton, Texas, traveled to Tumon, Guam to provide a 10-day orientation to the master’s in Library and Information Sciences (LIS) program for 30 students who were native Pacific Islanders. The team consisted of two university librarians, three faculty members from the LIS Department, one support assistant, and a representative from the Pacific Resources for Education and Learning.

Because two librarians were embedded in the courses for this small cohort of students, librarians were able to host discussion areas in courses to provide reference especially for that class, and the specific assignments. Normally a more generic, nonspecific instruction is provided and does not speak to the nuances of particular assignments. Handouts were created and pushed
these to the students for additional skills instruction, as an entrée into the classroom, and to provide a discussion opportunity.

As the semesters progressed, the needs of the students became less about resources and more about professional development opportunities. The opportunity to work with these students as they are taking courses and considering employment opportunities provided a natural setting for career advice and a very involved, personal type of mentoring. Many library students are frustrated with the focus on theoretical courses in graduate school that do not prepare them for the practical challenges of preparing for job searching (Stephens, 2011).

**International Component**

The University’s MLIS distance students are introduced to the University and the libraries during two- to four-day institutes normally held on the Denton campus. More and more those institutes are being held in central locations near the cohort, such as Atlanta, Little Rock, or Las Vegas. In 2011, UNT’s first international cohort was held in the U.S. affiliated Pacific Islands. This would be different than working with a continental United States cohort; however, it was even more unique than expected. Due to the incorporation of librarians as full partners in the teaching team, the information literacy component of the 10-day orientation covered over 25 hours of class time. The traditional one-shot is one hour, and if sufficient persistence is applied, there are two more hours throughout the semester of advanced instruction. Another challenge for this international cohort was that these students would never see the campus!

Working with students more than 7,000 miles away changed the perceptions of the appropriate ways to teach, how distant students learn, and how people interact online. It was quickly apparent that these students were a unique international population with different needs than traditional student groups (Farrell & Bullington, 2013).

Students with vastly different communication norms and cultural differences can feel disenfranchised because of problems communicating at a distance and across time zones. Knowledge gaps may become evident as a result of language and native cultures, which can make learning in the U. S. education system challenging (Farrell & Bullington, 2013).

The challenges presented by quirky internet connections, a classroom website portal, and accessing library resources are not always able to be solved within minutes when you are communicating across six time zones, the International Date Line, and the equator. Add to those challenges the fact that “international students are heavy users of the library and also experience great library anxiety” (Yi, 2007, p. 666). In the online environment with multicultural students the embedded librarian can be the information counselor who develops distance learners into expert users of the virtual library.

**Relationships with Students**

Because of the makeup of the group, some personal relationships were already established. Some students came from the same island and knew one another. Some had met at inter-island conferences. Most of the students had met the one professor who did the in-person recruiting that had been conducted during the previous six months and many knew the contractor who works for an agency that provides educational support for the islands.
During the Institute more relationships were formed. The students were excited about getting to know one another, the faculty, and librarians who had traveled so far to start them off on their educational journey. During the Institute the librarians introduced themselves and the other mentors. The students also introduced themselves and their home country during an evening program called Pacific Voices. Not surprisingly many of the students knew little about demographics, geographical education systems, and culture of the other countries represented in the group. This event served not only to inform the faculty and librarians, but strengthened the bonds within the group.

Through the two years, like in any group, life got in the way. There were babies born, deaths in the family, jobs lost, and vacations at times different than those in the mainland United States. There were other more unusual issues as well, such as typhoons, threats by North Korea of bombing, power outages, and very limited Internet access.

**Multicultural Online Environment**

Students with vastly different communication norms and cultural differences may feel disenfranchised because the challenges presented by a website portal. In many cases online line students feel further disenfranchised because they are at a distance and unable to participate in many activities that build “school spirit” and enhance the educational experience, such as football games, lecture series, and informal chats with faculty and other students.

The group of students involved in this cohort faced many of the challenges all multicultural distance learners face. While they have graduated from an institution in their country and passed the standard entrance exam, such as the Graduate Record Exam or the Miller Analogies Test, their educational background may not have prepared them for studies at an upper level institution. The national standards applied to schools can vary greatly by country (Ammermueller, 2013). Some are more rigorous than the United States, other not as rigorous. In addition, while the English as Second Language students have passed the TOEFL; literary allusions, slang, and cultural context may elude them and cause further disenfranchisement.

Most cultures rely on nonverbal communication as an integral part of the communication process (Guye-Cuilleme, Capin, Pandzic, Thalmann, and Thalmann, 1999). When a class is totally online with very little visual contact, communication issues can easily arise. Use of Skype technologies with face, audio, and text chat enhances the communication and returns facial expressions to the classroom and gives some limited ability to observe body language. However, this technology was not used in our classes, only in one-on-one communication with librarians and a limited number faculty. The lack of immediacy of response may stifle spontaneity. Give and take of questions and responses is difficult or nearly impossible to recreate even in an online environment where you have voice and text chats.

Some communication and cultural issues surrounding the group of Pacific Islanders would have impacted their interactions with faculty in person, but were magnified when the communication was online. The local contractor presented a session to the librarian mentors on how the local culture impacts communication. Among the things mentioned was a cultural imperative to please. Pacific Islanders answer questions to please, which is not necessarily a realistic version of the actual situation. So when asked, “Does this answer your question?” Pacific Islanders would respond with the answer they believe was desired, even if it was not
entirely true. The Western response to a question sounds abrupt and curt to the ears of a Pacific Islanders. There is much more involved in answering a question than giving a factual reply. In general, the Pacific Islander men are much more forward and willing to ask and get involved, while women are trained to not make eye-contact, especially with someone in position of authority. The students took those same positions in the virtual environment. As a result, the men were perceived by the faculty as participating while the women as “lurking” or not participating in the class. These behaviors persisted even with the faculty they had met and gotten to know in person at the institute. The women in the group were much more likely to use email or Facebook to ask questions.

Also learned when interviewing and interacting with these students was that they have a different concept of time. Mentors often reminded students about deadlines, but soon found that timeliness of responses did not hold the same value as in in Western society. Island time prevailed at first. This did improve for some as the semesters progressed.

From the students’ perspective it was obvious that family was all-important. Some students reported they had not gone further in their education because it would have meant leaving their extended family and their responsibilities were too great to allow time away. Therefore the online degree seemed perfect for them. However, their family responsibilities also would take precedence over study and completing assignments.

Different religious observances and holidays were more important in the islands cultures. The community has strong religious beliefs that bring an additional sense of common values. Religious holidays were observed by in-person attendance and active participation in church activities. The days off to celebrate religious holidays and length of time for religious observances, such as funerals, may not be the same days off as on the main campus. As opposed to the university regulated few days off for a funeral, funerals there are several weeks long and the extended family is expected to be in attendance the entire time regardless of other responsibilities. Birthdays and religious ceremonies, such as christenings and weddings, drew family from all over the area and often lasted several days.

**Other Issues**

As in most groups of students, there were vastly different levels of comfort with technology. This was emphasized our first day in Guam when a student from an outlying island had never seen an escalator and had no idea how to get on one. This was also true of computer knowledge. Other issues encountered by all distance students are complicated by the distance and technological sophistication of the student’s country of residence. Lack of reliable Internet access and power in addition to the high cost of an Internet connection were issues for all of these students. As part of the grant, the Internet costs were subsidized. One student had to move from one island in her island group to another to get a more stable Internet connection. Another student had to leave work and go to a local educational service center to be able to get a fast enough Internet connection to participate in classes.

There were definite time zone challenges in scheduling interviews and chats. In many cases interviews to evaluate the project had to be scheduled between 2:00 a.m. and 4:00 a.m. Central Standard Time. This made the faculty aware of how difficult it was for these students to participate in synchronous chats in the regular classes. While class chat archives are available
for listening asynchronously, distance students have little opportunity to contribute to the dialogue of the classroom. This means they may not get as much from the class as others since it takes longer to get answers to their questions about a lecture or assignment.

While the islands look like paradise, during the two years of their degree program, there were typhoons and Pacific storms, which caused power outages and Internet outages for extended periods.

Conclusions

This experience helped to redefine what an embedded librarian could and could not do. Embedded librarians, especially in the multicultural environment, need to reposition themselves from service provider to integral part of the educational experience. These experiences supported the concept of embedded librarians as servant leaders and information gurus who serve as an empowerment agent for faculty and students who seek to use library resources and information sources from a distance as stated by Robert Greenleaf (2013):

The servant-leader is servant first… It begins with the natural feeling that one wants to serve, to serve first. Then conscious choice brings one to aspire to lead. That person is sharply different from one who is leader first… The difference manifests itself in the care taken by the servant-first to make sure that other people’s highest priority needs are being served. The best test, and difficult to administer, is: Do those served grow as persons? Do they, while being served, become healthier, wiser, freer, more autonomous, more likely themselves to become servants?” (What Is Servant Leadership? section, para. 3-4).

The interaction with these multicultural students helped to demonstrate the huge impact of cultural differences in the exploration of resources and ways of gaining knowledge. What was learned will help all distance and online students and help the distance services librarian become a more valued resource in the digital world.

In the last survey of the students, one of the students summed up the importance of embedded librarians in all distance education courses, not just the LEAP program:

The LEAP program helped me accomplish a major goal in my education. Everyone involved went out of their way, especially Beth, Cindy, and Jane to help me believe that I can finish the program. Their encouragement made me stay and finish the program. I think participants from Micronesia need people like them to succeed in the LEAP program.

The biggest challenge for embedded librarians is to become real in a digital world. To do this multiple methods will need to be used to lead students through the digital maze of the virtual library. These methods include not only actively participating in and developing the online classroom, but stepping out of the online classroom and providing service wherever students congregate, using instant messaging, social media, video conferencing, and wherever opportunities exist.
References


Designing LibGuides as Instructional Tools for Critical Thinking and Effective Online Learning

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Abstract
Did you ever wish for an easy-to-maintain tool to create course-level or assignment-level instruction for online or distance students? LibGuides can provide the solution! LibGuides provide a versatile and easy-to-maintain platform for delivering step-by-step, scaffolded tutorials that enhance learning outcomes through chunking, reduced strain on cognitive load and working memory, and metacognition. Tutorial-type LibGuides, compared to Pathfinder-type guides: stand alone as modules for online learning; improve student learning outcomes for specific courses; and promote lifelong habits of critical thinking and effective research skills. Assignment-level guides also provide measurable student learning outcomes for the assessment of information literacy instruction.

Introduction

Typical Information Literacy Instruction is conducted in face-to-face classes led by a Librarian but can also take place online. These “one-shot” instruction sessions often take place in circumstances where students are not working on a specific assignment. As a result, one-shot “orientation” sessions—whether online or in face-to-face classes—have limited effectiveness in teaching students practical research skills or providing them with opportunities for practice in locating, critically evaluating and using sources appropriately (ACRL Information Literacy Competency Standards for Higher Education, 2000).

Though LibGuides have existed since 2007, relatively little has been written about their use in the online learning environment. Typical LibGuides are “pathfinder”-like; that is, they present lists of resources on a particular subject, often in different formats. They may also include a variety of search tools and interactive features but most are not structured as tutorials that can guide students through the research process. LibGuides that are designed to guide students through a specific assignment can stand alone as tutorials, without the need for mediation by a librarian or instructor. They can provide instruction at the student’s point of need, especially when instruction in a traditional classroom session led by a librarian is not an option. Additionally, they can be easily replicated or modified for similar courses. Finally, providing tutorial guides for online learners can help to ensure that all students receive the same access and appropriate instruction in accordance with ACRL Standards for Distance Learning Library Services (2008).
Literature Review

LibGuides are the evolutionary descendants of library pathfinders, which were popular tools in libraries in the 1960s and 1970s to assist users with pointers to key resources during their first few hours of exploration of a topic (Dahl, 2001). Eventually, with the rise of the Internet, pathfinders transitioned to online web-based subject or research guides in the 1990s-2000s. LibGuides are the natural evolution of that trend in the Web 2.0 environment:

LibGuides is a software application that creates a way to collect knowledge and present information in an organized manner. LibGuides has a tab based structure with a variety of boxes and columns available to create content in many different formats. Web 2.0 technologies such as RSS feeds, instant messaging widgets, and social networking applications are integrated into the LibGuides platform creating a more participatory setting than traditional online guides. Through LibGuides, online guides can be linked to from appropriate pages within the larger library Web site and from within course management systems” (Gonzalez & Westbrock, 2010).

A number of recent articles recount the brief history of LibGuides since they were launched in 2007 (Leibiger & Aldrich, 2013; Mann, Arnold, & Rawson, 2012; Emanuel, 2012; Morris & Del Bosque, 2010; McMullin & Hutton, 2010).

Junk, Derider & Junk (2011) state, “…the goal of an online program should be to provide an environment which actively engages students in the learning process and promotes independent learning where students take ownership of their work” (p. 2).

McMullin & Hutton (2010) discuss the adoption of LibGuides at WestChester University. They created numerous subject and class guides, which were more easily updated than older systems of guides they had used previously. In a similar vein, Reeb and Gibbons (2004) noted that general guides did not appeal to Millennial students and that students found guides at the course level more appealing and useful. Others stress the need for collaborative, experiential learning…at point of “need to know” (Robinson & Kim, 2010; McMullin & Hutton, 2010; Watson, Rex, Markgraf, Jennings, & Hinnant, 2013).

Roberts & Hunter (2011) provide a brief history of pathfinders and online subject guides, noting they can incorporate video, chat and other Web 2.0 features, are easy to maintain, and can be responsive to changes in curriculum or needs of a specific assignment.

Staley (2007) and Strutin (2008) note the lack of user-centered data but cited anecdotal evidence that subject guides are used more heavily after face-to-face library instruction sessions. Other than that exposure, most students seem unaware that research guides exist. Therefore, guides need to be promoted in a variety of ways to be more effective. It is unclear from the literature precisely how students use online guides; so more user studies need to be conducted (Morris & Del Bosque, 2010). Anecdotal reports in the recent library literature indicate that subject guides: (a) may be difficult for students to locate and (b) when they can find them,
students tend to prefer the more specific information contained in course guides (Roberts & Hunter, 2011; Strutin, 2008; McMullin & Hutton, 2010; Gonzalez & Westbrock, 2010).

Authors Bryan & Karshmer (2013) and Robinson & Kim (2010) also note the need to synchronize information literacy outcomes and course objectives for assessment, noting one-shot instruction session are most effective when they are focused on a specific lesson with “instruction designed around specific measurable outcomes” (Bryan & Karshmer, 2013, p. 575).

Finally, Mann, Arnold, & Rawson (2012) describe several types of LibGuides that can promote information literacy in a distance education environment. Among those are: embedded stand-alone library Instruction modules, course resource guides, subject-specific guides, and tutorial guides.

**LibGuides: Advantages & Disadvantages**

As of this writing, there are 400,812 LibGuides at 4,474 libraries (Springshare.com, 2013). The library community has eagerly adopted LibGuides since their launch in 2007, namely because they are:

- easy to maintain with no specialized knowledge of HTML or web programming required;
- responsive to changes in resources or curricula;
- interactive with social learning components and Web 2.0 features including chat and video, RSS feeds, blogs or comments features (Roberts & Hunter 2011; Morris & Del Bosque, 2010);
- can be embedded or linked in a Course Management System or Learning Management System;
- operate across multiple platforms (Robinson & Kim, 2010); and
- can help with the creation of similar guides across multiple courses or sections with the use of "reusable objects" and templates.

However, the problem with the current generation of LibGuides is that many of them try to provide too much information: what might be termed the “kitchen sink” approach. When Pathfinders were confined to a single sheet of 8 ½” x 11” inch paper, their scope and depth were easily controlled. No such limitations exist for LibGuides, especially those that take the kitchen-sink approach.

Librarians who create these very detailed LibGuides, of course, are well-meaning; they want students to have all the essential resources and tools they need for a given subject area, as well as general information about library services, so they can do effective research. At the same time, there seems to be an implicit assumption that students understand how to do research and all librarians really need to do is to provide access or links to the appropriate resources (Morris &
Of course, not all LibGuides take this approach (Mann, Arnold, & Rawson, 2012) but a great many still do. It is understandable given the amount of time an effort it would take to create tutorial guides. However, when subject guides expand to having two or three rows of tabbed pages, it results in “cognitive overload” for students and perhaps their instructors.

**Use of Online Subject Guides**

Students often complain about the complexity of library web sites saying they “don’t know how to use them” or “where to begin.” It seems natural, then, that students resort to using Google or Wikipedia, tools which they find more familiar and easier to locate and understand (Latham & Gross, 2013; Asher, Duke, & Wilson, 2013). The same is proving to be true for students when they encounter LibGuides that take the kitchen sink approach. As satisfying and efficient it may seem to us as librarians to centralize resources in an organized framework, the subject guides can be too broad in scope or provide so much information that students become frustrated and confused. This is particularly significant for fully online students who may never have a face-to-face (f2f) class or interaction with a librarian who could mediate or explain the content and research process to them.

In feedback collected by *Project Information Literacy*, students said they found research harder than ever before due to information overload and the proliferation of tools and resources (Head & Eisenberg, 2009; Head, 2013). A number of other recent articles have discussed student search preferences for single-search box discovery services with a more familiar Google-like feel (Asher et al., 2013; Latham & Gross, 2013; Roberts & Hunter, 2011; Lown, Seirra, & Boyer, 2013; Mussell & Croft, 2012).

LibGuide designers need to be mindful of whom their current students are and how they like to learn. The so-called Millennials, born between 1980 and 2000, are quite different from their counterparts in the days of pathfinders in the 1970s and even later web-based subject guides in the 1990s. They are “plugged in” to technology; they are multi-taskers; they expect to find answers to their questions; and they don’t want to waste time (Foster, Wilson, Allensworth, & Sands, 2010; Nielsen & Web, 2011; Bauerline, 2009). Even so, these students do not seem to “…seek, find, and manage information very well” (Bauerline, 2009). Gonzalex and Westbrock (2010) note, “…most students do not have general research questions rather they have specific needs” (p. 640).

What we need to do as educators is develop a way to give students the information skills they need, when they need them, and in a way that fits their learning styles and preferences.

**One Solution: Tutorial-type Assignment Guides for Online Learners**

In particular, online guides are needed that will help Millennials pursue the questions they have at the point they need that assistance. LibGuides that focus on a particular assignment can address the principal problem with one-shot Librarian-led instruction sessions: their goals are often too broad, taking the form of the general orientation to library resources or research methods. In the absence of a specific assignment or research task, such instruction is often ineffective (Watson, Rex, Markgraf, Jennings, & Hinnant, 2013; Mery, Newby, & Peng, 2012).
Even LibGuides designed to be supplements to one-shot instruction sessions may still be too broad or risk losing the students’ attention through lack of a specific assignment or purpose.

Tutorial-type assignment guides can provide a solution to this challenge for online courses (Mann, Arnold, & Rawson, 2012). These guides can function to reduce cognitive load and stress on working memory; engage students through metacognition for deeper learning; and provide a scaffolded framework so students can build skills and competencies gradually towards mastery. Within this framework, students can be provided with guided activities that enhance critical thinking, through the use of metacognitive elements such as reflection journals or writing assignments. There is ample evidence through Project Information Literacy (Head & Eisenberg, 2009; Head 2013; Berrett, 2012) that freshman composition classes are not doing as much as they should to equip students with the critical thinking skills they need to succeed. Tutorial-type assignment guides can help students meet course goals and objectives around critical thinking and achieve deeper learning.

**Georgia Southern University FYE Pilot Project: Designing an Assignment Guide**

In Spring 2013, students from two sections of a First-Year Experience course at Georgia Southern University were asked to complete a class assignment using two types of LibGuides: a pathfinder-type LibGuide and a tutorial-type assignment LibGuide and to compare them as instructional tools.

The tutorial LibGuide was based on student-centered design principles and key learning theories. Specifically, it was focused on a single assignment, of limited scope, and had features that exemplified the following learning theories (see Figures 1-3):

- Reduced cognitive load and stress on working memory: few pages, or tabs, and the focus on a single research task.
- Scaffolding: step-by-step instructions, gradually building information literacy competencies towards mastery through a guided activity to select and evaluate sources on a specific topic.
- Chunking-through modular boxes in LibGuide with materials presented in discrete “chunks.”
- Meta-cognition: reflections on the assignment, awareness of their own learning process and requirements of the assignment, including elements of critical thinking (Kirsch, 2005).
- A follow-up survey to gather student feedback on the guides and which one they preferred for instruction (Bielat, Betus, & Arnold, 2013; Leibiger & Aldrich, 2013; Reiser, 2004; McKenzie, 1999; Wood, Bruner, & Ross, 1976).

The tutorial guide was favored by most students and the feedback they provided was interesting and, in some cases, surprising (Baker & Fernekes, 2013). Most notably, the students
reported a more positive learning experience with the tutorial guide and they were able to complete the assignment more quickly and with better results.

Figure 1. Tutorial-type Assignment Guide
Figure 2. Tutorial Guide Part 2

Figure 3. Tutorial Guide Part 3
Conclusions

The role of LibGuides as online instructional platforms for information literacy and other subjects is one that is just beginning to be realized (Robinson & Kim, 2010; Strutin, 2008; Staley, 2007). Guides that can stand on their own as tutorials can overcome the problems with one-shot instruction sessions that lack measurable student learning outcomes. Assignment guides can be designed to address key learning theories to meet those goals and engage students more effectively in their own learning and provide that instruction at the student’s point of need.

The assessment of LibGuides as learning tools requires measurable outcomes beyond page view statistics that will let instructors determine whether students have achieved course and information literacy learning objectives. In combination with metacognition and web 2.0 tools (Bryan & Karshmer, 2013; Bottorff & Todd, 2012; Mery et al., 2012), pre- and post-tests in the online environment could provide a more accurate picture of what students are actually learning and what competencies they have achieved. Watson, Rex, Markgraf, Jennings, & Hinnant (2013) describe “closing the loop” with discipline faculty as a key component of assessment to use their analysis to change goals and instruction.

Finally, it is critically important to collaborate with discipline faculty, and to promote LibGuides by various means: word-of-mouth, social media, embedding them in course-management systems as well as traditional means of communication (Dermody, 2008; Foster et al., 2010; Lo & Dale, 2009; West, 2013; Cannady, Fagerheim, Williams, & Steiner, 2013).
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Making It Work for Everyone: HTML5 and CSS Level 3 for Responsive, Accessible Design on your Library’s Website

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Abstract
This article argues that accessibility and universality are essential to good web design. A brief review of library science literature sets the issue of web accessibility in context. The bulk of the article explains the design philosophies of progressive enhancement and responsive web design, and summarizes recent updates to WCAG 2.0, HTML5, CSS Level 3, and WAI-ARIA. The final section of the paper walks readers through the website creation process. The tools and techniques described in the article can be used to create a library website which can be accessed equally by all patrons without sacrificing aesthetics or usability at any level.

Introduction

Tim Berners-Lee (1998) often credited with inventing the Internet, defines the Web as a dream “of a common information space in which we communicate by sharing information,” and states, “its universality is essential” (para. 3). Libraries, in particular, and other public-serving institutions need to ensure that their websites are accessible to as many of their users as possible.

However, despite the potential impact of non-accessible library websites, especially to distance students and other non-local users, library web design is often assigned to non-experts, or to teams consisting of some expert designers and some amateurs. Connell (2008) found that the main selection criterion for web design teams in university libraries was that the individual “showed an interest in web design” (p. 124). According to Connell, only 17.6% of survey respondents stated that the most important quality in a library web designer was “web authoring skills” (p. 125). While there is nothing wrong with this approach per se, library websites often suffer as a result, especially where accessibility and other technical issues are concerned.

This paper will provide a summary of the latest developments in web design techniques and technologies. In addition, the paper will discuss how these techniques can be used to make future maintenance and upgrades easier by fully separating content from layout, using contextual markup and creating websites that are accessible from the start and will not need extensive redesigns later down the road.
Literature Review

Numerous articles have been written on the topic of web accessibility for libraries. Hazard (2008) provides a snapshot of the literature and suggests that most articles published review accessible library websites and focus on implementation, the “legal framework for web accessibility,” and/or web standards (p. 419-420). In general, these are still the major areas discussed in the literature.

As Vandenbark (2010) points out, “Because the Internet and its design standards are evolving at a dizzying rate, it is difficult to create websites that are both cutting-edge and standards-compliant” (p. 23). Likewise, any literature review on the subject will quickly become outdated. The goal of this review, then, is not to provide a comprehensive view of the field, but to point interested parties to recent articles and books which may serve as useful background reading.

Web Accessibility

Riley-Huff (2012) gives an excellent high-level summary of the basics of web accessibility, legal issues, and technologies; however, as her purpose is to provide “a primer and basic understanding of…website accessibility” (p. 35), she does not go into much detail about the principles of web design or the changes wrought by CSS Level 3 and HTML5.

Brophy and Craven (2007) provide an overview of web accessibility, and point out that web designers should not assume that assistive technologies are a valid substitute for accessible design. Hazard (2008) reinforces this, noting that a survey of ARL membership libraries found significant problems with the implementation of text-only websites, as well as a general failure to maintain them.

Librarians who wish to know more about real world implementations of web accessibility principles and guidelines may consult Zap and Montgomery (2013) for a summary of recent studies in the United States and Canada. Or, Comeaux and Schmetzke (2013) for accessibility trends in academic library websites in North America between the years 2002 and 2012.

Legal Issues

Fulton (2011) summarizes the legal issues of web accessibility and punctures some of the common myths about legal ramifications in the United States. Vandenbark (2010) explains section 508—the amendment to the Rehabilitation Act of 1973 which requires that Federal agencies to make websites and other technologies accessible to those with disabilities—in great detail, breaking out the different points of the law and explaining what each means to libraries, and how they can be implemented, as well as providing additional background. McHale (2011) provides a comparison of the US government’s Section 508 law with the now-outdated WCAG 1.0, which remains nonetheless useful for librarians who are having difficulties aligning the two sets of criteria.
Standards and Technologies

The literature on web standards and technologies has largely been published outside the sphere of library science. A Book Apart (http://www.abookapart.com/) publishes excellent resources for developers, as well as the well-known A List Apart web journal. Librarians who have limited resources, expertise, or time and find themselves responsible for maintaining websites, may wish to invest in Ethan Marcotte’s (2011) Responsive Web Design; Jeremy Keith’s (2010) HTML5 for Web Designers; and Dan Cederholm’s (2010) CSS3 for Web Designers.

Profession specific treatments include Hoy’s (2011) introduction to HTML5, McHale’s (2011) already-mentioned overview of web standards, and Lamb and Johnson’s (2013) brief summary of HTML5 and CSS 3 tools and resources for school libraries. Reidsma (2012) is an excellent resource for libraries that wish to create a responsive website from a template. His presentation for the American Library Association Annual Conference in Anaheim in 2012 contains a sample website, downloadable source code, and a list of further reading materials. Fox (2012) provides an overview of how this kind of responsive web design can be used to overcome some of the problems of accessible websites.

The Need for Universally Accessible Websites

Link-Rodrigue (2009) makes a compelling argument for what she calls the inclusion principle: Essentially, embracing both the similarities and the differences of each individual and group of individuals. Link-Rodrigue states, “We can embrace similarities by focusing on universal design and embrace differences by applying accessible design” (“Real-world inclusiveness,” para. 1).

The job of a web designer is best approached through this principle of inclusion: Websites need to be as close to universally accessible as is possible in the real world. The design philosophies of progressive enhancement and responsive web design provide excellent frameworks to do just that.

Progressive Enhancement

In the mid- to late-90s, the so-called browser wars were in full swing, and a big problem for web designers was creating pages that rendered properly regardless of the browser-operating system combination each visitor was using. Much of the discussion focused on the principle of graceful degradation, which argued for “building the website for the most advanced/capable browsers” and then putting workarounds into place for those who were using older browsers or alternative technologies (Gustafson, 2008, para. 5). Graceful degradation also meant that designers put alternative delivery mechanisms in place if their site used Flash or Javascript to present its content.

The problem with graceful degradation, as Steve Champeon (2003) points out, is that in the real world it is often interpreted to mean "it looks okay in the previous version of Internet Explorer for Windows" (“Degrade with grace,” para. 2). Champeon, who coined the term
progressive enhancement with Nick Finck, argues that instead of making websites which degrade gracefully, designers should focus their attention on the content of the site, making sure that it displays attractively and logically as content alone. Only after this has been accomplished should successive “layers” of more modern design be added to a website to enhance it. Gustafson (2008) compares the process to the production of a Peanut M&M, in which the content is the peanut, the visual presentation is the chocolate, and client-side scripting such as Javascript is the hard candy shell.

This process, wherein presentational effects are not integrated into page content, is a more logical approach to web design and makes accessibility easier to accomplish as designers no longer need to spend time establishing workarounds when display methods are not accessible. Instead, they simply do not serve the display methods to those who cannot use them. Likewise, progressive enhancement means designers do not need to worry about whether users with outdated phone browsers can see content due to unsupported or new technologies, although they will still need to ensure that the progressive layers of enhancement don’t break things.

Responsive Web Design

Responsive web design, at its simplest, is about creating a website which modifies its layout based on the size or media of the device viewing it. The term was coined by Ethan Marcotte after noticing an increase in the number of clients who wanted websites built specifically for iPhones or other mobile devices. As Marcotte (2010) points out, creating a separate subdomain or page for a “mobile” site is problematic: By “quarantine[ing] the mobile experience,” the designer must maintain the same content in multiple locations on any future update (para. 5). It is far simpler to change the layout of a single website on the fly, depending on the user’s resolution size or other variables. Although the idea of using flexible layouts for websites already existed, Marcotte argued that it did not go far enough, as designers still did not plan for users on anything other than a desktop computer. After learning of an architectural movement called “responsive architecture,” Marcotte hit upon the idea that designers should not create a series of “disconnected designs to each of an ever-increasing number of web devices,” but “treat them as facets of the same experience” through what he terms responsive web design (“Becoming responsive,” para. 3).

According to Marcotte (2010), the key to responsive web design is a CSS technique called media queries. Media queries allow designers to specify several different design plans within a single CSS document, with the user’s browser selecting which to display based on their screen resolution. It’s also important to remember that some users will not be viewing the page at all. CSS media queries allow for these users by giving web designers the flexibility to create separate rules for non-visual access methods such as aural or Braille, which can be parsed by speech synthesizers or Braille tactile feedback devices, respectively (Avila, 2013).

By combining flexible layouts with a little CSS magic, responsive web design allows for optimization on a number of devices: Web designers can create a default, content-only page and then apply layout to that content based on whether the end user is viewing the page with a tiny phone browser, a smartphone, a tablet, a desktop computer monitor, or even listening to it via a screen reader or other assistive device.
New Tools for Web Design

Several developments in the past five years have made accessible web design easier to accomplish. The introduction of CSS media queries and other techniques in CSS3 are suggested above. Others include a revision to the W3C’s Web Content Accessibility Guidelines (WCAG), an expanded semantic syntax in HTML5, and the Web Accessibility Initiative’s Accessible Rich Internet Applications (WAI-ARIA) specification. Used in conjunction with progressive enhancement and responsive web design, the tools described below enable designers to create functional, yet aesthetically pleasing websites that can effectively serve users at all ability levels.

WCAG 2.0

The World Wide Web Consortium’s (W3C) Web Access Initiative (WAI) interest group provides guidelines for creating accessible websites, known as the Web Content Accessibility Guidelines (WCAG), the most recent version of which, WCAG 2.0, was formally accepted as a W3C recommendation in 2008. W3C describes these guidelines as a series of “testable statements that are not technology-specific” (2008, December 11).

Although the WCAG 2.0 contains too much information within it to reprint here in any detail, the guidelines are based on four principles, which hold that web content must be perceivable, operable, understandable, and robust (see Figure 1).

<table>
<thead>
<tr>
<th>1. Perceivable - Information and user interface components must be presentable to users in ways they can perceive.</th>
</tr>
</thead>
<tbody>
<tr>
<td>○ This means that users must be able to perceive the information being presented (it can’t be invisible to all of their senses)</td>
</tr>
<tr>
<td>2. Operable - User interface components and navigation must be operable.</td>
</tr>
<tr>
<td>○ This means that users must be able to operate the interface (the interface cannot require interaction that a user cannot perform)</td>
</tr>
<tr>
<td>3. Understandable - Information and the operation of user interface must be understandable.</td>
</tr>
<tr>
<td>○ This means that users must be able to understand the information as well as the operation of the user interface (the content or operation cannot be beyond their understanding)</td>
</tr>
<tr>
<td>4. Robust - Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.</td>
</tr>
<tr>
<td>○ This means that users must be able to access the content as technologies advance (as technologies and user agents evolve, the content should remain accessible)</td>
</tr>
</tbody>
</table>

*Figure 1. Testable statements from the Web Content Accessibility Guidelines 2.0.*
To make WCAG 2.0 more easily achievable, W3C maintains several documents which discuss how to apply the guidelines in general (W3C, 2013, September 5), as well as with specific technologies such as HTML (W3C, 2012b) and CSS (W3C, 2012a). Unlike Section 508, the U. S. government’s official standards for ensuring access to electronic materials, WCAG 2.0 are just recommendations which carry no legal status (McHale, 2011). However, they remain by far the clearest guidelines for accessible design.

**HTML5**

Hyper Text Markup Language (HTML) has been the basic building block of websites since the Web’s inception, and efforts to replace it with newer technologies have generally not come to fruition (W3C, 2013, October 29). HTML5 is the latest officially recommended version of the language and includes many new features, as well as the extension of several aspects of older versions. Two of the biggest changes in HTML5 are (a) its vastly expanded selection of elements (e.g., `<div>` is supplemented by `<article>`, `<section>`, and a number of other more specific options) and (b) its native support for multimedia content through application programming interfaces (APIs).

HTML has always been a semantic language, meaning that its markup carries a contextual meaning beyond simply being used for making a page display properly in the browser. HTML5 makes it easier to create meaningful markup with a number of new elements. Connor (2012) provides a useful overview of key elements, among them `<section>`, `<article>`, and `<nav>`, which can all be used to provide more specificity than the standard HTML4 `<div>` element; `<figure>` and `<figcaption>` as a way to provide contextual explanation of an embedded image or video file; and a number of new elements related to multimedia content such as `<video>`, `<audio>`, `<embed>`, and `<canvas>` (p. 6-8). As Connor mentions, a full list of the new elements in HTML5 can be found online at [http://www.w3.org/TR/html5-diff/](http://www.w3.org/TR/html5-diff/).

There is a world of difference in the level of support provided for multimedia content like video and audio in HTML5 and its predecessors. In older versions of the language, much of the functionality for audio and video had to be added in through third-party extensions such as Flash. Although this is still an option, HTML5 now offers native support for multimedia content with its own suites of APIs for video and audio.

Although a full explanation of how to create an accessible video or audio player in HTML5 is beyond the scope of this paper, three important accessibility concerns are as follows:

- You can use Javascript to make your video controls keyboard-accessible so that users who cannot see the screen can still access them (see Connor, 2012, p. 204-205 for an example).

- Add WAI-ARIA roles to your content for easier parsing by screen readers and other accessible technologies (see WAI-ARIA section).
Always add fallback content: content that can be accessed by users and technologies that cannot process your video. Connor (2012) suggests that fallback content should be useful and may include “text and a link to an alternate accessible version” (p. 200).

In addition to explaining the principles and practice of using HTML5, Connor (2012) provides the full code for an accessible HTML5 video player (p. 211-214) as well as links to alternatives like jPlayer (http://jplayer.org) and jQuery UI (https://github.com/azatoth/jquery-video) which can be accessibly implemented with little additional work on the web designer’s behalf.

CSS Level 3

The use of Cascading Style Sheets (CSS) makes web design flexible and scalable. CSS allows you to separate your website’s content from its layout: a core concept of progressive enhancement, as described above. Much like HTML, CSS has gone through multiple stages of development. The latest of these, CSS Level 3, splits the specification into modules, a process that the CSS Working Group argues will “[allow] more immediate, incremental improvement to CSS” (W3C 2011, October 14). Indeed, there are already a few level 3 modules that have received recommendation or candidate recommendation status, and one on selectors which has a working draft as a level 4 module (W3C 2013, October 24).

One of the most useful modules in CSS Level 3 is the media query module. As discussed above, media queries are bits of code that allow developers to specify different style options for different sized devices, so that “presentations can be tailored to a specific range of output devices without changing the content itself” (W3C, 2012, June 19, para. 2). In short, if a screen reader or other form of assistive technology is being used, media queries let you see what size your end user’s browser window is and display a different layout based on the result of that query. This could be used to build a section of the page which is visible only to users on very small screens with a link to the full ‘desktop’ layout, or an aside for users accessing the site with assistive technologies providing links to alternative, more accessible multimedia content. Figure 2 shows the syntax of media queries, along with several example queries as defined by a sample CSS stylesheet.
The biggest decision when it comes to media queries is generally where to create breakpoints between your different designs. That is, how many different layouts do you need to create an effectively responsive website while still not creating too much extra work in terms of testing and actual coding? A quick search for “media queries” on Google makes it clear opinions on this run the gamut. Some designers recommend creating a different layout for each of the currently popular mobile devices and desktop screen resolution sizes, but this engenders a similar problem to the one Marcotte (2010) points out about creating multiple websites with similar content for different devices.

Bootstrap (2013), an open source framework intended to make mobile web development easier and more standardized, takes the opposite approach. Bootstrap defines four main break points: (a) below 768 pixels for phones and other extra-small devices; (b) between 768 and 992...
pixels for tablets and other small devices; (c) between 992 and 1200 pixels for desktop monitors and other medium devices; and (d) above 1200 pixels for any larger devices (“Media queries,” para. 1). If you do use Bootstrap, keep in mind that it’s designed with mobile users in mind first and foremost. Their media query set assumes that the default CSS is what will render on very small devices, and that any layout for a larger device will be coded in the media query which matches that device’s size.

It’s important also to reiterate that media queries are not just for screen sizes and other visual cues. They work with all the media types listed in HTML4, such as aural and Braille (W3C, 2012 June 19). This means you can theoretically tailor your non-visual visitors’ experience of the site by making sure the various non-standard sections (e.g., chunks of code presented on the page) are pronounced in a sensible manner (W3C, 2011 October 14); although how well this works in practice is a matter of debate. Regardless, since the majority of non-sighted web visitors use screen reader software such as JAWS, Orca, or VoiceOver, web designers should take extra care to render their HTML itself in a manner that can be easily accessed. Connor (2012) provides an excellent overview of screen readers and explains how to account for them when creating a website on pages 34-58.

WAI-ARIA

The Web Accessibility Initiative’s Accessible Rich Internet Applications specification (WAI-ARIA), which is often abbreviated as ARIA, is a suite designed to make dynamic applications, or other web content with heavily developed user interfaces more accessible to those with disabilities. The suite aims to “fill the gaps” of web content accessed in a desktop browser by providing additional information on user interface taxonomy, role, and states or attributes to assistive technologies like screen readers (W3C 2010, September 16).

ARIA is not itself a scripting language: it’s a set of attributes that can be appended to HTML elements. For example, you might have a section of your library web page that shows the most recent book checked out, or the most recent article accessed by library users. This would likely be powered by Javascript or some other dynamic scripting technology in conjunction with a server-side scripting language that pulled data from the system’s backend. For users with screen readers, the biggest problem would be that every time the section of the page updated, their screen readers would “focus” on it, disrupting whatever content they happened to be browsing (Connor, 2012). By adding an ARIA attribute of aria-live=“polite” onto the element that contains the script, you could let screen readers know to ignore updates unless the end user has purposely focused on the region (see Figure 3).
Other examples of ARIA implementations include clarifying the purpose of non-native user interface items like graphical buttons, providing more details for buttons and other form elements, creating “desktop-type menus”, and adding “document landmarks” to clarify the purpose of a section of content on a page (Connor, 2012). Regardless of how you use them, ARIA attributes will be ignored when rendering screen output, so have no impact on visually oriented site visitors. Adding roles and other ARIA attributes to your code can make a big difference to those using assistive technologies.

Building Your Accessible Website

The principles, techniques, and tools laid out above can be used to build a website that is as close to universally accessible as it is possible to get. The following section of the paper presents one possible roadmap for the creation of an actual web page or series of web pages. I have created a basic proof-of-concept website which presents the text of the following section of this paper as an accessible, responsive web document (see http://wou.edu/~bakersc/ua_ex/).
Start with Content

As Champeon (2003) says, one of the key benefits of using responsive web design is that it forces you to make sure your content is in place before adding design features. Since you will be adding presentational effects through CSS and other technologies later, the earliest part of your web design process should be to simply create your content. Or, if you are redesigning a website, strip the content of its layout and examine its organization.

Before you even open up your design software, you will need to figure out what is going on your website, where it is going, and how all of its parts relate to one another. If you have a complicated website, the content creation process may take some time as you determine what needs to go on any given web page, how your various pages connect to one another, and what your menus will look like. On a streamlined informational website, it may be as simple as typing up or otherwise inputting all the information that the page will contain and making sure it is arranged in a straightforward, intuitive manner (see Figure 4).

![Figure 4. Content of a sample Web page in Notepad.](image)

Remember that you do not want to apply any style information, like italics or bold face, at this point. All you want is text, images, and other content in its simplest possible form.

Add Semantic Markup

Once you have the content arranged, it is time to add basic HTML markup so that the browser knows how to interpret and display your document.

If you use a powerful web development suite like Dreamweaver, make sure you are looking at the code while you edit, and not at a graphical "What You See is What You Get"
(WYSIWYG) representation of your website. WYSIWYG can be a wonderful tool, but what it appears to be doing and what it actually does are often quite different when it comes to the resultant code. Especially if accessibility is a big concern, you will want to make sure that every edit you apply to your content really does what it is supposed to.

Likewise, if you typed your content into a word processor like MS Word or Open Office, make sure you're not accidentally bringing in the word processor's styling information. Many word processors copy this information when you copy text, and it can quickly make what appears to be an accessible website into a horrible mess. You can copy your text into a plain-text program like Notepad and strip out all the styling, just to be sure. I chose to type up my content in Notepad and then copy it into Programmer's Notepad, an open source text editor with nifty programming options available at http://pnotepad.org.

Regardless of how you add the markup, remember to take full advantage of the features offered by HTML5:

- Increased semantic tags: make it clear to anyone looking at your markup what any given piece of content does by using context-specific labels like article or section instead of vague tags like div.

- HTML-native media: if your site has audio, video, or other media, consider using the HTML5 APIs, instead of a third-party plug-in.

This is also a good time to add in WAI-ARIA attributes if you have menus, areas of the site which will be used for largely presentational purposes (e.g., banners), or intend to include heavy scripting on parts of your page.

Once you have everything marked up, you should be able to open your page in any browser and see it in its most basic form (see Figure 5).
Style Your Site

Now that your content is arranged and marked up, it is time to add a visual design. The best way to ensure that you can easily update your site in the future is to use an external CSS file, not to define individual styles in-line throughout your document (see Figure 6). Keeping your content and its layout separated will mean that on any future updates to your site’s content or design, you will not have to worry about whether a change to content will break your layout, or vice-versa.
The most important thing to remember here is that not all users will interact with your website through visual stimuli, and that even among those who do there are different thresholds for access. Avoid low-contrast color choices like black on grey or grey on white, and make sure your fonts are legible regardless of the end user’s device size. You can use CSS media queries, described above, to make sure visitors to the site can experience it well on any device, and at any level of ability.

When you are done with this step, you should have a static website which is accessible to any user: a website that is, ideally, aesthetically pleasing regardless of format and device.

**Add Scripting (If Necessary)**

For a long time, Javascript and other technologies were seen as inimical to accessible web design, but as Connor (2012) points out, the problem lies more with “poor scripting practices” and developer apathy than any particular fault of the language itself (p. 70). The good news here is that you can add scripts to your website to get all the bells and whistles without making it inaccessible to users with disabilities. That doesn’t mean, however, you can add scripting without considering its effect on those users.

Connor (2012) lays out two principles for accessible Javascript, one of which is progressive enhancement. The second is that Javascript—or any other scripting language—
should be unobtrusive, which means it should be integrated into a page’s functionality and should not be implemented in ways which make site controls hard to use. The bottom line is you should always be certain the added “functionality” of scripting does not make your site less functional for users with disabilities or those on older browsers or devices. If you do add scripting, remember that you can use WAI-ARIA attributes to help accessible technologies more easily parse your page.

Test

The importance of testing cannot be overstated, especially when it comes to accessibility. As books and articles on the topic make clear, just because something is written into the specification or guidelines does not mean it will actually work. As Power, Freire, Petrie, & Swallow (2012) show, WCAG 2.0 is far from easy to grasp. Moreover, several of the problems it reports do not actually affect most users with disabilities, while several real accessibility problems are not caught by it (Power et al., 2012). Indeed, the testing they carried out with a group of blind users suggested that there was no significant difference between websites written to conform to WCAG 2.0 and those which were not when it came to usability for blind users (Power et al., 2012). Although this does not mean we can safely ignore the guidelines, it does mean we cannot simply follow them and assume our websites are accessible.

Connor (2012) summarizes a number of ways to test websites, including participatory design, or including an end-user in the design process; expert accessibility audits involving an expert, third party assessment; and traditional usability testing. Each of these types of testing, and the many others, has their own pros and cons, and not all libraries will be able to do extensive testing. Regardless, web designers need to put in the effort to prove that their website is actually working, and accessible, after it has been published.

Web design in general is best approached as an iterative process, so that a website is never really “finished,” it is just in its latest version. Likewise, a successful round of accessibility testing means that your website works well in its current incarnation and on current technologies; it doesn’t mean you can then mark your website as finished and never revisit its accessibility. Connor (2012) suggests that in addition to making the accessible design process iterative, designers would do well to “include user involvement as early as possible in each stage of the build” (p. 293), so that you might get feedback on your content, and then on your markup, and then on your design, and so on.

The best part about testing your website like this, whether through software like JAWS or through consultations with real users, is that you will get a much better sense of what people actually want to use your website for, and how your design decisions affect real world use of your site, as well as whether or not it actually works.

Conclusion: Laziness, Accessibility, and Future-Proofing the Internet

Larry Wall, author of the Perl programming language, holds that one virtue of a good programmer is laziness or “the avoidance of future work” (Christiansen, Foy, Wall, & Orwant,
2012, p. 756). In other words, the more work you do now, the more work you save yourself, and others, later on.

The ever-changing nature of the Internet, computing, and assistive technologies make a strong case for applying Wall’s virtue of laziness to accessible web design. Instead of creating more work for yourself and others by building websites that are not accessible, and that will later need updating across the board, it makes more sense to take a pro-active approach by building a site which works from the start. Although it is impossible to create a truly “future-proof” website, the techniques laid out in this paper can help make sure your website is more likely to be accessible—or at least easier to modify—for the foreseeable future. More importantly, they can make your library’s website accessible today, for users of all ability levels and devices.
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What Do They Have that We Don’t Have? Local Libraries and Distance Students: Why Do Students Stray and Can We Get Them Back?

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Abstract
A significant number of distance students report they “stray” from their home universities by using local libraries, despite the fact that distance education librarians work hard to provide customized resources and services tailored to their programs and needs. Are public libraries and special libraries able to meet the research needs of distance learners, or are these students being underserved? This presentation explores why distance students may choose non-academic libraries over academic libraries, and the impact of this use - on local libraries serving unaffiliated distance learners, and on academic libraries with potentially underutilized distance library services.

Introduction
With the growth of distance education and demand for equitable library support for all students, distance librarians and library staff members put forth a great deal of effort to develop an accessible suite of tools and resources for the students they serve. Caspers (2000) defines the distance student as “one whose residence is too far away for him/her to reasonably be expected to regularly travel to the home campus library” (p. 301). These students struggled to find adequate resources in the early days of distance education, but in recent years technology has allowed libraries to provide more accessible services as well as increasing portions of their collections electronically to remote users. Despite these efforts, librarians may find that a significant number of students have a “wandering eye” and do not necessarily look only to their home university for service, but also to local libraries for some or all of their library and research needs as they proceed through their academic program. Are public libraries and special libraries able to meet the research needs of distance learners, or are these students being underserved as they choose to use libraries other than their home university?

Previous literature examines the issues concerning distance education students’ use of local libraries and tries to understand the reasons why students use those libraries. There is a general awareness, within libraries of all types that distance students will look to their local libraries for support, facilities, assistance, technology, etc. This paper reports on research that is intended to increase understanding of this issue from both the student perspective as well as the public library point of view. Surveys were conducted with distance education students to better
understand their needs for library services and information for their academic program and why they may use certain services, facilities or resources from libraries other than their home university. In addition a survey of public library staff was conducted to understand what services these libraries offer to students as well as the perceptions that staff in these local libraries have about serving distance students. Building upon previous literature, the surveys developed for this study inform conclusions about the current use of library services at home universities as well community libraries. And finally the authors present recommendations concerning methods that will help librarians to better serve our students, and ways in which academic libraries may consider working with local libraries as partners in these endeavors.

**Literature Review**

Literature related to distance students’ use of library services mirrors the growth of distance learning, especially given the technological advancements of the past few decades. Herring (2010) asserts, “Research in the field of library services for distance education has increased over the years, as reflected in an expansion of the professional literature on the topic” (p. 144). Herring expects that research about distance library services will become more complex and sophisticated as the field continues to mature. In the early days of distance learning, services offered to distance students by academic libraries were limited, and students were often left to patch together appropriate resources from any library available to them. Libraries of all types struggled to meet the unique needs of distance students while continuing to serve their traditional users. Publishers were just beginning to make full text available online, and libraries were just beginning to develop practices for delivering full text materials to remote students. As technology enabled universities to offer more robust learning methodologies in the online environment, libraries also began to leverage technology to provide web-based reference and instruction services.

Guidelines developed as early as 1967 by the Association of College and Research Libraries (ACRL) provided institutions that offered distance education programs guidance on financing, administering, staffing and equipping libraries to best support distance programs, but of course these guidelines were intended for academic libraries and didn’t encompass service to distance students at unaffiliated public and special libraries. While the ACRL standards helped to advance the quality of library services provided to distance learners by academic libraries, students continued to make use of other types of libraries for their research. Dew’s (2001) survey at the University of Iowa found that students used a variety of libraries to meet their research needs. To complete requirements for an off-campus course, 47% reported that they used an academic library most often. Twenty-nine percent used a public library most often, and 10% used a special library most often (Dew, 2001). A Deakin University study found that 86% of 190 graduate students used libraries other than the one at their home university for research (Macauley, as cited in Caspers, 2000). Papers published in the proceedings of the first few meetings of the Off-Campus Library Services Conference reflect librarians’ growing concern about the impact of distance learners on local libraries. Harper (1983), Kelley and Orr (2003), and O’Dell (1993) outline the challenges libraries faced in serving distance learners, but agree that the negative impact on local libraries could be minimized when libraries work together to better understand the student needs and coordinate services to meet those needs.
As researchers began to explore how well libraries were serving distance students, they learned more about the factors that influence students to select a particular library for their research. Dew’s (2001) study indicated that most students (86%) were willing to drive less than 50 miles for library resources so proximity to the library appears to be an important factor. Conversely, a study by Stephens, Unwin, and Bolton (1997) indicates that geographic location was significant for only a small number of students. Familiarity may also play a role in selecting a library, so local libraries, whether open to the public or intended to serve a special population such as military or medical personnel, may be chosen even if they lack sufficient resources and services to meet needs of distance students.

While supporting adult education has always been fundamental to public libraries, coordinating programs and services in conjunction with post-secondary institutions is a relatively recent idea (Birge, as cited in Power & Keenan, 1991). During the Depression era, public libraries worked towards meeting the educational needs of citizens who had limited educational options, but Power and Keenan (1991) note that “it is only since the expansion of academic institutions into off-campus locations within the last fifteen years that some public libraries have been forced to deal with the unique demands upon their services generated by patrons with genuine academic needs” (p. 445).

Early research addresses the challenges of meeting those needs, and Robinson (1989) makes the case that public libraries should not attempt to extend services in areas that should be handled by academic libraries. Powers & Keenan (1991) point out that most public library collections are not intended to support an academic curriculum, and Scilken (1993) asserts that even well-funded public libraries could not possibly provide materials to support the varied curricula of nearby colleges in addition to meeting the needs of the children, young adults, and seniors they are meant to serve. Public library collections are developed to meet the needs of the general user, and most public libraries do not have the funding or space for materials that support in-depth academic research. Additional challenges public libraries may face when attempting to serve distance students include staffing, hours of operation, and interlibrary loan costs. In the early years of distance education, this combination of factors contributed to the widely held view that campus libraries should assume primary responsibility for their distance students, even if, as Kaskus and Aguilar (1988) propose, offering services to support off-campus students comes at the expense of the campus library.

Special libraries that serve specific populations may also be called upon to support distance students in their communities. With increasing numbers of working adults enrolled in off-campus and online programs, librarians at military base libraries and health science libraries may find that many of their patrons—including staff or family members of staff—use local special libraries for research related to academic coursework. Like public libraries, special libraries offer collections and services intended for a variety of users. Base libraries, also known as “post libraries”, offer collections intended to serve the entire military community, including military-focused books and journals, popular reading materials, and children’s literature. Depending on the nature of their degree programs, distance students may not find sufficient resources to support academic research related to their coursework at a local military base library.
There is limited information about how well distance students are served by military base libraries but some researchers note that ongoing relationships between academic libraries and military base libraries can benefit military students enrolled in a university’s off-campus program (Casey, Sochran, & Race, 2002). Colleges located near military installations often make educating military personnel and their families a part of the institution’s mission. Officials at Jefferson Community College, which is 10 miles from Fort Drum, NY, indicate that nearly 35% of enrollments are military students, and more than half of the 4,200 students enrolled at Coastal Carolina Community College, near Camp Lejeune, NC, are affiliated with the Marine Corps (Halligan, 2007). Central Michigan University offers classes at 19 military locations and currently educates 1,062 veterans, including 831 global campus students and 231 on campus students (Peck, 2013). Like most military-friendly colleges and universities, faculty and staff, including library staff, are dedicated to supporting students who are veterans and active military—even when they are taking classes off-campus or online—but these students may still choose to use the base library or a local public library for their research. When this happens, cooperation between libraries can ensure that students access the best possible resources at either library, making use of the collection at hand, but being referred to their home university’s library if different resources or services are needed. Casey, Sochran, and Race (2002) point out that military students who use base libraries may have access to military publications not available through the university library, so there is also an opportunity for academic libraries to actually refer students to their local base library for specialized resources.

Cooperation between medical libraries and nonmedical academic libraries can also be beneficial to distance students. As the National Library of Medicine has expanded its membership beyond medical libraries and hospitals, nonmedical academic libraries have contributed significantly to the DOCLINE resource sharing group, providing, on average, more interlibrary loans than they receive (Drake, 2010). This means that student researchers at any member library can take advantage of resources not owned by that library, whether the material has a medical focus or not. For students in health-focused degree programs, using a combination of libraries may be the best option.

As more universities have begun to offer off-campus and online programs, more academic libraries are allocating resources to better facilitate remote access and equitable services to all students, regardless of location. Usage data at Central Michigan University (2011) shows that 88% of hits to the Libraries’ e-resources take place outside of the library building, so clearly demand for remote access to resources exists among the entire student population, not just those enrolled in distance education programs. The body of literature devoted to the information needs of distance learners has grown, and fulfilling the unique requirements of students learning at a distance has become part of the organizational mission of many academic libraries.

A 2010 survey by the Sloan Consortium indicates, “The twenty-one percent growth rate for online enrollments far exceeds the less than two percent growth of the overall higher education student population” (Allen & Seaman, 2010, p. 2). Perhaps due to the economic downturn in recent years, more people are choosing distance education as a way to retain or advance employment in a tough economy. Three-quarters of institutions surveyed reported that the economic climate had increased demand for online courses and programs (Allen & Seaman,
Academic libraries are certainly seeing increasing numbers of distance students, so it can be assumed that local libraries are also serving more distance students than ever.

Institutions that offer distance education programs are charged with providing library resources and services to all students, faculty and staff that are members of the institution, regardless of where they are located. Essential services include reference assistance, reliable access to online resources, adequate service hours, prompt delivery of items from the library’s collection, the ability to borrow materials from other collections, and user instruction as appropriate (ACRL, 2008). Academic libraries may offer any or all of these services to support distance learners, and many have conducted user surveys to determine which services are considered most important to students. A survey of University of Maryland University College students found that “remote access to full-text materials and citation and abstract databases are the most important services offered by the UMUC library” (Kelley & Orr, 2003, p. 189), but a survey of University of Iowa students ranked web/email reference assistance as the most important service (Dew, 2001). While these services may also be available through public and special libraries, it is more likely that academic libraries, especially those that conform to ACRL guidelines, will have customized these services to best meet the needs of distance students. An academic library’s website serves as a portal to the resources and services available from the library, and as Coonin, Williams, & Steiner (2011) note, “Providing an online environment designed specifically for distance students is a huge piece of fostering library as a place.”

To better serve distance learners in any environment, it is important to understand how students decide which library to use, and what they expect in the way of resources and services. In many cases, their understanding of whether supplemental research materials are needed for their courses drives student expectations. According to Stephens et al., (1997), course requirements influence the extent of library use, and students who have received instruction are more likely to expect that their courses require additional library research. As students decide additional research is needed, they choose a library based on a variety of reasons. Antell (2004) conducted interviews with college students using a public library and found that personal convenience, ease of use, familiarity, available materials, staff, and overall atmosphere influence library selection, noting that, while librarians’ perceptions of why distance students choose public libraries are sometimes accurate, they can also be incorrect. Librarians suggested that campus libraries are less familiar and more intimidating to students, and some proposed that students might prefer the more helpful staff and better parking they find at public libraries. Student perceptions were aligned with many of the librarians’ views, but parking was actually not shown to be a significant factor for students.

Although librarian attitudes towards local library use by distance learners have shifted as distance education becomes more mainstream, the constraints of tight budgets and limited staff continues to make supporting the research needs of distance students challenging. In addition, public librarians sometimes find that distance students have greater difficulty understanding their assignments than students enrolled in on campus programs (Barsun, Tunon, & Ramirez, 2005). Public librarians may feel frustrated by attempting to fulfill the demands of unaffiliated distance learners with inadequate resources. This frustration may be directed at the institution offering the distance program rather than the student requesting services, especially if the university is
for-profit. In this case, librarians may perceive that the university is collecting tuition but relying on other institutions to support their students’ research needs (Barsun et al., 2005).

Some public librarians find serving distance learners to be a “great marketing tool” and others find it to be an “enormous burden” (Nickel & Mulvihill, 2010). Holba-Puacz and Bradfield (2006) note that, while distance learners present a unique set of challenges, offering the public library as “a place where distance learners can come for face-to-face contact may be very appealing” (p. 49). Access to a physical space that is free of distraction can be invaluable to nontraditional students who are completing coursework in addition to juggling the demands of family and work (Nickel & Mulvihill, 2010). At the same time, academic librarians may have concerns about the quality of service distance students receive through local libraries. Public librarians, while well-intended, “do not have contact with the teaching faculty to learn about their assignments, nor do public librarians have the same access to or knowledge of academic databases” (Shorr, as cited in Nickel & Mulvihill, 2010, p. 89).

With the prevalence of distance education programs today, library staff may now be more willing to assist students enrolled in distance education programs at nearby universities. Even so, library administrators may continue to regard offering services to distance learners in light of the impact that use will have on the overall operation of the library and its ability to serve all of its constituents. Public libraries in 41 states cut funding in 2009, with 20% of those anticipating additional reductions (American Libraries, as cited in Nickel & Mulvihill, 2010). Military base libraries, while often better funded than public libraries, are primarily focused on serving the military base community (Shontz & Murray, 2007). Health sciences libraries also serve a specific audience, and many university-run teaching hospitals are now funded by corporations (Kastor, as cited in Brown & Kaste, 2009). It is possible that these changes in funding could herald a return to more limited accommodation of unaffiliated distance students. It is clear that the growth of distance education will continue to impact libraries of all types, so as Morris (2007) notes, “when administrations are considering adding to their distance education programs, they need to make certain that libraries are a strong part of the planning process” (p. 8). While planning support for distance students should certainly involve the university’s library, planning could also be coordinated with impacted local libraries in an effort to minimize costs associated with serving this population.

Supporting the research needs of distance students presents challenges to all types of libraries, and the literature discusses a variety of solutions that libraries have implemented to address these challenges. Some libraries may offer unaffiliated distance learners fee-based services, including borrowing materials, using library computers, making interlibrary loan requests, and proctoring exams (Nickel & Mulvihill, 2010). Libraries may also set limits on services for distance students, although as one librarian notes, “institutions must make every effort to assure that they do not differentiate on the kinds and levels of services offered to students – regardless of whether they are enrolled in on- or off-campus academic programs” (Morris, 2007, p. 4). Perhaps a better approach would be for libraries to consider modifying their collections, services, and instruction programs to “meet the needs of the whole of their user populations” (Kelley & Orr, 2003, p. 189). Kelley and Orr (2003) suggest that this effort could include improving remote access via library catalogs and content management systems, developing staff expertise in serving distance learners, and employing web-based tools to
facilitate referral to alternate information resources. Kelley and Orr (2003) also suggest that academic libraries at institutions that offer distance education programs could improve marketing efforts to build awareness of the services available to students who may be accessing library services remotely. This could include a web portal that organizes resources, services, and training available to distance students, as well as outreach to faculty who may be teaching at a distance. Librarians who responded to the Barsun et al., (2005) survey suggested that training might include mandatory online tutorials or for-credit classes in library research. Suggestions also included donating materials related to the college curriculum to local public libraries as well as increased collaboration between libraries (Barsun et al., 2005).

University libraries can partner with one another and with local public, military, or health sciences libraries to better support distance students and minimize the burden for any participating library. Improved communication could help local libraries develop collections and services that complement, rather than duplicate academic library services. Establishing connections between libraries might involve surveying patrons, encouraging library staff to learn about distance programs available in the community, or reaching out to local faculty (Keller, as cited in Caspers, 2000). This type of collaboration could be especially beneficial to students who take classes online and are miles away from their home university’s physical library. Dority (2000) suggests that public libraries might offer these students exam proctoring, seminars to develop research and writing skills, and a central location to meet with other online learners in person.

It is evident that distance education is gaining prominence throughout the United States, and as institutions of higher education seek ways to meet the needs of those learning at a distance, it is imperative that libraries of all types continue research that helps to build understanding of the factors that influence student research and identify ways to work together to offer improved support for this growing population of students.

**Background**

Central Michigan University (CMU) has been offering distance education programs since 1971. Initially, courses were delivered at off-campus sites across the United States, Canada, and Mexico, with the first online courses offered in 1994. Today, CMU’s Global Campus programs enroll 8,557 students, 4,565 of which are graduate students. CMU, like many universities, has experienced significant growth in online enrollments, with registrations increasing around 20% each year (CMU Prof Ed Annual Report, 2009). CMU now offers twelve undergraduate and graduate programs that are completely online. The Master of Science in Administration (MSA) is the largest program, and of its ten concentrations, all but two are offered online while two are offered only online (CMU Degrees and Programs, Master of Science in Administration, n.d., para. 3). Global Campus Library Services, a department within the CMU Libraries, supports both off-campus and online learners by providing access to e-resources, delivery of print resources, and virtual research assistance and library instruction.
Methodology

This research sought to better understand distance education students’ use of libraries other than their home university library, as well as the information needs motivating them to use these libraries. Supplementary to these issues, the authors endeavored to better understand the services and facilities that were available to these students in their local libraries, and the current attitude of staff toward distance education college students. For these reasons, the authors conducted two separate surveys: (a) a survey of currently enrolled students in an off-campus program, and (b) a survey of staff in public and special libraries in two targeted states.

The first survey was conducted with students enrolled in courses through Central Michigan University’s (CMU’s) Global Campus Programs. The target population for the survey was approximately 3,300 graduate students enrolled in online courses as well as students in close proximity to two specific geographic locations: Oceanside, CA and Grand Rapids, MI. These physical locations were selected because CMU offers ongoing classes at the Camp Pendleton (CA) and Grand Rapids (MI) centers, and because there are a number of other library options available within 50 miles of these centers. The survey invitation was sent via email and included a link to a summary of the project and adult consent form. This information was available for download so participants could keep a copy for their records. Students were informed that their completion of the survey indicated their consent to participate in the research.

The 10 survey questions were designed to gain a better understanding of why distance students may choose local, non-academic libraries over the academic library at their own institution. None of the questions required an answer, so students were free to skip questions or withdraw from participation at any time. The web-based survey was administered via SurveyMonkey. Subjects were given 10 days to complete the survey once they received the emailed invitation to participate. The survey collected student age and educational program since this demographic information could be helpful in understanding the context for survey results. Other than age and program enrollment, no other identifying information was collected.

The data was expected to provide insight into the potential impact of this use on the non-academic libraries serving unaffiliated distance learners, and on the academic libraries that may be devoting limited resources to providing distance library services that might be underutilized. While the survey was limited to CMU students, the findings from this study should also be of value to any university that provides dedicated library services in support of distance students.

The second survey, targeting staff in local libraries, was intended to further explore the experience of the distance education student who makes use of the local public library: what services might be available to them and how they could expect to be received by staff in those libraries. A web-based survey was developed and administered using the SurveyMonkey software. The survey consisted of open-ended questions, as well as yes/no questions. In addition, the survey provided a list of possible services and respondents were asked to indicate whether they offered those services never, rarely, or frequently. Most questions had a comment field for respondents to leave any additional comments. All questions were optional so respondents could skip any questions they chose not to answer.
In order to better correlate the findings with the results of the student survey we intended to target the geographic areas around Grand Rapids, MI and Oceanside, CA, but in order to get a more significant number of responses, the researchers expanded the pool to include libraries throughout Michigan and California. An invitation to complete the survey was sent to two electronic lists of mainly public librarians. The Michigan Libraries (Michlib-L) list—which is administered by the Library of Michigan—and the CALIX list—which is sponsored by the California Library Association—were used to solicit participants. The survey was open for a period of two weeks after invitations were sent.

It is important to note that the survey of students was conducted with students from only one institution: Central Michigan University. However the distance education students encountered by staff who responded to the library survey may have been enrolled at any number of institutions. In analyzing and understanding the survey results, the authors acknowledged that the services and level of support available from their home university was known, but the students being served by library staff who responded to the library survey was not known. The researchers do believe that the experience of the CMU students in this study can be used to understand the experience of distance education students in general with regard to information needs and library use.

**Data Analysis**

Analysis of the data collected from students confirmed findings of past research, but also provided insights into the perceptions of distance learners today. The only personal information collected as part of the survey was student age and degree program. It was thought that these two factors might influence students’ selection of library. Of the 100 respondents, 65% were over the age of 35. Given that all but three respondents were enrolled in graduate or doctoral level programs, this was not surprising. Most students indicated that they were enrolled in the Master of Science in Administration program, and of the concentrations mentioned, the Human Resource Administration and Leadership concentrations were represented most often. This finding aligns with Central Michigan University’s Global Campus data, which indicates the MSA program and its 10 concentrations enroll nearly 50% more students than all other Global Campus programs combined (Central Michigan University, 2011). This research targeted students enrolled at off-campus locations near Camp Pendleton, CA, or Grand Rapids, MI, because it was likely that students enrolled at these locations would have a variety of local libraries from which to choose. Online students were included because it was likely that they would be remote from Central Michigan University’s physical campus library and therefore more inclined to choose local libraries if their research could not be managed completely online.

Students were asked to select from a provided list of options where they go for library services. They were also given an opportunity for comment. Most students indicated that they used the library website at their university’s library (64.52%). Responses show that 33% of students chose their university library from the list of options, so it is possible that some students use both the physical library and the website; others may consider the library website to actually be their university’s library. The next most frequently chosen option was public libraries, with nearly 42% of respondents indicating that they use local public libraries. Only 6.45% chose military base libraries, which was somewhat surprising given that more than 100 of the subjects
invited to participate were enrolled at an off-campus location at Marine Corps Base Camp Pendleton. One participant noted that he or she teaches at California State University and uses the library there. Two respondents added comments indicating that they use the Internet for library services, but it is unclear whether they mean that they use this resource exclusively or in conjunction with resources available through a library.

Table 1

*Where Do You Go For Library Services?*

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>My university’s library</td>
<td>31</td>
<td>33.33%</td>
</tr>
<tr>
<td>Another university or college library</td>
<td>11</td>
<td>11.83%</td>
</tr>
<tr>
<td>Local public library</td>
<td>39</td>
<td>41.94%</td>
</tr>
<tr>
<td>Military base library</td>
<td>6</td>
<td>6.45%</td>
</tr>
<tr>
<td>Other workplace library</td>
<td>5</td>
<td>5.38%</td>
</tr>
<tr>
<td>Library website – at my university’s library</td>
<td>60</td>
<td>64.52%</td>
</tr>
<tr>
<td>Library website – at another library</td>
<td>9</td>
<td>9.68%</td>
</tr>
</tbody>
</table>

Students were also asked to rank their reasons for choosing their preferred library, and factors that were ranked as most important included convenience to home or work, access to specific research materials, and availability of specific library services. Hours of operation and helpfulness of staff were somewhat important, but factors that would commonly be associated with use of a physical library building, such as parking and meeting with peers, were either marked not applicable or not important.

The most important factor was access to specific research materials (77.53%). In the comments, several respondents name specific resources such as ABI INFORM or ERIC, and others mentioned resources on specific topics related to their field of study. The student who is also a California State University instructor notes that CSU’s library offered more full text for health-related journal articles than the Central Michigan University Libraries. Another student who presumably serves in the military noted, “The library I use has much more resources than on-post libraries, especially when it comes to completing research papers.” Access to specific resources appeared to drive students to use one library over another, or to use multiple libraries. One student explained, “If materials on-line or hardcopy are not available at Location A, I have gone to Location B.”
Students also ranked availability of specific library services as very important (59.30%). Many students noted that they appreciated the library’s document delivery services, and several also mentioned the university’s online writing center—which, at Central Michigan University, is not a service offered by the library but is instead run by the English department. Only four students explicitly commented about research assistance from librarians, and only three mentioned services that could be thought to require a physical location: printing, proctoring, and access to quiet rooms.

Convenience to home or work was ranked as important, and this reinforces what is known about the characteristics of working adults involved in distance education. Cooke points out that, for many adult learners, “the student role is subordinate to other life roles” (Darkenwald, as cited in Cooke, 2010, p.211). Given the average age of students who participated in the survey, it makes sense that convenience plays such an important role in library choice. Adult students with limited time to devote to coursework will seek out the quickest and easiest option for obtaining research materials. This may also be the reason that hours of operation also ranked as an important factor. Some students mentioned a need for extended hours for specific services (e.g., the Writing Center) or on specific days (e.g., Sundays). It is assumed that students who reported that convenience was not applicable are likely to use the library website as their primary research tool. Since the website can be accessed from home or work, there is no need to travel from either location.

Table 2

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Please rank your reasons for choosing this library.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very Important</td>
</tr>
<tr>
<td>Convenience to my home</td>
<td>56</td>
</tr>
<tr>
<td>Convenience to my work</td>
<td>41</td>
</tr>
<tr>
<td>Hours of operation</td>
<td>39</td>
</tr>
<tr>
<td>Availability of parking</td>
<td>9</td>
</tr>
<tr>
<td>Helpfulness of staff</td>
<td>42</td>
</tr>
<tr>
<td>Ability to meet with friends/Colleagues/fellow students</td>
<td>6</td>
</tr>
<tr>
<td>Access to specific research materials</td>
<td>69</td>
</tr>
<tr>
<td>Availability of specific services</td>
<td>51</td>
</tr>
<tr>
<td>Distraction-free environment</td>
<td>36</td>
</tr>
</tbody>
</table>
When asked about frequency of use, students indicated that searching journal databases (74.39%) and obtaining full text journal articles (73.75%) are services used most often. Getting research assistance ranked most highly as a service used only sometimes (48.78%) which may indicate that survey respondents are fairly self-directed in their approach to library research. Requesting materials and getting technical support were used somewhat frequently, but once again, services associated with a physical location were marked as not applicable or never used by most students.

In addition to asking students about the resources and services they valued in the libraries they use, the authors also wanted to gain an understanding of what might be missing from library services at the students’ home university. Students were given a list of library services and asked to indicate which of them were not offered by their university’s library. Over 83% of students answered “not sure” to this question, which may indicate a need for building greater awareness of library services available to distance students. Of the specific services that were thought to be unavailable most are dependent on a physical library. Printing, copying or scanning, using study space or meeting rooms, having tests proctored, and attending library programs could reasonably be considered services that are not available to remote students, although checking out books, which four students selected, is available by mail from the CMU Libraries.

Finally, students were asked for recommendations about how the library at the students’ home university could better meet their research needs. It is interesting to note that so many students either stated nothing was needed or used the opportunity to commend their library’s service rather than make suggestions for improvement. Of the forty comments received, 10 comments provided positive feedback such as “I am absolutely happy with our services – they are the BEST!” Of the suggestions received, most related to technology and services rather than resources; while only three appeared to be directly related to the physical library. Three students expressed frustration with technical problems that prevented them from accessing full text articles, and three others suggested that the library website needed improvements to make navigation and use easier. Two students suggested resources and services that they actually have, including access to eBooks and receiving materials by mail. The CMU Libraries offer both of these to off-campus and online students, so these responses underscore the need for improved marketing of services. There were also several comments related to the CMU Writing Center, an online review service offered by the English department rather than the university library. These suggestions, which included extended hours, faster turnaround time, and fewer limitations on submissions, will be communicated to the Writing Center director, but the inclusion of comments about the Writing Center in a survey that focuses on library services demonstrates that students expect support for their overall educational experience, regardless of which unit provides the service. As Kazmer (2002) points out, “successful distance education hinges on solving information problems” so librarians who serve distance students should be aware of any service the university offers to distance students in order to make referrals as appropriate (p. 399). Other notable requests from students included Skype; presumably for interactive research assistance, continued access to resources after graduation, and a system for automated checking of APA references.
Table 3

*Please Indicate How Frequently You Use the Following Services*

<table>
<thead>
<tr>
<th>Service</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checking out books</td>
<td>15.66%</td>
<td>28.92%</td>
<td>30.12%</td>
<td>25.30%</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>24</td>
<td>25</td>
<td>21</td>
</tr>
<tr>
<td>Searching journal databases</td>
<td>74.39%</td>
<td>17.07%</td>
<td>8.54%</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>61</td>
<td>14</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Getting journal articles</td>
<td>73.75%</td>
<td>20%</td>
<td>5%</td>
<td>1.25%</td>
</tr>
<tr>
<td></td>
<td>59</td>
<td>16</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Printing, copying, or scanning</td>
<td>9.64%</td>
<td>8.43%</td>
<td>45.78%</td>
<td>36.14%</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>7</td>
<td>38</td>
<td>30</td>
</tr>
<tr>
<td>Requesting materials from other libraries</td>
<td>19.05%</td>
<td>39.29%</td>
<td>25%</td>
<td>16.67%</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>33</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>Getting research assistance</td>
<td>21.95%</td>
<td>48.78%</td>
<td>20.73%</td>
<td>8.54%</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>40</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>Getting technical support</td>
<td>3.61%</td>
<td>37.35%</td>
<td>40.96%</td>
<td>18.07%</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>31</td>
<td>34</td>
<td>15</td>
</tr>
<tr>
<td>Using study space</td>
<td>4.94%</td>
<td>23.46%</td>
<td>33.33%</td>
<td>38.27%</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>19</td>
<td>27</td>
<td>31</td>
</tr>
<tr>
<td>Using meeting rooms</td>
<td>3.61%</td>
<td>10.84%</td>
<td>45.78%</td>
<td>39.76%</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>9</td>
<td>38</td>
<td>33</td>
</tr>
<tr>
<td>Using library computers</td>
<td>7.23%</td>
<td>15.66%</td>
<td>40.96%</td>
<td>36.14%</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>13</td>
<td>34</td>
<td>30</td>
</tr>
<tr>
<td>Having tests proctored</td>
<td>4.76%</td>
<td>14.29%</td>
<td>47.62%</td>
<td>33.33%</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>12</td>
<td>40</td>
<td>28</td>
</tr>
<tr>
<td>Attending scheduled library programs</td>
<td>0%</td>
<td>13.10%</td>
<td>48.81%</td>
<td>38.10%</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>11</td>
<td>41</td>
<td>32</td>
</tr>
</tbody>
</table>
Overall, survey responses paint a picture of students who are capable, self-directed learners, using whatever library resources and services are available to them to conduct research for their coursework. CMU students seem appreciative of online library services, but seek out convenient local libraries as needed. Although students appear to understand what each library has to offer, there may be some frustration when students have to “shop” multiple libraries to get what they need. Increased collaboration between libraries could help minimize barriers and improve students’ overall research experience, regardless of location.

Students consider access to resources, specifically journal articles, to be the most important benefit that libraries provide. Given the costs associated with providing full text articles and eBooks to students, libraries that serve distance learners should continue to allocate funding to facilitate remote access. Students also confirmed the importance of a wide array of services intended to meet the needs of distance learners. Document delivery, virtual research assistance, and online writing services serve to bridge the gap between the university’s resources and the student learning at a distance. Even so, students’ lack of awareness about some resources and services point to a need for improved marketing.

Results of the survey of public libraries provide an interesting lens through which to view the student experience of the environment encountered when they visit their local library. The survey results corroborate previous research, but also give a more recent snapshot of the current state of services and facilities available. Researchers took into account the idea that public library staff may not be able to differentiate distance education students from students who attend traditional on campus programs when they are using local libraries. The survey instructions included the following statement: “Sometimes this information may be revealed in interacting with a student during a reference transaction or other conversation. As you answer these questions please try to respond as much as possible regarding students taking classes through web-based / distance technologies.” The survey concluded with a question asking library staff the extent to which their answers reflected their experience with distance education students as opposed to traditional on campus students. Thirty-four respondents (49.3%) selected “very much so,” while 23 (33.3%) selected “somewhat.” The option “not at all” was selected by seven respondents (10.1%), and an additional 13 respondents skipped this question.

Staff members in Michigan and California libraries completed a total of 82 surveys. No demographic data was asked for in the survey in order to protect anonymity and ensure respondents felt free to report their true feelings and reflect on their experiences without fear of being singled out. For this reason, it is not known whether respondents were clerks, librarians, or administrators, or the city or state in which their libraries are located. Results indicated that 78 (97.5%) of respondents worked in public libraries, while two (2.5%) were employed in special libraries such as military base, hospital or museum. Two respondents skipped this question.

Respondents were asked to indicate on a list of possible services that were provided in their library, and further, to indicate if these services are provided “frequently” or “sometimes.” Services that seem to be most prevalent were test proctoring, group study spaces, and meeting rooms. Services that seem to be the least available in public libraries were classes or workshops on study skills and distance education technologies, followed by technical support for distance education programs. Table 4 provides a detailed list of responses. In the “other” category,
several respondents listed computers or free Wi-Fi connectivity as additional services they provide to distance education students.

Table 4

Do You Provide Specific Services for Distance Ed Students?

<table>
<thead>
<tr>
<th>Service</th>
<th>Frequently</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test proctoring</td>
<td>36 45.6%</td>
<td>22 27.8%</td>
<td>21 26.6%</td>
</tr>
<tr>
<td>Group study spaces</td>
<td>33 41.3%</td>
<td>32 40.0%</td>
<td>15 18.8%</td>
</tr>
<tr>
<td>Meeting rooms</td>
<td>27 34.6%</td>
<td>32 41.0%</td>
<td>19 24.4%</td>
</tr>
<tr>
<td>Purchase materials (reference works, databases, journals, etc.)</td>
<td>15 19.5%</td>
<td>27 35.1%</td>
<td>35 45.5%</td>
</tr>
<tr>
<td>Offer classes or workshops (study skills, distance technologies, etc.)</td>
<td>3 3.8%</td>
<td>12 15.2%</td>
<td>64 81.0%</td>
</tr>
<tr>
<td>Reserve services (placing materials for short term loan)</td>
<td>20 25.3%</td>
<td>26 32.9%</td>
<td>33 41.8%</td>
</tr>
<tr>
<td>In-depth research consultations</td>
<td>4 5.1%</td>
<td>31 39.2%</td>
<td>44 55.7%</td>
</tr>
<tr>
<td>Technical support for distance education programs (Blackboard, Moodle, etc.)</td>
<td>6 7.6%</td>
<td>21 26.6%</td>
<td>52 65.8%</td>
</tr>
</tbody>
</table>

In order to get an idea of how distance education students are perceived by these libraries as a whole, survey respondents were asked whether they considered distance education students as a distinct patron type with regard to planning and decisions for collections, programming, and other services. Overall the survey results show that public library staff do not consider distance education students to be a specific group of patrons in their operations. The majority of respondents, 62 (77.5%), answered no to this question. Comments included:

- “They are an aspect of our community but not a distinct patron type.”
- “Most distance ed. students come equipped to library with their own computer. They typically only "use us" for proctoring, troubleshooting computer issues, or ILL. The number of distance ed. students does not make a huge impact upon our population and thus does not make a huge impact upon our decisions to form collections, etc.
- “I consider them as part of my college-oriented group which includes community college and AP and IB students in the high schools.”
In order to get a sense of library staff attitudes toward serving distance education students, respondents were asked to select from a list of statements to indicate which ones reflected their personal attitudes on the topic. The most prevalent statement selected was “we give the same level of service as all other patrons.” Sixty-three respondents (84%) identified with this statement. This was followed closely by “happy to serve them,” which was selected by 59 (78.7%) of respondents. The statement “these students really need to be better informed about the services that are available to them from their college/university” was selected by 28 respondents (37.3%) (see Table 5).

Table 5

How Do You Personally Feel About Distance Ed Students That Use Your Library?

<table>
<thead>
<tr>
<th>Response</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Happy to serve them</td>
<td>59</td>
</tr>
<tr>
<td>We give the same level of service as all other patrons</td>
<td>63</td>
</tr>
<tr>
<td>Wish they would use the library services from the school where they take the class</td>
<td>7</td>
</tr>
<tr>
<td>These students really need to be better informed about the services that are available to them from their college/university</td>
<td>28</td>
</tr>
<tr>
<td>These students really should not be here because we do not have the collections and services they need</td>
<td>1</td>
</tr>
<tr>
<td>Not surprised they use our library because we provide a better environment or a better level of customer service</td>
<td>24</td>
</tr>
<tr>
<td>These students are an unnecessary burden on our collections and staff when we are already stretched so thin</td>
<td>0</td>
</tr>
</tbody>
</table>

Selected comments to this question include:

- “Some students are literally across the country from their institution so obviously they need a library to support them. We offer all our services to distance students but advise them that we are a public library and don't have the same level of services that an academic library can provide and then suggest local community and academic libraries that support their research needs.”
• “This is a good way to grow library supporters. Education is increasingly dispersed via the Internet - this is a good place for us to be.”

• “We are happy to serve these students both with our collection and our building. However, I wish the students knew about the databases their schools offered and that they can be accessed remotely. We'll mention it to them and even look what they have their school's website and they are often surprised with what they have to offer.”

• “I believe that one cannot group all distance education students into one group--for profit institution students seem to have less preparation than those in a more traditional program.”

Respondents were asked an open-ended question about their opinions regarding why distance education students use their libraries. Most comments indicated the primary reasons were convenience of both location and hours, availability of computers and free Wi-Fi, access to test proctoring services, and access to the physical environment including quiet spaces and group study spaces. Selected comments to this question include:

• “Human face - closer to home; able to use Wi-Fi, and sometimes unaware of the support that their college/university can provide.”

• “They feel comfortable and they know we will help as much as possible.”

• “Because we are a comfortable place to work and study. Our collections may not be well tailored to their needs, but we can be kind of a faux campus for people who need a space to be while they study.”

The survey also asked respondents to reflect on what the students’ home university could be doing better to serve the needs of the distance education students. Many commenters indicated that a library orientation program should be offered or required for students, or that a class on information literacy should be required. Similarly, a large segment of comments indicated that students seemed to be unaware of services available from their home university. About a quarter of the comments had to do with test proctoring and the confusion and complications for staff in offering test proctoring services for students. Several commenters also indicated that students should be better informed about the role of the public library versus the role of the home university.

Discussion

The results of the two surveys appear to corroborate previous research as well as provide a picture of the current environment of distance students’ use of libraries of different types. The authors’ initial research question asked why students chose another library over their home university library, but the data seems to indicate that student use of multiple libraries may be more common, which is consistent with the findings of Dew (2001) as well as Stephens et al., (1997). Students surveyed indicated that the majority (64.52%) are using their home university website. Additionally 41.94% of students report using their local public library. Adding the
responses for students who reported using all other libraries combined—another university or college, local public library, military base library, other workplace library—the total comes to 65.6%. This figure is roughly equal to the number reporting they use library services from their home university via the website. The survey showed that access to specific materials, convenience to home or work, availability of specific library services seem to be primary influences in this choice. This is also quite consistent with previous research including Antell (2004).

Historically, students may have been forced to use services from any library they could access in order to try to meet their needs for information and assistance. However, it appears that students may now be “shopping” between libraries depending on their needs or desires throughout their academic career. Just as students have become consumers of education and not necessarily looking to only one college or university for all of their education needs throughout a lifetime, they are also picking and choosing libraries to support their information needs along the way.

The experience of staff in the public library as reported in this survey shows that distance students are generally welcomed at their local libraries. Public library staff provides the best service they can despite their own competing priorities. In fact, some public librarians see their service to distance students as an excellent opportunity to engage with potential library supporters who may become champions in the community when it comes to millage renewals and other community support.

There were some areas between the two surveys that seemed to show a disconnect between the experiences of the students and the experiences of the staff in the local libraries these students are using. For instance, students report use of physical facilities to be of relatively low importance to them. However public libraries report that meeting rooms, study spaces, and a quiet physical environment are important services they can provide to this community. The survey of distance education students also presents a picture of students who are on the whole self-sufficient and self-directed. However, the survey of public librarians indicates their perceptions of the students they see being more confused and in need of service and guidance. This may be explained by the fact that the students involved in this research were primarily graduate students, while the students encountered in public libraries may be more likely to be undergraduates. In addition, the students surveyed have the benefit of library services dedicated to distance learners provided to them through their university, while students who approach reference desks in their local libraries may tend to be enrolled at colleges and universities that do not have such an extensive suite of services for distance students. It is also possible that the distance students encountered by public library staff are the type of students that prefer more personalized face-to-face assistance and have opted to come to a physical library for that reason.

**Recommendations**

Based on this research there seem to be several issues that distance education librarians may want to address.
1. Accept that students are likely to use resources and services from local libraries in addition to the library at their home university. Ideally these services will be complementary rather than duplicative to what the home university is providing. Local libraries have conveniences such as computers and Wi-Fi, and their facilities offer quiet spaces in close proximity to the student that their academic institution cannot generally provide to distance students. Students who prefer face-to-face assistance may be looking to local libraries for this experience, and fortunately, they are likely to be welcomed there. While services from the academic institution are by nature remote, students needing more high-touch service seem to be finding their way to local libraries. Distance education librarians need not be concerned that students are “straying,” but rather appreciate that students are choosing libraries for their research.

2. Acknowledge and appreciate that our students are generally accepted at these libraries and are being provided with a high level of service. Distance librarians may be concerned that when their students use local libraries they place a burden on the staff who are not equipped to serve students enrolled in higher education. However, according to survey results as well as findings in previous literature, local libraries understand that these students are members of their community and are willing to provide service to the greatest extent that they can. Although public librarians may not have collections and services tailored to these students’ needs, they appear to be going to some effort to get students to resources that they need, and even point students in the direction of services at their home universities when students are not aware of them.

3. Make sure students are aware of library services available to them. This research provides further evidence that many students may not be accessing services through their home university because they simply do not know these services exist. In continuing to improve marketing of library services, distance librarians may consider using local libraries as a conduit to reach their own students. Distance librarians may, for instance, send contact information, brochures, website links, or even consider making site visits if possible. In addition, distance librarians may become more aware of services available to students through their local libraries and may help direct students to these services. For instance the local library may offer specialized collections or services such as resume assistance, writing support, technology-related workshops, etc. Distance librarians can help local libraries promote their value by directing students to these services available to them in their own communities.

4. Investigate methods for improving the proctoring process at the local library. While test proctoring is a service that students do not seem to regard as highly important, the survey of public library staff indicates that this is a frequent source of frustration for them. Many commenters on the survey reported that the instructions from the academic institution were not clear, or that local libraries are sometimes expected to offer a level of service that isn’t possible, such as constant monitoring while a student is taking a test. While proctoring often falls outside of the library’s purview, distance librarians can foster communication that improves and clarifies the process for everyone involved.
5. Understand that the local library is an engaged and valuable partner in providing services to distance education students. Academic librarians can do more to collaborate and build better bridges with local libraries, and distance librarians, especially, can provide better service in partnership with the other libraries that their patrons are using. Distance librarians could, for instance, get involved with public library consortia, attend conferences, or subscribe to electronic lists for public library staff. Shared collections and databases, especially for programs with unique research requirements, could maximize library resources and benefit distance students as well.

Conclusion

Increasingly, higher education institutions are offering programs through distance education platforms and more students of every demographic are choosing to enroll in these programs. In the past, distance students may have encountered resistance in local libraries when they tried to access resources or services, but this is generally no longer the case. Patron groups are blurring, and distance education students who visit a local library may also be parents, employees, job seekers, program attendees, etc. As distance education has become more mainstream, librarians that support distance students have tried to improve understanding of their information needs and tailor accessible services to meet these needs. In the past, distance librarians may have felt that students who use other libraries were doing so because the services through the home university were somehow insufficient or inaccessible. This does not appear to be the case. Increasingly, from the students’ perspective, there is a happy marriage between different types of libraries, and both environments are well equipped to meet specific needs for these students. Students may be straying from their home university but distance librarians no longer need to be concerned about winning them back. Distance students will be better served when librarians in all types of libraries work together to help remote learners locate and use the resources and services best suited to their information needs.
References


Appendix A

**Instructions**

**STUDENT SURVEY**

This research will explore how well local libraries are meeting the research needs of distance learners and how distance library services at universities can address unmet needs of students who choose to use other types of libraries for their research. You will be asked to answer questions about your use of library services and your reasons for choosing a particular library for doing research for your CMU classes. Completing the survey should take about 5-10 minutes.

**Local Libraries and Distance Students**

**About you**

Please provide a little information about yourself.

1. Please indicate the degree or program in which you are enrolled (e.g. BS in Psychology, MA in Education, etc.)

2. Please indicate your age:
   - 18-25
   - 20-35
   - 36-45
   - Over 45

**Library Use**

3. Where do you go for library services? (select all that apply)
   - My university's library
   - Another university or college library
   - Local public library
   - Military base library
   - Other workplace library
   - Library website - at my university's library
   - Library website - at another library
   - Other (please specify)

   Other (please specify)
4. Which library do you use most often?

5. Please rank your reasons for choosing this library.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Very important</th>
<th>Important</th>
<th>Not important</th>
<th>N/A (Not applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours of operation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to meet with friends/colleagues/</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fellow students</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convenience to stay home</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helpfulness of staff</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distraction-free environment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of parking</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convenience to stay work</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access to specific research materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of specific services</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. If the library you use most frequently offers access to specific research materials you need, please describe below. If not, skip to question 7.

7. If the library you use most frequently offers specific services you need, please describe below. If not, skip to question 8.
8. Please indicate how frequently you use the following services:

<table>
<thead>
<tr>
<th>Service</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
<th>N/A (Not applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Searching journal databases</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Requesting materials from other libraries</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Getting journal articles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using study space</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Having meals processed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attending scheduled library programs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using meeting rooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Checking out books</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children's services for my kids</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Getting research assistance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using library computers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Getting technical support</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Printing, copying, or scanning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
9. Which of the following services are NOT available from your university's library?

- [ ] Requesting materials from other libraries
- [ ] Attending scheduled library programs
- [ ] Printing, copying, or scanning
- [ ] Getting research assistance
- [ ] Using meeting rooms
- [ ] Getting journal articles
- [ ] Using study spaces
- [ ] Having books purchased
- [ ] Using library computers
- [ ] Getting technical support
- [ ] Checking out books
- [ ] Searching journal databases
- [ ] Not sure

Recommendations

10. If your university’s library could do one thing to better meet your research needs, what would it be?
Appendix B

Public Libraries and Distance Education Students

Instructions

The following survey asks for your experience serving distance education college and university students in your library. This survey should take 3-5 minutes to complete.

We recognize that it may be difficult for you to distinguish students enrolled in distance education (web-based) programs from students enrolled in traditional face-to-face programs at a college or university. However, sometimes this information may be revealed in interacting with a student during a reference transaction or other conversation. As you answer the survey questions please try to respond as much as possible regarding students taking classes through web-based / distance technologies.

1. In what type of library do you work?
   - Public
   - Special (hospital, museum, military, etc.)
   - Other (please specify)

2. Does your library have ample free parking?
   - Yes
   - No
   Additional comments

3. Does your library have a designated children's area?
   - Yes
   - No
   - Additional comments
Public Libraries and Distance Education Students

4. Do you provide specific services for distance education students? (select all that apply):

<table>
<thead>
<tr>
<th>Service</th>
<th>Frequently</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text proctoring</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group study spaces</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meeting rooms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purdue materials (reference works, databases, journals, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other classes or workshops (study skills, distance education technologies, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reserve services (placing materials for short term loan)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-depth research consultations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical support for distance education programs (Blackboard, Moodle, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (please specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Do you consider distance education students in your community as a distinct patron type with regard to planning and decision making for collections, programming, and other services?

- Yes
- No

Comments:

Distance education student survey, continued
Public Libraries and Distance Education Students

6. How do you personally feel about distance education students that use your library? (Select all that apply):
   - Happy to serve them
   - We give the same level of service as all other patrons.
   - Wish they would use the library services from the school where they take classes.
   - These students really need to be better informed about the services that are available to them from their college/university.
   - These students really should not be here because we do not have the collections and services they need.
   - Not surprised they use our library because we provide a better environment or a better level of customer service.
   - These students are an unnecessary burden on our collections and staff when we are already stretched so thin.

Comments:

7. In your opinion why do distance education students use your library?

8. In your opinion what could colleges/universities be doing to better serve the needs of their distance education students?

9. To what extent do you feel your previous answers reflect your experience with distance education students as opposed to students taking classes in traditional face-to-face settings?
   - Very much so
   - Somewhat
   - Not very much
   - Not at all

Comments:
The Chat Is Coming from Inside the House: An Analysis of Perceived Chat Behavior and Reality

Elizabeth Berndt-Morris
Samantha Minnis
Central Michigan University

Abstract
When looking for ways to improve library services, we considered what data sources were readily available to us and how we could harvest and use this data. We investigated three years of chat reference statistics at Central Michigan University, a large research institution, to gain a better understanding of our patrons’ chat behavior. We then compared the results to a survey given to the information professionals using chat reference, examining the perceptions of our chat service versus the results of our statistical analysis. With a large population of students on-campus, off-campus, and online, we looked at the incoming location of students asking for virtual assistance and which library queue chats (on-campus or off-campus) students are using. We compared many elements including, but not limited to, busiest time of day and year, length of response time and length of chat, all of which give us insights when determining practices to best serve our patrons. We concluded that several of our perceptions were inaccurate and there was much to learn about our patron usage behavior. We discovered many areas of discussion where there are potential for improvements.

Introduction
Chat reference has become a common library service tool. Many libraries are now using chat as a mode of providing reference assistance to their patrons. Those who provide reference assistance may have noticed that although chat is a virtual tool that can be used at a distance, it is not exclusively used as such.

Our research investigates the quantitative data from our chat statistics and does not take into consideration any qualitative or anecdotal evidence. As part of our investigation, we surveyed the librarians and professional staff who participate in chat reference regarding its perceived use. This provided insight into the accuracy of our perceptions and potential misconceptions regarding the use of our chat service.

Literature Review
In the library literature of the last few years, many articles have discussed chat etiquette
and best practices, however little has been written about the quantitative data that is gathered with the use of chat or improvements that can be made from such information. Librarians at Mississippi State University collected statistics about virtual reference usage in their library system (Nolan et al., 2012). They looked at the status and college of study of patrons using chat and email reference and found the highest usage coming from undergraduate students. In a similar study done by University of Illinois at Chicago librarians, Lewis and DeGroote (2008), virtual reference chat access point data was compared to question type. By placing a chat box on their website and external locations, including their catalog, three database vendors, and the course management system, the usage increased dramatically.

Librarians Naylor, Stoffel, and Van Der Laan (2008) at Illinois State University put together focus groups of patrons to determine why their chat reference service wasn't used as much as they expected. Those patrons preferred more personal in-person reference assistance, even though they also preferred to also do research at home. Despite the fact that this article was published only a few years ago and chat has been around for many years prior to this, many focus group participants felt chat was difficult to learn or use.

Librarians Ruppel and Vecchione (2012) discussed college students’ perceptions of reference services through text, chat, and face-to-face. Based on a perception survey, they found that students at Boise State University are open to any medium of service that is quick, convenient, personalized, and high-quality. Radford, Radford, Connaway, & DeAngelis (2011) discussed interpersonal dynamics of chat reference, investigated chat transcripts, and analyzed the expectations of patrons and the differences between face-to-face and virtual interaction. Powers, Shedd, and Hill (2011) wrote about their website redesign and the online patterns of user behavior at the Mississippi State University Libraries. They examined chat and email transcripts for details about their website redesign in order to improve a virtual reference experience.

Combining the efforts of many researchers, Connaway and Radford (2008) published a website as well as a document of materials from the website creating a best practices guidelines for information professionals titled “Seeking Synchronicity: Evaluating Virtual Reference Services from User, Non-User and Librarian Perspectives.” This document addressed a wide range of virtual reference concerns for reference without a face-to-face interaction, including recommendations for communication, location, evaluation, marketing, and desired outcomes for patrons and information professionals.

Method

Setting

Central Michigan University (CMU) has one main library that holds reference librarians designated to users registered as on-campus patrons, and two Global Campus librarians designated to off-campus/online students. Other Global Campus librarians are located at CMU Centers in Troy, Michigan, and Atlanta, Georgia. The population of CMU is approximately 23,000 on-campus students and 5,000 registered with Global Campus; however, similar to other universities, more on-campus students are also taking online classes which begs the questions, where are students coming from when they are for virtual assistance and which reference
department are they consulting?

During the semester, chat is offered from 8:00 a.m. until 9:00 p.m. on weekdays and Sunday afternoons. It is not offered on Saturdays. During the academic year, chat reference is typically available 65 hours per week. Chat boxes can be found on our Ask a Librarian page as well as every page of every research guide. It is currently not included the University or Global Campus Library homepages. When a patron is on a University Library page or guide the chat will go through on the on-campus librarian queue, on the Global Campus Library website and guides in that the chat will be sent to the Global Campus librarian queue. In October of 2012, all librarians began monitoring chats from both queues rather than solely the queue of their own department.

Procedure

Central Michigan University uses LibraryH3lp, a product of Nub Games, as a chat service. This product allows the exporting of chat data into other programs, such as Microsoft Excel. Using this feature, we exported data regarding our chats from 2011, 2012, and 2013 into separate Excel files, dividing each year into smaller categories organized by incoming location as determined by CMU owned IP addresses. We could then determine how many chats are from the Mount Pleasant campus, inside the physical Library building, from Global Campus Centers, and through texting on a mobile device. Within each of these categories we then looked at other ways to divide the data, including which website patrons were accessing a chat box, either on-campus, we refer to this use as the Reference queue, or off-campus, referred to as using the Global Campus Library Services queue. Within each of these sections and as a whole, we investigated other pieces of information, including the busiest time of day and year, length of time it takes to initially respond to a chat, and the length of a chat conversation.

After analyzing the data we determined the most effective questions to ask our staff to solicit useful information regarding staff perceptions of chat use. We used SurveyMonkey to send nine questions to the fifteen professionals who receive chats, not including ourselves (see Appendix for a copy of our survey).

Results

Results

In 2011, 2012, and 2013 we received 8,019 chats. In the tables to follow, the total number of chats may not add up to the 8,019 total. This is due to the categories being analyzed not encompassing all chats or glitches in the information provided by LibraryH3lp causing missing information. The number of chats for which there was only partial information was insignificant to the conclusions being drawn. The amount of chats fluctuated year to year with 2,130 in 2011, 3,650 in 2012, and 2,239 in 2013 (see Table 1).
Table 1

*Chats by Year*

![Bar chart showing chats by year for 2011, 2012, and 2013. The bars for 2012 are the tallest.]

Table 2

*Chats Per Year by Time of Day*

<table>
<thead>
<tr>
<th>Time</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-8:59</td>
<td>127</td>
<td>52</td>
<td>63</td>
<td>242</td>
</tr>
<tr>
<td>9-10:59</td>
<td>451</td>
<td>220</td>
<td>280</td>
<td>951</td>
</tr>
<tr>
<td>11-12:59</td>
<td>596</td>
<td>368</td>
<td>370</td>
<td>1334</td>
</tr>
<tr>
<td>1-2:59</td>
<td>773</td>
<td>415</td>
<td>451</td>
<td>1639</td>
</tr>
<tr>
<td>3-4:59</td>
<td>723</td>
<td>433</td>
<td>463</td>
<td>1619</td>
</tr>
<tr>
<td>5-6:59</td>
<td>547</td>
<td>295</td>
<td>308</td>
<td>1150</td>
</tr>
<tr>
<td>7-8:59</td>
<td>416</td>
<td>266</td>
<td>272</td>
<td>954</td>
</tr>
<tr>
<td>9pm or after</td>
<td>12</td>
<td>78</td>
<td>25</td>
<td>115</td>
</tr>
</tbody>
</table>

*Note.* Table 2 shows the number of chats per year by busiest time of day broken down by two-hour increments. The largest chat numbers are highlighted in red.
We assumed that any chat with no operator was a chat that went unanswered, an assumption that was confirmed by a conversation with an employee at LibraryH3lp. By filtering chats with no operator and looking at the time stamps we were able to break down the number of chats that were missed to two-hour increments. Table 3 shows the number of chats missed. The percentage of chats missed was 7.97% in 2011, 10.38% in 2012, 7.77% in 2013, and 8.55% for all three years combined.

Table 3

<table>
<thead>
<tr>
<th>Time</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-8:59</td>
<td>12</td>
<td>17</td>
<td>2</td>
<td>31</td>
</tr>
<tr>
<td>9-10:59</td>
<td>18</td>
<td>31</td>
<td>9</td>
<td>58</td>
</tr>
<tr>
<td>11-12:59</td>
<td>55</td>
<td>53</td>
<td>20</td>
<td>128</td>
</tr>
<tr>
<td>1-2:59</td>
<td>35</td>
<td>52</td>
<td>35</td>
<td>122</td>
</tr>
<tr>
<td>3-4:59</td>
<td>36</td>
<td>52</td>
<td>36</td>
<td>124</td>
</tr>
<tr>
<td>5-6:59</td>
<td>29</td>
<td>42</td>
<td>19</td>
<td>90</td>
</tr>
<tr>
<td>7-8:59</td>
<td>20</td>
<td>36</td>
<td>22</td>
<td>78</td>
</tr>
<tr>
<td>9pm or after</td>
<td>14</td>
<td>8</td>
<td>24</td>
<td>46</td>
</tr>
</tbody>
</table>

The median time a patron waited for a librarian to answer a chat was 16 seconds in 2011, 15 seconds in 2012, and 12 seconds in 2013. The median wait was 15 seconds for all three years. The median duration for chats was 3 minutes and 43 seconds for 2011, 4 minutes and 31 seconds for 2012, and 5 minutes and one second in 2013. The median duration for the three years combined was 4 minutes and 27 seconds.

To accommodate the difference between Global Campus and Mount Pleasant Campus semesters, we counted the Fall Semester as including the first week of August through the first two weeks of December, Spring Semester as the second week of January through the first week of May, and Summer Semester as the second week of May through the last week of July. Based on those parameters, the most chats happened during the Spring Semester in all three years.
Using the IP range provided for us by staff of the Library’s Systems Department and the University’s Information Technology Department, we were able to determine which chats were initiated from a location on campus, in the library, off-campus, or from one of the Global Campus Centers. The most chats were consistently from off-campus locations.

Table 5

*Chats by Incoming Location*
Sixty-nine percent of chats in all three years came through the Reference Queue, while 7.72% of chats that originated from an on campus location came through the Global Campus Queue.

Table 6

*Chats by Queue*

![Pie chart showing distribution of chats by queue.]

Table 7

*On Campus Chats by Queue*

![Bar chart showing number of on campus chats by queue.]

2603 [Reference] 201 [GCLS]
We had a 66% return rate on the survey we sent to the professionals who receive chats. When asked the time of day we receive the most chats, 40% of respondents said between 3:00 p.m. and 4:59 p.m. In response to what time of day most chats are missed, 70% of participants answered 9:00 p.m. or after.

When asked what percentage of chats were missed in the three years, 30% of those participants answered 10%.

60% of survey responders thought the median to answer a chat was between 11 and 20 seconds. For median length of a chat, 60% of respondents responded between 3 minutes and 5 minutes and 59 seconds.

90% thought we received the most chats during the fall semester, and 60% thought most chats came from off-campus. 70% believed we receive most chats through the University Library queue.

30% of participants believed we receive 25% of chats from an on campus location via the GCLS queue.

**Discussion**

Entering this project we knew we had certain assumptions about chat. For example, when discussing chats with our colleagues we often assume the patron with whom we are chatting are male and of a typical college student age. While we did not address chat transcripts in this project we considered what other assumptions we might be making in our library regarding virtual reference services. Virtual reference leaves much to the imagination, making analyzing chat data a worthwhile assumption buster.

We started this project because we had an abundance of data that was being generated and stored without any intervention and was available for us to use. By manipulating this data we thought there would likely be opportunity for improvement, even if only a better understanding of our users.

From our results we considered what this data tells us. From our first survey question, “what time of day do we receive the most chats?” our results tell us between 1:00 p.m and 2:59 p.m. with the 3:00 p.m. to 4:59 p.m. range very close behind. Our results from survey question two tell us that our colleagues believe we are missing the most chats between 9:00 p.m. and after, when in fact we miss the most chats during those same busy times. Since we do not offer chat service after 9:00 p.m., we came to the conclusion that we should have a conversation about what this is telling us. We did miss a total of 46 chats over the three years after 9:00 p.m. almost entirely from mistakenly leaving chat open on a computer overnight. How many chats would occur after 9:00 p.m. if we were available via chat? Does this mean there are chats to be answered, or that our colleagues feel there is an opportunity to assist patrons we are not taking advantage of, or both?

The percentage of chats that were missed was 8.55% for all three years. This appears to
be a small percentage, but another way of looking at it is to consider that out of 8,019 chats, we missed 686 of them. While this number is less than the 10% answer of the survey, we can still consider effective ways to lower our missed chats going forward and potentially help 686 more patrons than before.

Comparing our busiest time of day for incoming chats to when most chats are missed, we found the times do not correspond as one might expect. The most chats are missed between 11:00 a.m. and 12:59 p.m., which is earlier than our busiest times that consistently fall later. During this time of higher missed chats we tend to have less people assigned to reference hours, so this may be an issue that is needs to be addressed.

We used the median when dealing with time because there were outliers from accidentally leaving chat boxes open all night. Our colleagues were correct in assuming the median time it takes to answer a chat was between 11 and 20 seconds, with our time reducing each year. However, imagine sitting for 16 seconds (our median wait) while staring at a computer screen, unsure what the person is doing on the other line. We make assumptions about our patrons because so much is unknown, and they will have assumptions as well.

What does a median chat of 4 minutes and 27 seconds tell us? Without looking at transcripts, this tells us about how much time we are spending on chat. If we consider that a chat is approximately 4 1/2 minutes and then consider we receive the most of these between 1 and 5, this should be a consideration when scheduling. In the future we may also want to consider if the length of a chat is longer during other time periods throughout the day. Numbers alone do not give us insight into the type of question being asked other than it was not likely a quick yes or no or directional question. With that said, this got us thinking about what people are using chat for. Is it evolving beyond just the quick question to something more? This is another future consideration into the qualitative information not included in this analysis.

Our colleagues believe that fall was the busiest semester for chats; however spring has significantly more chats by a difference of 955. Overall, October is our busiest month, followed by September even though spring is busiest as a whole. It is also important to note significant changes in chats. In the last year, April was the busiest month for chat. We have had increases in chat every year in July. This is something to consider when creating reference schedules, even having an awareness that we should all be alert and signed on to chat as much as possible during these months. We should ask ourselves, are we scheduling enough people or hours while still making good use of our time?

We wanted to know where our patrons were physically when accessing our chat service. With an increasing number of online course offerings, we believed we were likely to see a very large number of chats coming from off campus. See table 5 above for the location of patrons when they initiate chat. Of chats, 13% chats came from inside the library. This means that 922 times patrons chose to use a chat service than use the alternative face-to-face reference service. From our experiences, we also know many of these patrons are asking for us to come to them to assist on another floor. Another 18% were on campus but not in the library. This means that a significant proportion of patrons we know are within walking distance are choosing a more virtual way of receiving assistance rather than speaking to someone in person or on the phone.
Because we have such a large offering of online courses and two separate chat queues, we wanted to know how many of the on campus chats (including those in the library) came through the Global Campus Librarian Queue. Our survey responses indicated that there was a higher perception of what that number would be. Because we do not have students self-identify their student status, we do not know if students are often using the wrong chat queue and therefore talking to a librarian from an on or off campus department. Because we know 7.72% of chats on campus were to Global Campus Library Services, it raises the question if having one chat queue would be less confusing and possibly more effective than two.

Both departments began sharing a chat queues in 2012, resulting in the ability for anyone logged in to chat to be able to answer a patron regardless of the website they use for chat. This was helpful because the statistics tell us that even though Global Campus Librarians assist students taking online courses, most of our chats are coming through the on-campus, University Libraries website. The ratio of librarian to student is much larger than with the Global Campus Librarians to online students, and therefore we can attempt to reduce the number of missed chats and wait time with more librarians on call.

A perception in our department is that the number of chats has been decreasing. As table one demonstrates, while this is the case for 2012 to 2013, is was not true for 2011-2012. The percent increase from 2011-2012 was 71% while the decrease from 2012-2013 was 39%. We argue that more time is needed to identify if this is a trend that will continue before making decrease assumptions. One possible solution to decreased numbers in the last year is to place the chat box on our homepage rather than burying it on an internal page. We also reason that chat requires minimal investment from us because we can be logged in to chat while performing our other job duties. It is only when answering a chat that our time is used.

**Conclusion**

While our perceptions were relatively close to the reality of our patrons’ chat behavior, there were some discrepancies. The most interesting perception was that we are missing patron chats after 9:00 p.m. This perception may require discussion as to how to assist those patrons. It’s possible they are finding other ways to contact us, such as email, or it might be worth a discussion of extending chat hours either through extending our staff hours or joining a type of cohort answering service such as Research Help Now which is a cooperative of 14 libraries in Michigan or 24/7 Academic Cooperative through QuestionPoint a 24 hour chat service.

Throughout the course of this project, we came up with several ideas for future studies. For example, we would like to survey our patrons to establish what kind of assumptions they might be making about the person answering their chats and what they think of the service in general.

When looking for ways to improve your library services, consider what data sources are already available to you and how you can harvest and use this data when making adjustments. Even knowing more about the services you offer and how your patrons are using it is valuable knowledge.
References


Appendix

1. What time of day do you think we receive the most chats?
   7:00 a.m.-8:59 a.m.
   9:00 a.m.-10:59 a.m.
   11:00 a.m.-12:59 p.m.
   1:00 p.m.-2:59 p.m.
   3:00 p.m.-4:59 p.m.
   5:00 p.m.-6:59 p.m.
   7:00 p.m.-8:59 p.m.
   9:00 p.m. or after

2. What time of day do you think most chats are missed?
   7:00 a.m.-8:59 a.m.
   9:00 a.m.-10:59 a.m.
   11:00 a.m.-12:59 p.m.
   1:00 p.m.-2:59 p.m.
   3:00 p.m.-4:59 p.m.
   5:00 p.m.-6:59 p.m.
   7:00 p.m.-8:59 p.m.
   9:00 p.m. or after

3. What percentage of chats do you think were missed? (Answer was in the form of a textbox instead of multiple choice)

4. What do you think is the median time it takes to answer a chat? (Reminder: Median is the middle number, not the Mean/Average.)
   1-5 seconds
   6-10 seconds
   11-20 seconds
   21-30 seconds

5. What do you think is the median length of a chat?
   59 seconds or less
   1 minute- 2 minutes and 59 seconds
   3 minutes- 5 minutes and 59 seconds
   6 minutes or more

6. Which semester do you think we receive the most chats?
   Fall (including GCLS one and two)
   Spring (including GCLS three and four)
   Summer (including all GCLS summer sessions)
7. Where do you think most of the chats we receive are coming from?
   - In the library
   - On campus but not in the library
   - Off campus
   - Global Campus Centers

8. Through which chat queue do you think we receive the most chats?
   - University Library Queue
   - Global Campus Library Services Queue
   - Text Queue

9. What percentage of chats from an on campus physical location do you think came through the GCLS queue? (Answer was in the form of a textbox instead of multiple choice)
Gazing into the Crystal Ball: Using Scenarios for Future Visioning of a Distance Learning Library Service

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Abstract
This article describes the use of scenarios as a tool to assist a large distance learning library service in its strategic planning. Through a description of the scenario process from beginning to end, the authors detail the steps that the library director and the consultant took initially; their missteps; and the successful conclusion. This study of the journey through the scenario process to a new strategic plan should prove useful to library administrators interested in exploring new ways to plan for uncertain futures.

Background
Scenarios, which ask people to suspend their current beliefs or strongly held values long enough to appreciate new connections, new themes or new directions, are a way to envision the future of an organization. Scenarios take into account the complexity of current forces and their plausible future implications while avoiding the dangers of mental models or habits that can influence the planning process (Godet & Roubelat, 2000; Ringland, 2006; Shoemaker, 1995). The challenge in any organization is to create the conditions for strategic creativity to emerge and develop scenarios that challenge current mind-sets that consciously or unconsciously make assumptions or judgments about the future (Heijden, 2005; Schwartz, 1991). Scenarios take complex elements and weave them into a story that is coherent and systematic and future-oriented.

While scenarios focus on the future, they differ from forecasts or visions. Forecasts are descriptions of a relatively unsurprising projection of the present (Lindgren & Bandhold, 2009). Visions are often uncomplicated and meant to both inspire and articulate a desired future. Both forecasts and visions conceal risks while a well-worked scenario story includes the plausible impacts of such risks (Heijden, 2005). A preferred scenario adapted to a local organization may serve as a vision guiding future change.

Scenarios help leaders at all levels of the organization consider more uncertainty, expand current thinking, and improve long-term decision making. They are being used to imagine
alternative futures in higher education and in libraries; and are valuable in planning because they allow people to see different paths that open the potential for more than one future direction for an organization. Incorporating scenarios into planning can potentially change beliefs and assumptions about work and focus on the strategic development of the organization (Burt, 2003; Burt & Chermack, 2008). Scenarios can also open up new possible futures and help library directors articulate a vision that includes new library service innovations (Jantz, 2012) and demonstrate how decisions made today move toward the future library.

Proposal

Many distance learning library services developed organically in response to colleges and universities offering programs off campus or online rather than being implemented as part of a library’s long-range planning. While the literature of the field, conference presentations, and social networking sites highlight the quest for innovative technologies and new ways to provide library services to distance learners, there is little discussion about how distance learning library services envision and plan many years into the future. In addition, the use of scenarios as a planning tool has been limited primarily to research libraries. This study moves the investigation of scenarios as a planning tool into new areas by exploring the use of scenarios to inform strategic planning in an academic library that supports a large distance learning program.

As directors position distance learning library services to support a changing academy, they must, in turn, use new planning tools which allow them to re-think library services and move beyond the image of the traditional library. Scenarios help leaders develop a process that investigates possible futures; identifies uncertainties; and involves staff and librarians at all levels. By exploring the scenario process in a large distance learning library service, this study attempts to demonstrate the effectiveness of the process in long-range planning and, perhaps, provide a model for other similar libraries.

Literature Review

Historical Context

The beginnings of “what if” narrative scenarios come from Herman Kahn and the RAND Corporation (Lindgren & Bandhold, 2009). After World War I, the RAND Corporation used scenarios to research new forms of weapons technology. Kahn pioneered the technique of “future-now” thinking, which is a detailed analysis plus an imagination to write a myth or story as if it were written by people living in the future (Ringland, 2006). Kahn’s scenarios helped people break past their mental blocks and consider “unthinkable” futures.

In 1947, Stanford University established the Stanford Research Institute (SRI) to offer long-range planning for business incorporating operations research, economics, and political strategy along-side science and military consulting. The SRI “futures group” began to ask questions and apply scenario thinking to a variety of disciplines to study the future. These questions were not only related to military and weaponry science, but also led to large-scale educational teaching machine systems in 1973; low-cost 3-D color television in 1977; undersea motels, factories, and recreation centers powered by nuclear power; and commercial passenger
rockets going to the moon by 1980 (Ringland, 2006). While top scientists in other companies asked what the world would want and need in the next 20 years, SRI focused on straight-line numeric forecasts and gathered literature on utopias and dystopias from science fiction to create plausible scenarios.

Developing scenario thinking was an incremental step in strategic planning and advancing the leader’s view of different possibilities (Swanson, 2008). Peter Schwartz, president and founder of the Global Business Network, believes that when leaders undertake strategic planning, denial acts as an automatic shut-off valve to creativity and alternative solutions (1991). Scenario thinking, therefore, can become a useful part of strategic planning. Early on, Kahn’s founding of the Hudson Institute earned him the title of America’s top futurist. By the late 1950s, many companies and organizations used scenarios. The work of the Hudson Institute brought the scenario process to corporations such as Corning, IBM, and General Motors.

A great advancement in scenarios and future thinking occurred at Royal Dutch Shell. Pierre Wack and Ted Newland of that company developed scenario thinking at a critical moment. They had written two future scenarios: one presented the conventional wisdom that somehow oil prices would stay stable; the second outlined a more plausible future—an oil price crisis sparked by the Organization of Petroleum Exporting Countries (OPEC). Despite the managers receiving, reading, and understanding the implications of the scenarios, there was little change in organizational decision making. The breakthrough came when Wack and Newland realized scenarios needed to change management’s view of reality—to match it up more closely with the reality as it is, and reality as it is going to be (Schwartz, 1991). With this changed view of reality, Royal Dutch Shell navigated a major oil crisis brought on by OPEC. Shell addressed a broad range of strategic and planning decisions across the uncertainties of time and politics (Koninklijke Nederlandsche Petroleum Maatschappij, 2005).

**Scenarios and the Academic Library**

Academic library leaders can use scenarios to expand the culture view; the fundamental perceptions, beliefs, and patterns of behaviors and norms; and ways of sense making of staff and librarians (Shepstone & Currie, 2008). A number of articles, research reports, and edited volumes use scenarios to express future directions of academic libraries (Deiss & Giesecke, 1999; Dupuis, 2009; Hardesty, 2002; O’Connor & Au, 2009; O’Connor, Blair, & McConchie, 1997; Reyes, 2006). These writings represent the directions an academic library might take to re-define reference desk service of the future Watstein (2003), portray scenarios as a planning tool in health sciences libraries (Ludwig, Giesecke, & Walton, 2009), or encourage future thinking among libraries within the Association of Research Libraries (ARL) (Staley & Malenfant, 2010). Malenfant (2011) uses scenarios during a planning process which examined how perceptions of disciplinary faculty members can inform and expand academic librarians’ thinking about devising future oriented action plans. Hernon and Saunders (2009) developed scenarios that explore possible relationships between the U.S. government depository program and research universities up to 2023, and Chadwick, DiPlato, Le Conge, Rubin, and Shaffer (2012) did the same for public libraries. Hernon and Matthews (2013) edited a volume that suggests a path for transforming academic libraries and involve national leaders in offering their perspectives on scenarios. When scenarios are used in an academic library setting they can paint
a better picture of tomorrow and challenge the status quo (p. 196). As scenarios are used more frequently in academic libraries, Hernon and Matthews caution that organizational leaders need to include the general workforce of a library. By doing so, scenarios will avert being too futuristic, unable to connect with the work in current library organizations.

A workshop on leading discussions of ARL scenarios in university research libraries focused on developing a strategic agenda and aligning organizational planning. Researchers described how scenarios were introduced in their organizations after the workshop and how they were used with the balanced scorecard (Ball, Bowlby, Burri, Lewis, & Mengel, 2012). In 2010, Staley and Malenfant developed 26 future scenarios that represented themes relating to the culture of higher education, demographics, distance education, funding, globalization, infrastructure (e.g., facilities), political climate, publishing industry, societal values, student learning, and the use of technology by academic libraries. In order to make these scenarios actionable in local environments, they asked library directors six, critical questions:

1. “If this scenario were to exist today, would academic libraries be able to leverage it to our advantage?”

2. Are the resources, staffing, organizational processes, and strategies available to take advantage of this scenario?

3. If this scenario were to exist today, in what ways are academic libraries currently vulnerable to the change it represents?

4. To what degree do the strategies and underlying values leave library leaders unprepared or unable to respond effectively to the conditions this scenario represents?

5. If all the staffing and resources were available, what could librarians do to leverage this scenario to their advantage?

6. What would need to happen—internally and in the external environment—for this vision to become a reality?” (pp. 21-22)

These questions encourage directors to think about the current library, its staffing and organizational processes. The fourth question challenges directors to think about the assumptions and ways in which their leadership may not effectively bring about the changes they envision. For managerial leaders, understanding where the money is allocated is important; yet equally critical are thoughtful considerations of how the current human resources and professional development practices help the library arrive at the future scenario. Future stories

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1 In Ludwig & Church-Duran (2012) the two-and-a-half day workshop at Georgia Institute of Technology in Atlanta, GA, March 23 through March 25, 2011, used experiential learning and participants’ university research library environments to assessing needs and map out a custom plan on how most effectively to incorporate the ARL 2030 scenarios into current and future planning. The ARL 2030 scenarios did not include the current library in the scenarios.

2 The balanced scorecard is a strategic planning and management system used in business and industry, government, and nonprofit organizations to align business activities to the vision and strategy of the organization.
that allow greater awareness of environmental factors challenge the assumptions of academic and research librarians and may prove critical for improved decision making (Staley, 2012).

As librarians and staff at all levels read the strategic scenarios, they imagine ways the current library may introduce changes to the current organization. Through the discussion with a future scenario librarians and staff may realize the impact their work has on the institution. Research is beginning to show that organizational cultures are less a permanent, manifested phenomena and more of a manipulated asset (Fortado & Fadil, 2012), thus the way library directors use scenarios can contribute to establishing organizational culture norms and beliefs that foster new thinking and approaches to change in the library. Recognizing how the assumptions, values, and beliefs of library directors influence decisions toward organizational change is an important element of establishing lasting change in organizations.

Research Design

Embry-Riddle Aeronautical University’s (ERAU) Hunt Library served as the distance learning library site for the use of scenarios in strategic planning. ERAU is a specialized university focusing on aerospace studies and aeronautical engineering. Granting degrees ranging from as associate’s degree in Air Maintenance Science to a PhD in Aviation Science, ERAU has two residential campuses and a large distance learning program. The residential campus in Prescott, Arizona has approximately 1,700 students. The other residential campus, in Daytona Beach, Florida, is home to approximately 5,200 students and the university administration. The largest ERAU campus is Worldwide, the distance learning division of the university, which enrolls approximately 25,000 students, who take classes in over 150 centers all over the world or through the online programs. The Hunt Library, located on the Daytona Beach Campus is the library for both Daytona Beach and Worldwide.

The Hunt Library has a staff\(^3\) of 36 librarians and technicians who serve both the residential and distance learning students of the Daytona Beach and Worldwide campuses. In 2010 the library initiated a new cycle of strategic planning in order to ensure that services to both sets of users remained customer-centric as well as to plan for innovation and improvements. Initially the library developed one-year plans with input from the entire staff. The planning was quite successful resulting in the achievement of most annual goals and the development of project work teams designed to support innovation in areas that the majority of staff considered to be high-priority.

In the 2012-2013 academic year, the Hunt Library management team\(^4\) engaged the staff in a set of exercises designed to look further out into the future in order to develop a three-year strategic plan. The first of these, at a staff retreat in December 2012, employed the SOAR\(^5\) method. As a result of this retreat, the management team had some ideas about strategic directions for the three-year plan, but decided that the results tended to reflect the one-year plans

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3 Staff will be used from this point forward to designate the library personnel. The term refers to both librarians and technicians.
4 The management team is comprised of the director and four associate directors.
5 The SOAR approach begins with an examination of an organization’s strengths and opportunities, as does a SWOT analysis. But rather than exploring weaknesses and threats, participants share their aspirations for their preferred future and define measurable results (Stavros, Cooperrider, & Kelley, 2003).
the library had developed earlier rather than being as future-oriented at the three-year plan needed to be.

In the spring of 2013, the director read the dissertation of Dr. Jon Cawthorne, the consultant, on the use of scenarios for long-range planning in research libraries. After a discussion with the consultant, in which he expressed an interest in expanding the use of scenarios to other libraries, the director considered that this approach might be the way to help the Hunt Library staff envision a future a little further out than one year. They settled on a date in June for the consultant to lead a scenario exercise.

The Scenario Process

Group Assignments

In late May 2013 the director and the consultant met to discuss the process. The consultant supplied future scenarios he had developed for a conference presentation earlier that year. Each of the three scenarios described a different set of circumstances 25 years in the future. They varied from somewhat bleak to very rosy. The consultant asked the director to adapt the three scenarios to the circumstances of the Hunt Library. The director made the changes and the consultant edited the new scenarios for consistency. They discussed when to make the scenarios available to the library staff and decided that the management team members would see them the day before the staff retreat and everyone else would receive them at the retreat.

Library staff and the Vice President of Student Affairs, to whom the library director reports, assembled for the retreat on a day in mid-June at lunchtime. While everyone else ate, the director and the consultant explained the process. Each of the staff members had been randomly assigned to a group. Members of the management team plus the Vice President of Student Affairs formed another group. Each group was instructed to read the three scenarios; give titles to each; pick the one they liked the best; explain why; and list what was missing. The groups were also instructed to choose a note taker, a culture hawk, who would report on issues created by the predominant culture in the library, and a presenter.

At the end of the brief presentation, the groups were asked to move to various conference rooms throughout the library and take the next hour to follow the instructions the consultant had given them. The director and the consultant walked around to each of the groups to answer questions. They observed some frustration among many of the staff members. Some reported that they barely had enough time to read and digest the scenarios and were not sure how they would accomplish the rest of the assigned tasks in the time allotted.

Inside the Groups

Although the written directions seemed clear, the Associate Director for Research and Worldwide Library Services reported that once the group met they realized there were many unanswered questions. Despite their best efforts, the associate directors had a tendency to try to

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6 See Appendix A for the text of the scenarios.
second-guess what the library director wanted and at the same time align themselves with the Vice President of Student Affairs. This was not a productive outcome. The time went quickly and the directives set forth for this hour-long discussion were not all completed. As the clock ticked, the group rushed through so they would have enough information to make their presentation; thus short changing the process.

The associate directors acknowledged that if they were feeling pressed, having had the chance to be part of the process and read the scenarios a day earlier; they suspected that their colleagues were feeling this impact even more severely. One of the staff members supported this assumption when she said that several people in her group were not able to complete the reading of the scenarios in time for the group to get much else done. They also rushed so they would have something to report to the larger group.

**Reporting Out**

After the hour was up, the groups reassembled and each reported on their discussions. The presenters listed the titles their groups assigned to each of the scenarios and the one they voted as their top choice. There was no clear winner. One group chose Scenario One as the preferred future, while two groups each voted for Scenario Two and Scenario Three. The sixth group developed a Scenario Four, which was a hybrid of the elements they had liked in the three scenarios.

Some of the general comments that arose in the discussion during the reporting-out pointed to some consistency among the groups. While none of the groups completely liked one scenario in particular, there was a great deal of conformity in the elements they liked and disliked in each of the scenarios. Many of the staff members said that despite the rush, the exercise made them feel valued and they believed that their input was important to administration. They also said that the culture of ERAU led them to assume they were being led to the director’s preferred decision.

The Vice President of Student Affairs found a large gap in the exercise: the fact that there was no mention in the scenarios of the student of the future and what the projected needs of that type of user might be in relation to the library. Other comments during the discussion touched on the great changes that technology brings to libraries and the need to build flexibility into planning, collaborate better with faculty, and be aware of the library’s impact in the ERAU community.

Specific comments on the scenario process were fairly negative. Everyone said that they had not had enough time to read and digest the scenarios. They stated that they would have preferred to receive them the day before and to have had the roles assigned earlier. Other feedback included:

- No one understood the role of the Culture Hawk;
- The scenarios were set to far out in the future (2025) for most people to comprehend;
The language and length varied from scenario to scenario and created a bias that suggested staff were being led to a decision;

Some of the elements, such as eliminating all print books and collaborating with local academic libraries, did not seem plausible;

A worksheet would have been useful in framing the group discussions;

Naming the scenarios was fun but it was time-consuming and seemed pointless.

At the end of the reporting-out session, the director and Vice President of Academic Affairs left for another meeting. The consultant led a discussion on the process and staff members were very open about what they stated were the flaws of the experience. Many staff members expressed concern at the decision to keep the associate directors in a separate group. They thought the managers should have been part of the assigned groups. Some of the staff questioned the future of their positions since pieces of one scenario eliminated a current department. The associate directors stated that the unfortunate timing, which resulted in the director being absent from the final discussion, was a misstep.

Rewriting the Scenario

In early July the management team met to discuss next steps. The scenario exercise had frustrated most of the staff and had developed no new information to add to the library’s new strategic plan. The team decided to revisit the process and to adapt it according to some of the feedback. The director sent a message to the staff in which she informed them that there would be another staff meeting in July to discuss the scenarios. Prior to that, she would develop a Scenario Four that reflected the most desirable elements of the three earlier scenarios as well as other input from the staff retreat. She also promised that everyone would receive the new scenario prior to the meeting along with some questions designed to help them think about the ways the scenario could be used in strategic planning.

From the feedback the staff gave at the scenario planning retreat, the director drafted a new scenario and named it *The One-Stop Shop*. She shared the draft with the other members of the management team who added their suggestions to strengthen the document. They also worked collaboratively to develop a set of instructions for staff. The new document was distributed several days before the next meeting, scheduled for mid-July.

Before this meeting staff members read the new scenario, discussed it with colleagues if they were so inclined, and had answers to the questions on the instruction page. The response was far more positive than that of the first meeting. For the most part, the staff members were supportive of this vision of the future, which among other things, projected out to 2018 rather than 2025 as the three earlier scenarios had. Many of the new services or operations included in this scenario were attractive to the group. Very few of the envisioned changes were dismissed.

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7 See Appendix B for the text.
8 See Appendix C for a bulleted list.
but some staff asked for clarification on specific changes that would impact them or their departments.

One area that brought up considerable discussion was the items staff members found missing from the scenario. Aside from the perennial request of some staff members to adopt a cat, the missing areas focused on centralization of similar services and increased collaboration with other departments within the university. The last category of discussion centered on the actions the library needs to take in the near future in order to achieve the vision of the scenario. Not surprisingly, many of these included obtaining more financial support, increased staffing, and new technology.

The staff involvement in the development of Scenario Four as well as their response to it achieved the purpose of the exercise. The feedback both complemented and added to the information that came out of the earlier library strategic planning retreat that employed the SOAR approach. Using the results of both retreats, the management team drafted a new library vision, mission, and set of strategic directions that they shared with the staff. From this draft, each department suggested goals for the first year of the new three-year Strategic Plan. The management team took the departmental suggestions and finalized the new Hunt Library Strategic Plan in September 2013.

Discussion

The initial scenarios were adapted from a set that the consultant had created for a conference earlier in 2013. Although not specifically aimed at a research library audience, their focus did stem from scenarios developed for ARL libraries. The director and consultant realized that the scenarios needed some work in order to fit the ERAU audience, but did not seek any advice from senior members of the Hunt Library staff. This led to a bias in the scenarios toward the ideal future the director envisioned as well as to a frustration on the part of the associate directors, who knew little more than the staff and, thus, were not able to answer questions effectively.

The mood in the library during the group sessions at the retreat and the reporting-out period was primarily negative and came as a bit of a surprise to the director. Rather than creating a positive atmosphere in which staff members believed their input about the future of the library was valued, the initial scenario process elicited some anger and distrust. However, the consultant and the director viewed the initial negative feedback in a constructive way and assured the library staff that they would take their input into consideration and make changes in future processes.

In the second phase, the director collaborated with the other members of the management team to craft a new scenario process that proved highly effective. Excluding the associate directors initially was done to allow them the opportunity to react to the scenarios without prior knowledge. While it may have achieved that purpose, it also served to alienate them a bit from the director. This result was far more detrimental to the working relationship of the management

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9 For more information on the Strategic Plan, please visit http://library.erau.edu/about/strategic-plan/#strategic.
team than any positive response to the scenarios warranted. Therefore, the inclusion of the associate directors in the second part of the process was extremely important.

The decision to withhold the scenarios from the library staff until they moved into their assigned groups the day of the retreat proved to have many benefits in the long run. Because of the lack of information, the time constraints and the perceived bias in the scenarios, the frustration level among the staff was very high and the more vocal members expressed their displeasure forcefully. Although the director and the consultant did not enjoy the tone of the feedback, they were both aware of the importance of engaging the staff in a very important discussion. Many staff members voiced their concerns about specific areas of the scenarios and the process itself and their input led to some good revisions to both. In addition, the negative dimensions of the initial scenario process may have created a stronger interest in the future visioning of the library than would have otherwise existed.

The consultant learned from this process as well. It is important for the consultant to address and manage expectations of the library director. Directors have future visions or directions they want to lead their library. Scenarios intentionally introduce future directions that may not fit the current vision or, more importantly, may reveal too much about a particular direction the leader is not prepared to share. Since the director and the consultant wrote the scenarios, an entire scenario planning process was skipped. The skipped process requires staff to start at the very beginning identifying the uncertainties in the environment. These uncertainties lead to writing four different stories or narratives of how the future may unfold. If done again, the consultant believes it is better to include all staff earlier in the process. Given all the work it takes to identify four distinct, but plausible stories of how the future may unfold, libraries may need to better understand the steps to scenario planning.

Conclusion

The scenario exercise at the Hunt Library was constructive in a number of ways. Although the director may have started things off on the wrong foot by deciding to withhold information from the staff until the day of the first meeting and by not including the library associate directors in the planning, the results were positive. The Hunt Library Strategic Plan for 2013-2016 is considered to be a vital guide for the near future, not only by library staff, but also by campus administration. In addition, the recovery from the problematic first scenario exercise reinforced to the library staff the importance of their input regarding library planning.

There are many ways to plan for the future of an organization. The scenario process is an interesting one that encourages participants to think outside the box library staff normally inhabit. A scenario exercise can take place at any level of the organization with as few as one participant and as many as the entire complement of the library. The Hunt Library chose the latter approach and it was a good decision. Library staff had several ideas for future adaptations that the library administration and the consultant did not envision.

Further research in this area would be valuable. Up until recently, the scenario approach has been used primarily in large research libraries. Given that the resources and missions of such libraries are quite different from smaller academic libraries, a scenario that would be very
effective in future visioning for a research library may fail to achieve the desired results, as was evidenced in this case. In particular, it might be beneficial to investigate scenarios in the planning of other distance learning library services. Much of the predicted change in higher education appears to impact the education of distance learners. Using scenarios may be an ideal way to help plan for new distance learning library services and make improvements in existing ones.
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Environmental Overview

During the first 25 years of this century, Embry-Riddle Aeronautical University (ERAU) experienced considerable growth. Academic programs were added at all levels, including ten PhD programs, three of which were unique globally. Programs dedicated to the enhancement of research attracted more students and raised the profile of the university globally. The Daytona Beach and Prescott campuses enrolled enough students annually to maintain financial stability, while ERAU explored the expansion of worldwide locations to increase campus growth, student success and create profit for ERAU.

Overall, higher education institutions faced increasing pressure from state and federal government agencies to demonstrate value. A growing global workforce demands greater accountability for student learning and access to cutting edge research through the long-term sustainability of scholarly communication. These realities forced several smaller colleges and universities to merge, close or increase the numbers of non-traditional students (returning, veterans and online) and international immigrants. Due to faculty retirements—which significantly reduce class availability—the average student needs five or more years to graduate.

The early 21st century saw the arrival of Google, Amazon, and many varied and online search engines, as well as revolutionary products such as the Kindle and iPad, and new teaching models like the Massive Open Online Courses (MOOCs). By 2025, search and discovery was so easy, the value of the physical “just-in-case” library changed to “just-in-time” access. Further, the second decade of the century saw a building boom on the Daytona Beach campus, which impacted the Hunt Library. In 2014 staff and collections moved to temporary quarters while the old building was razed and the new multi-purpose student center was constructed. Access to physical collections was limited and there was no student study space in the temporary quarters.

In the summer of 2017 the Hunt Library staff and collections moved into the top floor of the new student center. Other departments on this floor are the Office of Undergraduate Research, University Archives, CTLE, Starbucks, and a 24/7 open study space. The Hunt Library faced some challenges like pending retirements, increased reliance on technology and accountability in higher education, that were common to academic libraries and unique to their circumstances. The success of the Scholarly Commons and the ERAU institutional repository transforms faculty and student research and attracts consulting work and corporate partnerships. The following three scenarios present a possible snapshot of the library in 2025 based on different ways they operated in this changing environment.

Scenario One

The Hunt Library has become the learning commons popular in the first two decades of this century at other institutions. Although the library is a self-contained unit, there is a lot of
interaction among the departments on the top floor of the student center. In fact, many students and faculty consider the whole floor to be one large unit. The library staff provides mediated research assistance to the worldwide campus at the same time serve the Daytona Beach campus. For example, librarians provided instruction in the classroom buildings and set up satellite mobile research desks in areas of high student concentration. They also focused on building Scholarly Commons into a repository of the best of ERAU research and archives.

Staffing levels are the same, (35-40 staff members and librarians) but many of the jobs have shifted due to significant retirements. These new positions support instructional technology, scholarly communications, and special collections. The research/liason librarians divide their time between video chat with students and faculty to consult on research requests, embedding instructional sessions in courses, and assisting the scholarly communications staff. Electronic and technical services staff focus on providing instant access to the primarily electronic collections. The main thrust of the circulation department is the maintenance of a massive textbook reserve collection in addition to building security; inter-library loan facilitates access to ERAU legacy print collections; and the work of Media Services has been absorbed by IT. Staffs are content with the stability and predictability of the Hunt Library. Library administration provides funds for professional development and training opportunities outside the library for the transition to new positions.

Scenario Two

The library maintains a service desk in the open study space on the top floor of the student center, but that is all that resembles a traditional library. The desk is cross-staffed with highly trained personnel from the Office of Undergraduate Research, University Archives, CTLE, and Starbucks. As in-person business decrease, demands for electronic collections and services expand, yet due to the excellent service, patrons are often seamlessly connected with research librarians virtually when they need more detailed assistance. The library staff began to focus on service to worldwide start-up locations to the exclusion of much else. They reasoned that any services and collections they developed for Worldwide would also help Daytona Beach. They also focused on building Scholarly Commons into a repository of the best of ERAU research and archives. Other than small collections of unique aviation print materials, the physical materials were sold or donated. New materials were collected in electronic format and the special collections were digitized.

Staffing levels, while they are the same as they were in 2010, the staffing patterns have shifted. Many of the jobs that supported a physical library are no longer needed in the virtual environment. Most departments lost staff or morphed entirely into new areas, such as scholarly communications, while the research department doubled in size. The focus of the majority of librarians and staff is 24/7 virtual reference and instructional support and creating specialized learning objects upon request. Circulation, cross-staffing staff at the desk handles the large number of internal to ERAU and external ILL requests. Ordering and processing of new materials is all electronic so one acquisitions technician remains of the old technical services department and access to collections falls to electronic library services. Staffs are active, engaged and responsible for their collective professional development. Library administration only
provides professional development and training to help staff improve the user experience online and in-person.

**Scenario Three**

All of the departments on top floor of the student center recognizing the important connection to not only their work, but decreasing the duplication within the space they would inhabit in the new building. The result is a collective academic support area designed to offer visitors the instructional and research experience they need. Highly trained library technicians, or students, who direct visitors to the service or resource that best matches their need, staff a reception desk at the entrance to the floor. The physical layout of the library public space encourages discussion and collaboration among students and faculty. The easy flow from the library space to the Office of Undergraduate Research or CTLE enhances the access to the professional advice students and faculty need as they share old and create new knowledge. The coffee shop, located in the open study space is constantly busy. The collections supporting instruction and research are now primarily electronic. However, the library maintains a core collection of physical materials in aviation science and has been designated an official repository in this subject area. The special collections and university archives share an inviting and climate-controlled area within the library proper.

In-person demand for physical collections and services fell off during the 2014-2017 period in temporary quarters. Library staffs focused on virtual service and instruction and collaborate with the libraries at Daytona State College and Bethune-Cookman University. In exchange for the Hunt Library taking on some of the virtual reference demand at the other two institutions, BCU and DSC offered study space and access to general physical collections to ERAU students and faculty. ERAU receives worldwide attention for the ways in which the Hunt Library staffs focus on the mutual needs of surrounding institutions.

Library staffing levels are the same as they were in 2010, but the jobs have shifted and staffing levels fluctuate to support digital scholarship and new forms of scholarly communication. New technologies have contributed to efficiencies and library staff skills focuses on supporting scholarly communications initiatives and the ERAU research agenda developed. This research agenda influences a interdisciplinary digital consortia of university archives. While still maintaining the collections access through a print on demand university press, the Hunt Library organization also supports teaching and learning at ERAU and is viewed as integral to the advancement of ERAU as a research university. Staff are recognized and sought-after worldwide for their expertise and knowledge of the new library model. Library administration splits the professional development and training proceeds with staff to champion innovative thinking among Daytona Beach faculty departments as well as worldwide campus locations.
Appendix B

Hunt Library

Strategic Plan – Scenario Exercise, #2

Instructions

1. Print the scenario.
2. Read it before the meeting on July 16.
3. Cross out anything you do not like.
4. Highlight any items that you especially would like to see realized.
5. Write down anything you think is missing from this future:

6. Write down what you, your department, or the library would need to do to realize the new things you like the best in the scenario. (Please keep in mind that this includes hiring new staff!):
Environmental Overview

Embry-Riddle Aeronautical University (ERAU) experienced considerable growth in the twenty-first century. Academic programs were added at all levels, including new PhD programs, one of which is unique globally. In 2012 the university embarked on a five-year plan to increase undergraduate research as part of their accreditation cycle. Programs dedicated to the enhancement of research attracted more students and raised the profile of the university. By 2018, the Daytona Beach and Prescott campuses enrolled enough students annually to maintain financial stability, while the Worldwide campus continued to expand program locations and online courses.

The early 21st century was also a time of rapid change for higher education in general. New technologies, such as Google, Amazon, as well as online search engines and discovery tools, appeared on a regular basis and impacted students’ research and study habits. Other new technologies included tablets, e-readers and smart phones, enabling students to access information and remain connected at all times. Social media brought people together in new ways and faculty experienced innovative teaching models like the Massive Open Online Courses (MOOCs) and open-access publishing. In this environment of ever-increasing technology and instant access to information, many people, including faculty and administrators in higher education, considered the academic library a thing of the past. They believed that everything was openly accessible online. As a result, academic libraries began to experience an erosion of their funding levels and position in their institutions.

The Hunt Library at ERAU was similar to many U.S. academic libraries during this period. Serving the residential Daytona Beach campus and the Worldwide distance learning campus, Hunt Library staff took pride in their customer service and kept up with technological innovation to the best of their ability given constraints imposed by funding and the policies of the University Information Technology (IT) department. Satisfaction surveys and anecdotal evidence convinced the staff that the students and faculty, who visited the building and used the services and resources, were pleased with the high level of service. However, administrators and some members of the faculty had begun to publicly question the viability of the library in the long-term since they believed most information was online.

In 2013 the university administration decided to locate a long-planned student services center on the spot that the Hunt Library building had occupied since 1985. They also agreed that rather than construct a new library, they would situate library services in the new student services center. To accomplish this, the library was moved to temporary quarters for the three years of demolition and construction beginning in 2014. During the construction period, access to some library physical collections was limited due to space restrictions and student study space was inadequate. Staff members were separated into three locations, one group with the collections and public services functions, one in a singular classroom module nearby, and the remainder in an office building about 10-minute walk away. In the summer of 2017 the Hunt Library staff and collections moved into the top floor of the new student services center. Other departments on this floor are the Office of Undergraduate Research, University Archives, Starbucks, an IT-supported computer lab, and a 24/7 open study space. The following scenario presents a possible future for the Hunt Library of 2018.
Scenario Four: One-Stop Shop

The Hunt Library has become the learning commons popular in the first two decades of this century at other institutions. Although the library is a self-contained unit, there is a lot of interaction among the departments on the top floor of the student services center. All of the departments recognize the important connection they have and work to decrease the duplication of effort in the new building. The result is a collective and collaborative academic support area designed to offer visitors the instructional and research experience they need. A reception desk at the entrance to the floor is staffed by highly trained library technicians or students, who direct visitors to the service or resource that best matches their need.

The physical layout of the library public space encourages discussion and collaboration among students and faculty. The easy flow from the library space to the Office of Undergraduate Research or the University Archives enhances the access to the professional advice students and faculty need as they share old and create new knowledge. Student use of the library and its resources grew exponentially in the first few months of the opening of the new student center. Library hours were extended beyond those of the old building and temporary quarters and students fill the private study areas, group labs, and open space all the time.

Most of the library’s information resources are electronic and accessible anywhere at any time. The physical collections that remain in the library are related to the primary curricula of ERAU since the Hunt Library has been designated a national repository for aviation science books and NASA documents. The special collections reside in a glassed-in area that is climate-controlled and secure. Tables and chairs inside the enclosure are used by researchers seeking the primary sources housed in this area. This part of the library space is adjacent to the University Archives.

Staffing levels have not changed much in the twenty-first century (35-40 staff members and librarians), but many of the jobs have shifted due to significant retirements and new responsibilities for the library. These new positions support instructional technology, scholarly communications, and special collections.

The Research Librarians continue to provide mediated research assistance to the Daytona Beach and Worldwide campuses and have evolved into the primary research and information resource for university administration. They provide library instruction in the state-of-the-art library multimedia lab, in departmental classroom buildings and through the Worldwide online course delivery system, with the help of Instructional Technology Librarians. Research Librarians also offer consultations to students and faculty in the library, through video chat, and at satellite mobile research desks in areas of high student concentration.

Electronic and Technical Services staff focus on providing instant access to the primarily electronic collections on the state-of-the-art devices students favor. Electronic Services staff support the technology within the library proper work with the Instructional Technology and Research Librarians to maintain an effective web presence. They also collaborate with IT staff who take care of the technology in the 24/7 lab also on this floor. Technical Services staff continue to acquire new materials and ensure discovery in the new ILS they maintain. They also process and catalog the increasing special collections of aviation-related print materials the library obtains.
The main thrust of the Access Services department is the maintenance and support of the electronic textbook reserve collection, access and control of the library Special Collection, building safety and security, and assisting with the development of streaming media to support instruction and highlight research. Inter-library loan facilitates access to ERAU legacy print collections and provides enhanced document delivery.

The Scholarly Communications department, which evolved out of the old Preservation Team, has successfully digitized the special collections of the ERAU libraries and the University Archives. In addition, the librarians and staff have assisted the majority of faculty and many students to contribute to Scholarly Commons, begin new journals, and publish books. As a result, ERAU established a university press in 2016 that resides in the library. The librarians also offer their expertise to other institutions seeking advice on preservation and scholarly communications issues.

In 2018, library user satisfaction is still high, but there are now many more ERAU students, faculty and administrators who regularly consult the library first for their information needs. As the library extended its mission to include championing and facilitating open access to faculty and student research, ERAU attracted more attention globally as being far more than a flight school. This increased profile for the library drew in users who explored and took advantage of the expert research help and the information resources that the library selected and made accessible for the ERAU community.

Library staff members are content with their work and proud of their accomplishments. Although some jobs changed, the library administration provided professional development and support for acquiring new knowledge and skills’ sets. These days, the ERAU library is often mentioned with pride in the public communications of the university administration and is beginning to be recognized in the U.S as a leading academic library.
Appendix C

Scenario Exercise #2

Likes

- Repository
- University Press
- 24/7 Open Study Space
- State of the art multi-media lab for instruction
- Collaboration with other departments on same floor
- Video chat
- Extended Library hours
- One desk for triaging – not necessarily staffed by Library staff
- Climate control for special collections
- Physical layout of Library that encouraging discussion and collaboration
- New ILS and IMS
- Greater IT role
- Special collection adjacent to archives
- New staff positions created
- Electronic textbook reserve
- Administration providing professional development opportunities
- Sharing our digitization knowledge
- Instructional electronic librarians separate to research librarians
- Library staff proud of their work and accomplishments

Dislikes/Clarifications

- Clarify safety and security responsibilities, including whether for whole floor or just Library
- Clarify how fragile and special collections will be taken care of
- Increased profile drawing in what kind of users? (page 4, final para)
- “Easy flow from Library to OUR - like a shopping mall? Yes …
- 24/7 staff to include IT experts?
- Language in first sentence of Scenario … sounds like we’re playing catch-up. Comments: we should make ourselves indispensable to student community and aspire to the now in the Scenario.

Anything Missing?

- Conservation of print materials
- Diminishing print collection/growth in electronic material. How to handle? Comments: will still buy print collections requested. Success could increase print collection?
- Not much focus on Prescott despite talking about increased collaboration
• Might need to work with development office to make sure we have funding
• Centralized printing service
• Centralized document delivery
• More compact shelving, floor to ceiling shelving to accommodate more
• Strive to be leader in distance learning added to final paragraph?
• Collaboration with existing university and other press?
• Library cat!
• How to support some of the open access teaching models like the MOOCs?
• Where would electronic library technicians fall in hierarchy?

Action

• More staff, equipment, room
• Training – every aspect
• Institutional administrative support
• Needs for logistics of teaching classes outside the Library
• New technology
• Immediate marketing, budgeting
• New service models
• Liaison service between departments on the same floor/points of contact etc.
• Consultation with other libraries who have had to re-locate
• Get involved in fundraising and development so Library voice is heard. Have a separate ‘development’ position?
Growing Embedded Librarians like Kudzu: How the Embedded Extension Service Creates More Embedded Librarians without Creating New Positions

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Abstract
In an era of exploding online enrollment and tight budgets, Central Piedmont Community College (CPCC) struggles to meet the needs of online students. CPCC librarians went one step towards solving that in 2009-2010 by launching an embedded librarian program. CPCC’s program became so successful that it struggled to meet demand. In 2013, CPCC Libraries reached out to nearby MLIS program at The University of North Carolina at Greensboro (UNCG) to create a project that links this demand with a creative solution: the Embedded Extension Service (EES). Student interns from UNCG are trained in embedded librarianship practices and tools while providing reference services to CPCC online classes. EES is 100% online making it easier for students to participate from anywhere. This is beneficial for both schools because CPCC is able to offer embedded services to more classes and UNCG is able to facilitate practical, real world experience for budding librarians.

Background
Central Piedmont Community College (CPCC) is one of the largest and most diverse community colleges in the Southeastern United States. Based in Charlotte, North Carolina, and spread across six physical campuses in Mecklenburg County, CPCC is focused on lifelong learning, workforce development and considers itself a “learning college” (Central Piedmont Community College, n.d., College Addresses; Central Piedmont Community College, n.d., College Philosophy). This means that it places learning first by seeking “to create environments that generate positive, nurturing, and learning-focused experiences” in the classroom (Central Piedmont Community College, n.d., Academics, para. 1). This idea falls in line with the school’s various vision, mission, and institutional values statements, which are all student-centered and supported by various ongoing initiatives, as well as CPCC’s four core competencies: critical thinking, communication, personal growth and responsibility, and information technology and quantitative literacy (Central Piedmont Community College, n.d., College Philosophy, para. 4). These competencies are integrated into each of CPCC’s many academic programs’ curricula, “to help students learn the techniques they’ll need to earn a spot in the workforce and successfully engage with the outside world” (Central Piedmont Community College, n.d., College Philosophy, para. 4). CPCC’s Library Services department has a vested interest in student success, as well.
The vision and mission of CPCC Library Services falls in line with those of the college: “Where Information Becomes Knowledge” is the vision and the following serve as the mission:

- Serving CPCC and its community by organizing, managing, and delivering information resources and services.

- Providing innovative library services that support information literacy for curriculum, career, and personal development.

- Collaborating with college and community partners to serve a broad range of educational needs.

- Partnering with other academic institutions and consortia networks to promote and enhance access to library resources and services (Central Piedmont Community College, n.d., Mission Statement, para. 1).

While Library Services exists to serve all CPCC students, its primary patrons consist of curriculum students. And among the college’s various academic curriculum programs, the libraries have found many lasting partnerships with General Education courses and disciplines such as English, Communications, History, Sociology, and Biology. Though the libraries’ relationships with various vocational and career programs like graphic design, fire protection, business administration, and nursing are growing steadily. Student centered library instruction is a specific focus of all CPCC Libraries and is its most successful initiative to date.

Library Services boasts seven libraries across CPCC’s six physical campuses: the Cato Campus features two libraries: a law library in conjunction with the college’s paralegal program, and a main library (Central Piedmont Community College, n.d., Library Locations). CPCC also has a seventh campus, the Virtual Campus, which has been in existence since 1997 (Central Piedmont Community College, n.d., Welcome to eLearning at CPCC!). While physical enrollment and growth has traditionally outpaced the virtual campus at CPCC, it has seen considerable growth in the last five years, while the physical has started plateau and even recede (Central Piedmont Community College, 2013, August 29). This trend is nothing new in higher education—according to a recent report by Allen and Seaman (2013), about one-third of current undergraduates in the United States take at least one class online (p. 4).

CPCC’s 2012-2013 college-wide full-time equivalent (FTE) of curriculum students was 14,029 (Central Piedmont Community College, 2013, August 29). Due to its nature and size, the Central Campus has consistently had the highest FTE. However, the Virtual Campus’ FTE has been steadily increasing each year since statistics started being recorded and is up 16% since 2010-2011 (Central Piedmont Community College, 2013, August 29). The 2010-2011 school year is significant because it is the year physical curriculum FTE peaked. Physical FTE is down over 9% across the same period (Central Piedmont Community College, 2013, August 29). It was also during this time period that Library Services at CPCC was building momentum with an embedded librarian program to meet the quickly growing need of online student support.

Each physical campus at CPCC has a dedicated team of educators and support staff,
including a library operated by a combination of full- and part-time librarians as well as paraprofessionals. Despite being the second largest and fastest growing campus at CPCC, the Virtual Campus does not have a dedicated staff—library or otherwise. The Virtual Campus is a responsibility shared across campuses and departments. A college committee comprised of faculty and staff from across many departments was formed in fall 2013 to begin to address this need. Thanks to a few forward-thinking CPCC librarians, however, Library Services was ahead of the curve in regards to supporting distance education at the college.

The CPCC Libraries piloted an Embedded Librarian Program during the 2010-2011 school year for one simple reason: students in online classes did not have the same opportunity for research assistance, source evaluation, citation and plagiarism help, and instruction on how to use library resources as students in face-to-face classes. Since then, through a partnership between various college departments like E-Learning, Information Technology Services, and various academic divisions, CPCC librarians have quickly built the momentum to reach over 1,500 students each semester by being embedded in multiple sections of particular courses (this number is based on internal, unpublished data from CPCC’s Library Services Department). General Education courses in disciplines such as Communications and English, as well as programs like Business Administration and Nursing lend themselves to CPCC Libraries’ unique model very well.

Definitions of Embedded

CPCC strives to follow David Shumaker’s broader definition of embedded librarianship. An embedded librarian is one who:

- develops strong working relationships with members of a team or community;
- achieves mutual understanding with the team, which means that the librarian understands the team’s goals and operations, and the team understands the librarian’s role and value;
- shares responsibility for achieving the team’s goals;
- makes customized, highly-valued contributions to the team; and
- is a member of the team like any other, with a unique set of skills: the information and knowledge expert on the team (Shumaker, 2013).

Though, as much of the professional literature plainly states, what it means to be an embedded librarian tends to vary depending on the library and the larger organization of which the library is a part—this is true even of just academic libraries. According to Schulte (2012), embedded librarianship is another in a long line of attempts by librarians to “engage their customers” (p. 134). Schulte goes on to sum it up in a way that directly applies to CPCC, saying that embedded librarianship, “could mean anything from having an online presence in a course to wholly working amid the end user group. Commonly, embedded librarians are providing learning objects and a presence within the online course management system” (p. 134).
Shumaker and Talley (2009) say much the same thing in their earlier report on embedded librarians for the Special Libraries Association, also saying quite simply, in regards to academic libraries, it can “describe the work of an academic librarian who participates in an academic course on an ongoing basis, teaching information literacy skills” (p. 4).

At CPCC embedded librarianship means:

- Librarians design and build virtual research guides (Springshare’s Libguides) that cater specifically to assignments and include both outside and homegrown content like video tutorials about subjects like citations and plagiarism.

- Having a presence in the learning management systems (LMS). CPCC uses both Blackboard and Moodle, enabling librarians to stay abreast of assignment details, post announcements, and send emails related to specific questions, among other uses.

- Focusing on one-on-one research consultations since students are more familiar with “their class librarian” as the semester progresses; these take the form of in-person appointments, phone calls, emails, or virtual meetings using tools like WebEx, Skype, or Google+.

The level of participation varies from class to class and librarian to librarian. It can be on a micro or macro level and is determined by negotiations between instructor and librarian at the beginning of the semester, preferably before the class begins. As the relationships develop over time, the librarian’s presence and level of participation becomes seamless.

From a “nuts and bolts” point of view, instructors submit requests through a form on the library’s website prior to each semester so librarians can be a part of their course from day one. The E-Learning Librarian then submits batch requests to CPCC’s Information Technology Services Department for requested or assigned librarians to be enrolled in course LMS shells. While CPCC uses two LMS’s, Blackboard is the only one for which embedded services are currently available because there is no pre-defined role, or, level of access, that is conducive to CPCC’s embedded model in Moodle. Librarians have been in talks with CPCC’s Information Technology Services and E-Learning Departments, among others, for solutions to this but, as of publication, have not found a suitable answer. Out of the two LMSs, Blackboard is the most commonly used by far in all courses at CPCC—online, face-to-face, and hybrid (E. Forgione-Barkas, personal communication, December 3, 2013). In Blackboard, librarians are enrolled as “Course Builders,” which enables them to do almost anything except seeing student grades users in the course (Blackboard Help, n.d.). One small but important thing that the librarians do once the course research guide is complete is to add a link or button to it in the course navigation menu in Blackboard—this enables easy access for students when they have questions.

From that point, librarians determine the best plan to meet student need by discussions with the instructor, examining the course syllabus and assignment information, and by paying attention to the students through discussion board postings and the kinds of questions they ask. CPCC librarians’ main goal is to meet students at their point of need and the only way to do that is for them to treat the whole experience as a “work in progress” having that flexibility to edit
and adapt their content, communication, and approach as the course evolves throughout the semester.

At the semester’s end, librarians send a fourteen-question Google Forms survey to each course section asking students to evaluate things like their performance, the research guide, the impact on their success in the class, and the service, generally. Currently, this is the only assessment measure Library Services has in place to assess its embedded program. CPCC librarians have struggled to find a more quantitative way to assess their model and are working on another solution that will be piloted in spring 2014.

Echoing the words of Shumaker and Talley (2009), the Embedded Librarian Program at CPCC makes relationships one of its main focuses because, “enabling librarians to build relationships, establish trust, and understand the work of their users…it provides the environment in which the value, alignment, and visibility of information services can all be heightened to a new level” (p. 10). The other main focus is the heart of CPCC’s philosophy: student success. These two objectives allow the program to flourish and become successful at CPCC; so much so that it is increasingly hard to meet demand from instructors and students.

**Supply vs. Demand**

CPCC librarians have consistently been able to keep up until recently. As popularity of the program increases and classes quickly grow so, too, does the need for embedded librarians. As of fall 2013, CPCC offers 27 fully online diploma, degree, and certificate academic programs along with over 1,000 classes being taught fully online, as well (Central Piedmont Community College, 2013, August 5). Unfortunately, the embedded program is unable to grow at the same pace for several reasons, the main one is that there are not enough librarians to meet the growing class need. Since the program’s inception, out of a staff of 27 full- and part-time librarians, only around 11 librarians have been embedded in at least one online class section each semester.

An average per librarian embedded class load is difficult to determine because positions within each library department and at each campus library carry different duties and responsibilities. Other factors to consider include:

- Part-time librarians are usually not candidates due to time restrictions, though this is changing.
- Embedded class prep and upkeep is more time consuming than one-shot instruction classes.
- One-shot, in-person instruction classes still require substantial time.
- CPCC Libraries are in the process moving away from the one-shot library instruction class model towards an embedded model for all library instruction: in-person and online.

Despite encouraging more CPCC librarians to participate, the program is still struggling to keep
up with demand from instructors and classes. In 2012, a series of informal conversations among library staff turned into a creative solution to potentially meet Library Services’ demand.

The Embedded Extension Service (EES)

The idea was simple: train MLS/MLIS students how to do embedded librarian work based on CPCC’s exclusive model and then embed them in actual CPCC classes in exchange for course credit hours. In keeping with the theme of online education and to hopefully maximize participation, the CPCC librarians who established the project decided to offer this internship-styled opportunity 100% online only. This idea seemed advantageous because it afforded two schools a unique and very useful collaborative prospect. The next step was finding a partner school with an MLS/MLIS degree. The University of North Carolina at Greensboro’s (UNCG) Master’s in Library and Information Studies (LIS) program seemed like a natural fit because of an already established relationship between several UNCG professors and CPCC Libraries as well as the fact that several current and former CPCC librarians are graduates of the UNCG program, including the librarians who founded EES. The Embedded Extension Service bridges UNCG and CPCC’s visions: CPCC’s intention to “become the national leader in workforce development” (Central Piedmont Community College, n.d., “Vision, Mission, and Values”) and UNCG’s redefinition of the “public research university for the 21st century as an inclusive, collaborative, and responsive institution making a difference in the lives of students and the communities it serves” (The University of North Carolina Greensboro, 2012). The relationship was also apropos because in addition to the physical MLIS program based on-campus in Greensboro, North Carolina, UNCG recently established an online version of its MLIS program.

After getting buy-in from library as well as college administration at CPCC, EES was received warmly at UNCG and was quickly approved. After a series of meetings in spring 2013, both schools decided that to participate in EES, UNCG students would sign-up for 3-credit practicum or independent study courses, preferably in their second year of the program, and after meeting several pre- or co-requisites. They also decided that in order to participate, since the subject matter is so specialized, students would need to apply and be interviewed by CPCC to make sure they had the right balance of experience, knowledge, curiosity, and enthusiasm. Fall 2013 was selected as the target for the project’s pilot.

The next steps were to create a website and other materials to market the program to UNCG students as well as identify CPCC instructor/class partners. The former was done using Wordpress.com and a no-budget, informal infomercial created in-house at CPCC. UNCG also promoted the project on their departmental listserv and the Library and Information Studies homepage. CPCC librarians coordinating the project were invited to informally “stop by” online LIS classes with synchronous meetings to discuss and promote the program among potential students. Achieving buy-in from students was as straightforward task as it was from CPCC instructors because of the exciting opportunities EES presented.

CPCC’s Library Services has a long and solid relationship with the college’s Communications Department. The two have been partners in library and information literacy instruction for almost a decade and several Communications instructors were early adopters of the Embedded Librarian Program. The latter goes for CPCC’s Business Administration
Department, as well, so it was a natural extension that these two departments would again partner with Library Services on another innovative project like EES. One instructor from each department agreed to participate, and two Communication courses and one Business course were chosen: Nonverbal Communication, Intercultural Communication, and Introduction to Business. Each course features assignments with research and information literacy components. The last two pieces of the puzzle were designing online instruction for the UNCG students and identifying graduate students for the pilot.

CPCC met its goal of finding three student interns in the summer of 2013, and coincidentally, all three were enrolled in the online branch of MLIS (being in the online branch of the program is not a prerequisite). Candidates answered a series of questions about technology, teaching, and online education on a Google Form-based application and based on their responses, were selected for informal interviews via Skype. Once they were chosen, the graduate interns were given CPCC login credentials, email addresses, and other relevant network access. It was also during spring and summer of 2013 that CPCC created a loosely structured curriculum for educating the interns housed in a Blackboard shell.

The EES curriculum is centered on a series of five simple learning objectives:

1. Learn a brief history and overview of embedded librarianship, generally.
2. Learn a brief overview of CPCC's embedded program.
3. Learn relevant tools:
   a. LibGuides
   b. Screencast-o-matic
   c. Jing
   d. Google+
   e. Panopto Lecture Capture
4. Learn how to navigate and use the Blackboard learning management system.
5. Put all of those practices into play in a live class.

The EES Blackboard shell is comprised of articles and narrative about embedded work at CPCC and other academic libraries. Students attended Springshare training webinars for Libguides and were provided a series of screenshots and example guides by CPCC to use as a basis for creating their own research guides. The shell also features tutorials detailing how to use the other software and instruction tools like Jing and Screencast-o-matic. Interns were required to attend virtual training sessions for the Panopto lecture-capture tool, as well, and made as needed appointments with the CPCC/EES coordinator to answer questions about using the tools. The interns were encouraged to reach out to their respective CPCC instructors even before the semester started to discuss expectations, needs, and their level of participation in the courses in much the same way a CPCC librarian would. The CPCC coordinator and interns met virtually for one hour each week of the Fall 2013 semester. Most of the meetings, whether one-on-one or
as a group, were held using Google+’s Hangouts application. Interns were assigned academic articles and videos about instructional design, learning objects, learning styles, and online education and discussed them during weekly meetings and on semi-regular Discussion Board assignments. The students were also encouraged to seek, find, and apply other Web 2.0 tools and applications that might make the embedded librarian experience easier, better, or more relevant for librarians and students. Interns spent the other half of their time interacting with CPCC students and their respective instructors in the online classes to which they were assigned, posting announcements, sending emails, and answering student questions as they arose as well as creating and tweaking Libguides and recording tutorials. The graduate interns and CPCC coordinator also spent a considerable amount of time addressing inevitable challenges throughout the ebb and flow of the pilot semester.

One of the challenges throughout the semester was how to build a rapport with students from a distance—mostly in terms of the interns reaching CPCC students. This resulted from the fact that CPCC students did not seek as much assistance from the interns as either the coordinator or the interns expected, despite repeated attempts to reach out via email and Blackboard. Depending on the class, lack of student response is not a new issue for CPCC librarians, as well, but one acknowledged and potentially related limitation of EES was the fact that email was the primary channel of communication between interns and CPCC students. This is fine for many but is not ideal for those students who prefer to call or even stop by a CPCC library to see their class librarian with questions. Sixty-eight percent of CPCC students taking classes on in 2012-2013 were residents of Mecklenburg County (Central Piedmont Community College, 2013). CPCC expected that the Google Voice application was going to be a viable option for graduate interns to use as “office” phone numbers but discovered too late that the service’s supply of local numbers was exhausted. While Skype and Google Hangouts were offered as alternatives, there were not utilized by CPCC students. CPCC plans to have a phone solution available as EES moves into its subsequent semesters as well as college-supported synchronous meeting software that will not require either interns or CPCC students to have to download and install as many third party applications.

Another challenge noted from the pilot semester is that the general structure of the course side of EES could be tweaked by adding more sharing of what each intern was doing on weekly Discussion Board postings, moving some of the theory-based readings closer to the beginning of the semester, more interactions between interns and other CPCC librarians doing embedded work, and adding features to weekly meetings like guest speakers and the interns themselves taking turns leading or presenting at portions of the session. A final limitation is one that CPCC’s Embedded Librarian program faces, generally, there are no real quantitative measures in place to assess student success, only qualitative in the form of, among other things, surveys. Despite these challenges, it is the position of CPCC Libraries that the pilot semester of the Embedded Extension Service was successful.

This conclusion is based on self-reflection of CPCC Libraries, first-hand observations and conversations with UNCG students and CPCC instructors, and feedback in the form of anonymous surveys from UNCG students. Feedback from CPCC students was solicited but those surveys were still open at the time of this paper’s submission so that information is forthcoming. During the pilot, both UNCG interns and CPCC Library Services learned
unexpected things from challenges and from each other, which, taken as a whole, proved a positive and beneficial experience. One of the most illuminating and humbling realizations came from an intern who said that as a distance student herself, she is able to better empathize with online students at CPCC, especially how isolating it can be to take classes and learn online (E.W. Tyler, personal communication, October 15, 2013). The UNCG interns met the learning objectives and exceeded expectations of Library Services in their thoughtful and imaginative development, design, and delivery of library and information literacy support in the three online CPCC classes. Based on the pilot, some changes and revisions in structure and delivery will be made for future semesters, in addition to striving for a better assessment method.

Conclusion

With the sharp rise in online education, the definition and role of “community” has changed considerably. The exploding Virtual Campus at Central Piedmont Community College alone has enabled the community to potentially expand far beyond Charlotte, Mecklenburg County, and even North Carolina. Library Services plays a crucial role in student success at CPCC and beyond because that is its primary goal. The CPCC Libraries’ biggest impact is through Library Instruction and programs like its Embedded Librarian Program, partnering with instructors across disciplines and schools in a variety of innovative ways to deliver high quality support of concepts not only related to specific research assignments like information literacy but also to each of CPCC’s Core4 Competencies. Librarians at CPCC proactively pursue and cultivate relationships with faculty, students, and other institutions because they have discovered that building strong relationships through collaboration is a key part of ensuring academic achievement. CPCC Librarians have proven that they play an essential role in the lifelong learning process and The Embedded Extension Service is a natural extension of that.

EES allows Central Piedmont Community College to offer the highest quality of support for the life-long education of as many of its students as possible and allows its librarians to share responsibility in creating and mentoring a new breed of academic librarians with real world experience, innovative perspective, and a unique skillset that would make them indispensable, competitive, and able to deftly meet the challenges of 21st century librarianship.

While the structural modifications are most pressing revisions, bigger picture, Central Piedmont Community College librarians want to grow The Embedded Extension Service to not only include more interns from UNC-Greensboro but also from more MLIS/MLS programs across North Carolina and perhaps from even across The United States. As the number of interns grows and as CPCC develops a scalable model of embedded librarianship to support its own Virtual Campus, there could be opportunities for EES to partner with other academic and, specifically, community college libraries around North Carolina and beyond. According to a recent report by the non-profit Public Agenda about online education in community colleges:

Community colleges serve nearly half the nation’s undergraduate students and an overwhelming majority of first-generation college students. They are the best hope for many to acquire the skills, knowledge and credentials that will allow them to gain a foothold in the middle class. (Public Agenda, 2013, p. 3)
But as many of these schools continue to add and grow online curricula, CPCC realizes it is often an exception and not the rule. Smaller libraries beyond CPCC are struggling to keep up with support of online programs. In North Carolina alone, many community college libraries would like to offer more online support in the form of an embedded librarian program, or some related variation, but simply lack the resources—usually a combination of staff, time, money, or know-how (Coltrain, 2012). The Embedded Extension Service could train and pair graduate interns with these schools and libraries in need, thus becoming a national leader in both necessary online education support and hands-on, essential 21st century librarian training.
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Elevating Engagement and Community in Online Courses

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Abstract
Community, while inherent in assumptions about online education, rarely materializes as an integral component of the experience. Misconceptions and misguided motivations can derail participation and engagement in the online setting. Creating a successful online community is dependent on knowing what works in the face-to-face environment and implementing effective parallels online. We will discuss best practices for building community in online information literacy courses and leveraging motivators to keep students and instructors engaged. While this paper focuses on online information literacy courses, many of these strategies can be applied to online workshops, embedded librarianship, and other instructional initiatives.

Why Does Community Matter?

Students have a variety of driving forces that lead them to enroll in online courses, and it may be no surprise that a primary motivator is convenience. However, convenience as a motivator does not necessarily correlate with a student’s success. A sense of community plays a role worth considering. Boling, Hough, Krinsky, Saleem, and Stevens (2012) discovered that “creating a cohesive online community is a vital component of all online programs” (p. 121). Moreover, Brown (2001) found that “increased levels of community accompanied increased participation/engagement in the class” (p. 24). “Creating a community of learners can improve student motivation and help facilitate interpersonal/social interaction sought in an online classroom” (Vonderwell, 2003, p. 88). “When participants experienced [a] sense of disconnect, they described their online experiences as being less enjoyable, less helpful, and more frustrating than those individuals who made more personal connections and interactions through their courses” (Boling et al., 2012, p. 121). Community is more easily established in brick-and-mortar classrooms where identities do not need to be explicitly demonstrated. However, in order to create community in a virtual educational space, successful community building activities need to be intentionally cultivated. While instructors need to acknowledge the uniqueness of course content, objectives, teaching styles, and technological frameworks (e.g., learning management systems) as influences on student achievement, the following provides an exploration of strategies in cultivating a sense of community online in order to elevate student engagement and increase overall motivation.
Empowering Students through Discussions

Despite the notorious reputation of online discussion boards, instructors rely on them heavily as a means of communication and demonstration of student learning. Unfortunately, instructors often find themselves struggling with students’ repetitive postings, lack of critical and deep thinking, and what often appears to be minimal effort. As Picciano (2002) writes, “It is also possible for a student to interact by posting a message on an electronic bulletin board while not necessarily feeling that she or he is part of a group or a class” (p. 22). However, the traditional classroom experience confirms that interactive discussions play a significant role in constructing community amongst participants. How then can instructors reconcile students’ lack of engagement with a central mechanic of online learning? The good news is that instructors can replicate their classroom’s sense of community in the online environment by fostering discussions.

Strategy 1: Regularly give students a place to be themselves and share their experiences, thoughts, and interests. Help them see the value of their participation by representing the information back to the group.

Arbaugh and Hwang (2006) note that fellow learners “bring to the learning interactions their different background and experiences that consequently enrich ideas and contribute to the richness and depths of the learning experience. Without the exchange of ideas and ensuing discussions, students will have a difficult time understanding the richness of concepts and their different applications and implications” (p. 16). Jumpstarting those interactions online, however, can intimidate students and instructors alike. When you meet someone once, you might consider that person to be, at best, an acquaintance—a scenario that can be likened to discussion board introductions as students often work in silos for the remainder of the course. These silos reinforce the idea that their classmates are only acquaintances. Many instructors ask students to introduce themselves online by having them share basic information like their name, major, hobbies, and reasons for enrolling in the course. These inquiries, while following basic and familiar expectations for classroom engagement, do not encourage students to be open about themselves or help them to distinguish one classmate from another. The inquiries are the online equivalent of small talk, where the burden is on students to divulge information to a relative vacuum with no support for their investment other than to meet the instructor’s very general task.

If the instructor has only a few initial questions by which students can introduce themselves, consider the value in flipping the process of finding and collecting “icebreakers” by asking students to each contribute a question for their classmates that they would like answered, or asking for information that will show students their individual interests amid the whole. An alternate exercise might be to bypass asking specific questions altogether and have them create videos or virtual posters about themselves to share with the online class. Additionally, if soliciting students’ interests, be prepared to collect those responses and share them in a future discussion board posting; for example, collecting students’ favorite songs in a YouTube or Spotify playlist. Similarly, a collection of beloved or impactful books identified by students can be reformatted visually through online book sites like Goodreads or Shelfari with a visual presentation linked or embedded in the initial discussion thread. Representing this information
back to students allows them to seek their selections within the group’s responses creating an impression of the unique environment or “flavor” of the particular class.

In order to continue fostering the sense of community, add a discussion board each week where students can post personal announcements like birthdays, anniversaries, parental milestones, new hobbies, fun weekend plans, etc. If these items seem too personal to share, encourage students to post other expressions of individual interest: music videos of songs they listen to while studying or trailers to films they recently viewed. As students’ level of comfort in sharing these items increases, the instructor can use these personal touchstones as a bridge to course content. For instance, when asking students to discuss what they think are their academic strengths when working on group projects, have them assess those same skills as they have seen them in popular figures, like ranking Katniss Everdeen from *The Hunger Games* series for her skills as a group participant. Bringing this kind of information into course discussions helps students acknowledge their shared interests, see one another as resources, and validate their personal responses by connecting course concepts to cultural identifiers and common situations.

*Strategy 2: Give responsibility to individuals or groups for discussion threads on select academic topics.*

As with the discussion topics mentioned above, a similar approach can be taken regarding course-related content. Focusing a discussion around a case study or using scenario-based learning is an effective approach that elicits various responses and promotes deep thinking. For example, in an information literacy course, a group of students could be responsible for drafting a problematic undergraduate research scenario. The remaining students could then offer improved strategies. Creating learning opportunities that allow students to build on one another’s responses will also promote a sense of community. Moreover, a course might have a discussion board dedicated to an examination of a low-level learning concept, particularly if the application is familiar enough to students that they can expound from relevant personal experience. This works best with questions that are not binary or do not have designated “correct” answers. Rather than requesting a textbook definition of a concept, such as databases, electronic resources, or catalogs, ask students to use examples from their experience to explain the boundaries of that concept. Individuals could be given leadership opportunities to facilitate discussions about concepts that could hold broader meaning. Doing so will build community through experience sharing and knowledge creation.

Encouraging participation by way of these strategies helps students continually bolster their online identities in the course revealing that they are complex individuals worth investing in. That said, guided discussions, no matter how engaging, do require active instructor participation and input. While one might think, “If you build it, [they] will come,” (Frankish, Gordon, Gordon & Robinson, 1989) especially if their grades will be impacted, think again: “Teaching presence is essential in balancing cognitive and social issues consistent with intended educational outcomes” (Garrison, Anderson, & Archer, 1999, p. 101). Melkun (2012) suggests that instructors should praise perceptive group discussions for a few reasons. “Praising participant commentary provides students with model responses, encourages contributions, and fosters confidence not only in the group member but in the group as a whole. Students who feel confident of their group members’ skills are likely to take risks, to explore options, and to
become a community of writers” (p. 35). Garrison, Anderson and Archer (1999) noted that recognition “fuels” the development of online discourse: “Explicitly expressing appreciation and agreement as well as complementing and encouraging others are textual tools for communicating recognition and support. This aspect…is particularly important in a text-based environment” (p. 100). Remember to keep social and academic spaces separate while encouraging guided interactions, which may prove challenging when students draw from their experiences to contextualize assignments. But instructors need not fear the occasional digression from academic content. Nippard and Murphy (2007) found that digression “appeared to foster the communication of affective, cohesive, and interactive responses,” (para. 35) and that “teachers interested in promoting social presence might need to be more tolerant of digression and be willing to assign a role to it” (para. 39).

**Strategy 3: Encourage student-to-student advice regarding assignments.**

Peer interactions naturally occur before and after face-to-face classes; students compare interpretations on assignments as they walk into the room and exchange thoughts on lectures when they are released for the day with guidance. We can encourage similar open exchanges in the offline corollary. What if students reflected on recently completed assignments or gave a few words of encouragement or advice to students who have not yet completed it? A student might post something like, “Start this assignment as soon as you can! The directions were helpful, but I spent a lot of time looking for resources.” Or they might discuss a preferred approach to unraveling a difficult topic discussed in the course materials. Not surprisingly, students would benefit from receiving advice from their peers if they felt it was genuine and informed by experience. For instructors, there are benefits to this approach as well: These discussion board topics would not warrant grading or feedback, and instructors would have a better understanding of how assignments are experienced both at their onset and near completion. Student-to-student exchanges also provide an opportunity for instructors to informally assess their learning outcomes, offer insight into the relevance of their examples, and measure how students feel about their approach toward course materials.

**Connecting in “Real Time”**

An essential component of any learning experience is direct communication. Synchronous communication ought to occur in an online course. While it may be difficult to require student participation in synchronous interactions online, these meetings are well worth the effort. According to Melkun (2012), “employing emerging digital technologies such as group discussion boards, chat sessions, and Web conferencing can create learning and discourse communities that not only lessen student isolation but increase reflection and metacognition” (p. 38). As a means of mirroring traditional face-to-face interactions, synchronous online engagement can include discussion groups or providing one-on-one feedback on assignments. Various tools can be used to facilitate synchronous activities, like Blackboard Collaborate, Google Hangouts, and Skype. Text-based chat sessions, similar to those used for virtual reference services, can also be implemented. These communications can be a bit challenging as it is difficult to check for understanding; however, according to a study conducted by Duncan, Kenworthy, and McNamara (2012), “results suggest that synchronous engagement has a larger
positive impact on students’ performance relative to asynchronous engagement” (p. 445). The study indicates that the improved engagement is a direct result of synchronous activities.

**Strategy 4: Use synchronous communications to strengthen ties to the classroom community.**

Screen-sharing software, such as Google Hangouts or Join.Me, is a particularly effective use of synchronous interactions—and a good testing ground for students and perhaps instructors new to synchronous communication tools—to discuss and review a particular assignment with students. This can help instructors gauge whether students are grasping key course concepts while giving students the opportunity to engage with the instructor in immediate dialogue. The experience itself—using face-to-face communications in an online course—may also work against participants’ preconceptions as to how interactions in an online course can be defined. Finally, while using too many tools can be challenging to all involved, an additional opportunity for community building can appear when learning gaps using technology arise. A student-moderated discussion board to provide technology troubleshooting can empower more computer-savvy students, while emphasizing exposure to the peer-driven dialogues explored above. Synchronous communications and activities can be time-consuming and difficult to schedule, so use sparingly and reserve for high impact situations.

**Embracing Mobile Technology**

The insertion of any new technology in the online environment introduces a bar that instructors may be hesitant to raise: That is, the level of technological familiarity and aptitude they ask of their students is a consideration that may feel ironic as the courses are themselves technology dependent. Easy to overlook, however, are students’ use of everyday technologies that can be incorporated into the goals of the online classroom. Although the assumption might be that technology in the classroom caters exclusively toward the Millennial generation, Smith (2013) of The Pew Research Center’s Internet & American Life Project remarked, “For the first time since the…project began systematically tracking smartphone adoption, a majority of Americans now own a smartphone of some kind” (p. 2). Broken into age groups, 79% those between the ages of 18-24 own a smartphone, as do 81% of 25-34 year-olds, and 69% of 35-44 year-olds. Moreover, Blacks (64%) and Hispanics (60%) outpace Whites (53%) in smartphone adoption (Smith, 2013, p. 3). These numbers reflect a significant majority across multiple demographics who have access to sophisticated technologies whose utility can be adopted for classroom use. Though these numbers do not completely eliminate the need to be conscious of the economic, geographic, or other barriers to technology, instructors who may have been reluctant to utilize phone-based tools as part of course assignments may be confident that the gap is not as large as they feared and continues to shrink.

**Strategy 5: Leverage students’ love of mobile technologies.**

Creating media-rich assignments used to require instructors to offer an array of options and access to those technologies. Instructors might secure digital camcorders or ensure that software was freely available in campus computer labs or via the Web. This process can be
simplified by utilizing students’ mobile devices, a technology they know and prefer. This approach is particularly useful in constructing video-based assignments that allow students to record and preserve online video introductions, resource evaluations, content discussions, or direct communications with the instructor. According to Duggan (2013a, p. 2), “The proportion of cell owners who use video calling has tripled since May 2011,” and “54% of adult Internet users post original photos or videos online that they themselves have created” (2013b, p. 2). Instructors should feel similarly enabled to embed their own video creations into the course to introduce themselves, explain course expectations and difficult course content, or to engage with students directly. The role of facilitating discourse, according to Arbaugh and Hwang (2006), “is carried out by directly presenting content, raising questions that lead to reflection and learning, clarifying concepts and/or ideas to improve understanding, providing feedback to point out proper comprehension, and presenting related topics and issues to integrate knowledge” (p. 17). With the ease and availability of video recording via mobile devices, there is little reason to facilitate discourse in a purely textual format or to expect students to respond exclusively in that way.

Conclusions

Similar to brick-and-mortar classes, community building in the online environment will differ amongst groups; however, effecting the above-mentioned strategies can significantly aid in community development leading to greater student learning and motivation. While the focus here has been on credit-bearing courses, these strategies can be modified for various online instructional opportunities, including workshops and other embedded initiatives. Below are a few applications to consider for each strategy presented:

- **Strategy 1:** Regularly give students a place to be themselves and share their experiences, thoughts, and interests. Help them see the value of their participation by representing the information back to the group. *Possible application:* Solicit majors, cohorts, or programs to post interests on library-designated social media sites (Facebook, YouTube, Twitter, etc.). Collate responses on library Web pages or subject guides for post-session reflection.

- **Strategy 2:** Give responsibility to individuals or groups for discussion threads on select academic topics. *Possible application:* Prior to delivering an online workshop or instruction session, assign individuals or groups to post questions about the research process. Encourage all students to respond to those questions with their experiences.

- **Strategy 3:** Encourage student-to-student advice regarding assignments. *Possible application:* Solicit student advice about the research process for capstone projects, theses, and dissertations. Present this advice to future students on a course LibGuide or Web page.

- **Strategy 4:** Use synchronous communications to strengthen ties to the classroom community. *Possible application:* When attending an online class in a liaison or guest capacity, use synchronous text-based tools (i.e., Twitter) to add value and supplementary content during course lectures.
• **Strategy 5:** Leverage students’ love of mobile technologies. *Possible application:* Use online tools with mobile components (Poll Everywhere, hashtags for Instagram and Twitter, etc.) to solicit student responses during an online workshop or instruction session.

If we desire to understand the curricular needs and interests of the student bodies with which we work, developing their sense of inclusion, community, and identity is not only a desirable outcome, but an essential component of creating an effective online learning environment. Instructors should utilize the best aspects of community building from the physical classroom, while ensuring that those practices are more than replications of what works in a single environment. As the number of online courses increases in response to student and administrative demand, instructors need to provide an engaging and intellectually relevant experience. The effort needed to tailor and implement the strategies presented here will be worth the time.
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What If You Build It and They Still Won’t Come? Addressing Student Awareness of Resources and Services with Promotional Videos

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Abstract
After a needs assessment exposed that even daily library users were unaware of the best resources, tools, and services, the Rider University Libraries switched gears from a focus on the creation of long step-by-step tutorials, to the creation of short promotional videos for all users, with attention on the needs of distance learners. This project was inspired by the Library Minute videos available on YouTube, with Rider University’s own twist—many of the actors, directors, and scriptwriters for the videos are the college students themselves, working alongside the two School of Education liaison librarians. This paper includes some results of the assessments before and after to examine if the videos helped make students more aware of the Libraries’ resources and services. This paper also includes the creation of the videos and the publicizing of the videos in orientations, flipped classrooms, social media, and other appropriate venues.

Background
The two campuses of Rider University reside in central New Jersey and currently enroll approximately 5000 students. Rider had its start in 1865 as a business school but has expanded to be a comprehensive, coeducational university with programs in the arts, sciences, and education. Rider University has several degree programs designed for nontraditional students to pursue education while balancing work and family. Because online learning is a natural fit for many of these students, the University introduced online learning in 2006 with a total of six online courses. In 2011, Rider University established the Center for Distance Learning and Teaching to coordinate all the University’s online education efforts for faculty and students, which led to the distance learning and blended programs expanding exponentially, especially within the School of Education and the College of Continuing Studies. Although still in its fairly early stages concerning the online learning experience, the University has three completely online degree programs currently being offered, and since the summer of 2006, there have been 715 sections of 138 courses fully taught online, and numerous blended courses.

The Rider University Moore Library faculty and administrators, wanting to remain relevant and successful in reaching out to and meeting the specific needs of the newer distance learning community, searched for and hired their first Emerging Technologies Librarian in 2012. This Emerging Technologies Librarian shared liaison roles for the School of Education with the
current Department Chairperson, as they both earned Master’s degrees in Education and expressed an abundant interest in better serving students and faculty in blended and online courses and programs.

Because of the past and projected growth of online and blended courses within the School of Education, the two education librarians began meeting with several of the School of Education program directors and leaders to see what the Libraries could do to assist with the success of their programs and courses. The librarians started to create specialized tutorials and research guides and conducting more formal needs assessments with their students and faculty. The School of Education library liaisons felt that they could learn from the successes and failures of other academic institutions, and even thrive in this day and age, because the technology to reach students is more accessible and less cost/labor intensive than ever before. Because the librarians recognized that any student can approach any library at a distance as other librarians have identified (Glennie & Mays, 2013; Nicholas & Tomeo, 2005), any efforts to make appealing digital objects that can be easily accessed online is a victory not only for distance learners but for all.

**Needs Assessment**

The needs assessments conducted with faculty and students in the hybrid courses after face-to-face instruction sessions or remote reference transactions (e.g., chat, email, web conferences, and telephone) were extremely beneficial because the feedback revealed that the students needed to use library resources, but at times, they were frustrated and unsuccessful in doing so and wanted additional help. Although they were appreciative of the Libraries’ research guides and tutorials, many students had no idea of their existence on the Libraries’ website. It was decided that a larger scale assessment would give a better picture of the students’ needs and what could be done to better assist them. Naturally, the next step should be assessing the needs of the distance learner population. However, this will be delayed to accompany the campus-wide distance learner survey conducted by the online instructional support team (HOIST) at Rider University in the Spring 2014 Semester.

A straightforward method to acquire information that could be conducted immediately was to set up several focus group sessions in the main library, the Franklin F. Moore Library, during the end of the Spring 2013 Semester. The goal was to discover how traditional Rider University on-campus students complete their research assignments and use the online resources so that the Libraries can better meet their needs. This would be essential for a baseline to ascertain if their needs are different at all from distance learners’ needs.

**Partnering with Students on Focus Groups**

The entire Moore Library Department faculty and administrators collaborated on the questions and handed them over to a long-time library student worker who volunteered to be the moderator of the focus groups. Using student moderators for focus groups is not an original idea (Magnum & West, 2012). Prior to the focus groups, the student moderator was given an annotated list of the Libraries’ resources and services. The Emerging Technologies Librarian was present at each focus group to ensure the sessions accomplished all of their goals and stayed
on track. With this preparation and his three years’ experience working in the Moore Library, the student moderator was able to explain, ask, and answer questions from focus group members, essentially teaching more about library resources and services.

The results of the focus groups did not give too much new information: some students wanted more printers, better bathrooms, and to be able to eat in the library building, of course! But several items coming out of the focus groups stood out as shocking discoveries—even the students who regularly visited the main library five or more times a week, at all times of the day and night, were still unaware of the Libraries’ most expensive resources and services, including the new ESBCO discovery services tool (Library One Search), many subject-specific online library resources, the group study rooms, and even that the Library carried daily newspapers, in print and online! Most importantly, the focus groups concluded with a discussion about what could be done to increase student awareness and use of all of the Libraries’ resources—print, online, and human. Recommendations included that librarians teach more classes and participate more with new student orientations and freshmen seminars. One student suggested to have upperclassmen teach new students about the Libraries. And another said, out of frustration, “I just wish there was a website made by a librarian for my course or my subject area that told me which databases were best to use!” The librarians were dumbfounded by that comment from one of the traditional library-loving students—one of the Libraries’ cheerleaders! If these student focus group members were not aware of one of the Libraries’ best teaching-learning resources, the research guides, built in support of the course-integrated, assignment-specific instruction sessions, then how could these guides and other resources get on the radar of the University’s distance learners?

Addressing the Findings of the Needs Assessments

The School of Education librarians tried hard to decide what to do with this new information. The librarians wanted to focus on promotional materials—even thought about putting up posters or newsletters in the library and university bathrooms, such as the “Stall Wall News” at James E. Walker Library at Middle Tennessee State University or the “You’re Informed” monthly newsletters at the New Jersey Institute of Technology (Mangrum & West, 2012; Matthews & Bodnar, 2008). A different approach would be needed in order to reach distance learners, so the librarians turned to social media and scholarly literature for direction and guidance on the the planning, production, and use of videos promoting academic library services, tools, and resources (Luo, Wang, & Han, 2013; Majekodunmi & Murnaghan, 2012; Martin, 2012; Perry, 2011; Robinson, 2010; Saines, 2011).

While many libraries have created videos for instruction, few have gone beyond screencasted tutorials. There are several librarian-created short promotional videos on YouTube of note. Library videos do not have to “go viral” to meet the learning needs of today’s college students (Seely, 2012). Librarians have gone beyond using instructional design theories concerning learning motivation (i.e., Keller’s ARCS Model) and started using marketing techniques to make instructional videos with content students will find engaging and informational (Seely, 2012; Martin, 2012). Arizona State University (ASU) established a Library Minute series hosted by a charming librarian discussing library tools, tips, and tricks (Perry, 2011). York University in Toronto, Ontario, produced a series, Learning In Our Own
Words, featuring students giving tips and advice in an interview style. The Oviatt Library of California State University created several series of promotional videos, including one targeted to faculty named Message in a Minute (Martin, 2012). Tsinthu University Library of Beijing, China, developed a five-episode series of videos, Falling in Love with the Libraries that won an International Federation of Library Associations and Institutions International Marketing Award (Luo et al., 2013). Some libraries have put together high-quality parodies that have or should have gone viral, including Texas A&M’s Research Games based on The Hunger Games (Schwartz, 2012) and Brigham Young University’s New Spice: Study like a Scholar, imitating the popular Old Spice commercials (Hbllproduction, 2010).

While researching for exemplary library marketing videos and articles, the librarians, by chance, happened upon a Rider University Libraries’ commercial among the YouTube videos (Herbert, 2013), and the Libraries had nothing to do with it! This video was about the one thing that all students seem to know: the Libraries are a great place to study. After this video was shared with the Dean of University Libraries, he said, “Hire that guy!” It just so happened that the aforementioned student focus group moderator knew the student who created that video and helped to arrange a meeting with the Emerging Technologies Librarian. During the student worker job interview, it was discovered he created this video for a course in his film and media major. The assignment was to make commercials for the University.

Partnering with Students to Create Library Promotional Videos

Librarians and library student workers formed a collaborative team to create Rider University Libraries’ own series of promotional videos. The team viewed ASU’s Library Minute series as something to somewhat emulate and this enthused the team and generated many ideas for the Libraries’ future projects. The film and media student worker modeled the entire film production process, but when the team began to shoot the first videos, it was not yet decided who would be in front of the camera. What a relief it was when another student worker, who previously felt too shy to use her voice for the voiceover, said “I’ll do it.” She had a natural charm and that is when it was decided that, unlike the ASU’s Library Minute series hosted by a librarian, the Rider University Libraries’ promotional video series would be hosted by students. All involved in the video projects were in front of and behind the camera and participated in storyboarding, scripting, video editing, and selecting technology. The education librarians were responsible for project planning and management, student worker hiring and training, defining the content, and determining the messages the videos sought to impart. This team led the Libraries’ transition from only making traditional tutorials to filming and producing engaging video content.

The Process of Creating the Videos

While creating promotional videos at first seemed elusive, there were many surprises that stood out: the process was not all that difficult or different than creating tutorials, the Libraries did not need any new software or tools, and the talent needed was already on campus. Being able to use in-house and easy-to-use software made this project sustainable. Unlike other university libraries, Rider University Libraries is a part of a smaller private university and do not have a budget of or access to a production high definition camera, a green screen, a boom
microphone, audio mixer, costumes, and more (Perry, 2011; Martin, 2012; Schwartz, 2012). However, the Libraries did have access to fantastic student workers with some experience, fresh ideas, and abundant creativity. The librarian-student team had what it took to move forward with this pilot. The team started with creating a brand name, storyboards for the video series, and acquiring and editing voice and films clips.

Library Branding

It was during the initial brainstorming sessions where a name was discussed. One idea was More on Moore, after the name of the main library, the Franklin F. Moore Library, but that was rejected because it excluded the smaller specialized music library, the Katharine Houk Talbott Library. Another name was Lost in the Library, which was initially rejected but then brought back for an offbeat side project featuring videos more suited to the on-campus community. The Rider Libraries Minute (TRLM) was the chosen name as it best fits the series’ aim to address all of the Libraries’ user groups.

Without graphic designers on the team, the TRLM logo was created with a combination of tools, including Piktochart.com and Microsoft Office clip art. The logo includes the Rider University traditional colors of cranberry and white, a clock symbolizing time or minutes, and the name of the video series. This branding is incorporated in all videos and advertising.

![The TRLM logo.](image)

Figure 1. The TRLM logo.

Storyboarding

The librarians provided a long list of potential videos, and the student-librarian team began to draft the storyboards, which are documents containing the step-by-step plan for the video production. Many variations for storyboarding exist and what worked best for the team was a table including rough sketches outlining the potential script in the first column, the scene sequence/action/plot (i.e., image, screencast, and/or students acting) in the second column, and direction or notes in the third column. See the appendix for the storyboard of the “Using Library One Search” episode of TRLM as an example.

The student-librarian collaboration during this stage proved to be the best way to ensure that the videos are mostly free of library jargon, simpler, and more appealing to Rider University students than traditional library tutorials. For example, the students chose terminology to describe the Library One Search discovery tool, using phrases that were not necessarily the librarians’ first choices, such as “academic only Google” and “one stop academic search engine.” Overall, brainstorming/storyboarding takes the longest amount of time, requiring several team
meetings, but this stage still proved to be informative and entertaining as it entails watching amusing YouTube videos and reviewing other libraries’ online instructional materials for inspiration. Once the storyboard is set, the ball rolls, and the process appears to move forward quickly.

**Acquiring Media**

Once the storyboard is created, media needs to be acquired, and the storyboards always call for filmed video, screen captures that demonstrate use of the tools on the Libraries website, and voiceover narration. The librarian-student team elected to use moving logos and theme music to help highlight the brand, *The Rider Libraries Minute (TRLM)*. At times, outside video clips, songs, and images were also utilized. Below is an annotated list of the media used.

- **Moving Logos:** Microsoft PowerPoint animations were screen captured with Techsmith’s Camtasia Studio; therefore, the creation of moving logos proved to be effortless. This heavily relied on the creativity of the students.

- **Filmed Video Segments:** A Kodak Zi8 Pocket Video Camera, commonly referred to as a flip camera, was used to capture video. It was found that 720p is the highest resolution the editing software could handle, although the camera could capture at a higher resolution.

- **Screen Captures:** With screencasting tools, the team recorded all actions on the computer screen to show the steps of accessing resources. Techsmith’s Camtasia Studio was used for this as it is one of the more popular paid screen capturing tools. Because library websites tend to be so information rich, it is good practice to record a small selection of the screen and utilize Camtasia Studio features of zoom-n-pan for the best screen resolution on every and any device. The custom screen size was selected from a pre-set list, and 640x480 was a good choice to ensure quality viewing on smaller screens.

- **Other Media & Copyright:** To avoid any copyright disputes, most of the media that was selected (film and music) was found from public domain or Creative Commons websites. Sources used were the media readily available in Camtasia Studio’s Library, the Prelinger Archives (https://archive.org/), CCmixter.org, YouTube’s audio library, and Jamendo.com. A few times, popular songs have been used for TRLM with attribution and a fair use statement; however, using popular songs have been challenged by the rights owner. The dispute causes YouTube to place advertisements on the video in YouTube, and since Rider University librarians did not want advertisements on the videos, the songs were replaced.

- **Voiceover:** A microphone headset that connects via USB port is generally recommended for narrating a screen capture; however, that produced a voice narration that sounded mismatched with filmed video. To remedy this, the flip camera was utilized to ensure consistency of sound as the editing software allowed for audio and video to be separated.
Editing: Where the Magic Happens

While the Libraries were considering acquiring new and/or expensive equipment and software for editing, the librarian-student team discovered while screen capturing that TechSmith’s Camtasia Studio had all the tools needed for editing professional looking videos. The friendly interface within Camtasia Studio made it easy to combine all the filmed video segments, screen captures, moving logos, and other media, as well as apply callouts, transitions, and zoom-n-pan features. Once all of the files were imported into Camtasia Studio’s ClipBin, the editors dragged and dropped them to the tracks wherever they fit and trimmed and cut as needed.

The following image illustrates the way Camtasia Studio’s tracks were used for the Boolean Searching episode of TRLM. This video has only four tracks, but tracks can be technically unlimited in Camtasia Studio. In some videos, the editors used more tracks in order to have callouts appear on top of each other. This editing process was quite time intensive—one can spend all day perfecting the trimming of video and audio clips, the timing of callouts, the additions of textboxes, and more.

![Figure 2. Screenshot of Techsmith’s Camtasia Studio 8 editing the Boolean Searching episode of TRLM. Two of the Rider University Libraries student workers appear in the preview pane (upper right).](image-url)
• Track 1: Begins with a *TRLM* moving logo, a transition, then a filmed video segment with audio and zoom-n-pan applied to it, followed by a screen capture (.camrec file) cut into sections so that different effects can be added, such as zoom-n-pan and transitions in between the segments. The video is wrapped up with another filmed video segment and the static *TRLM* logo. The flip camera was used to record the voiceover narration.

• Track 2: The only piece in this track is the voiceover, which is the audio from a flip camera recording.

• Track 3: This track is the theme music. The editor added audio points to create a higher volume during the introduction and conclusion and a lower volume during the rest of the video.

• Track 4: This track has call outs (i.e., shapes and text boxes) to highlight important information (e.g., URLs, database names, and arrows pointing to exact locations on screen captures).

Once the process was established, the videos were being produced about one a week over the summer. Two student employees were dedicated to work on the videos, working 24 hours a week, and they had guidance from the School of Education librarians and help from other student employees. The next steps were to decide how and when to publish.

**Publishing Videos**

Initially, videos were shared locally via private links on the Libraries’ website with select faculty on the two campuses. The early feedback led to a decision to host on YouTube and embed on the Libraries’ research guides. YouTube and LibGuides offered other valuable features, such as statistical gathering, captioning and linking to more resources. To start the new process of publishing, the editor selected the appropriate production settings in Camtasia Studio.

**Producing with Camtasia Studio**

The Camtasia Studio Production Wizard made producing very simple. The team used the “Share to YouTube” option, which automatically set the dimensions and the format (MP4 video). Once authenticated with YouTube, the wizard allowed for the editing of the title, description, tags, category, and privacy as each would appear on YouTube. These could be all edited later using YouTube’s Video Manager.

**Hosting and Captioning with YouTube**

YouTube was chosen to host the videos for its great scalability, detailed analytics, and accessibility features. Once the videos were uploaded, the work was *almost* done. The options in YouTube’s Advanced Settings that the team changed were License, Monetize with Ads, and Captions. The rights ownership license was changed from Standard YouTube License to
Creative Commons—Attribution. Monetize with advertisements was an option the team deselected to keep the videos ad free. YouTube made it easy to meet the requirements of the Twenty-First Century Communications and Video Accessibility Act of 2010 which demands closed captions of video programming on the Internet that has been edited, except for consumer generated media (Federal Communications Commission, 2013). While YouTube’s automatic captions provided a helpful start, they needed to be edited. Another option was to upload of a file of captions, which YouTube automatically synced with the videos—a huge timesaver! Another timesaver was that errors in the captions could be corrected without going back to Camtasia Studio and repeating the production process. The best part, though—YouTube allowed viewers to change the look and feel of the captions for better for viewing at any size/color/font they pleased, another January 2014 requirement under the Act (Tsur & Kahr, 2013). The law was not clear if this was required of college libraries producing videos, but the librarian-student team preferred to err on the side of caution, especially since the ability for viewers to turn on the captions, and/or change the way captions appear was a great service to those in the community with hearing/visual impairments.

**Embedding on Springshare’s LibGuides Platform**

Springshare’s LibGuides was ideal for embedding the TRLM videos for several reasons. One reason was LibGuides allows for another way to brand the videos as coming from the Libraries with the official rider.edu domain name. Likewise, LibGuides helps to group the three different series together on three different research guides (guides.rider.edu/trlm; guides.rider.edu/litl; guides.rider.edu/know). Further reasons were that any librarian could add information and link to additional resources described in the videos. Finally, LibGuides provides another avenue for statistical gathering of the view-counts of the promotional videos; for instance, LibGuides’ statistics was great to have in addition to YouTube’s analytics because a video had to be taken down from YouTube and re-uploaded, all YouTube’s statistics for that video were lost.

**Video Publicity and Feedback**

The Libraries built and published these short promotional videos, but the students did not magically find them; unfortunately, none of the TRLM videos went viral. In the Fall 2013 Semester, the marketing and promoting of TRLM has been conducted though librarians, course instructors, faculty department meetings, student leaders, social media, and word of mouth. Videos were embedded into any relevant, already created research guide. Other librarians also played videos during research instruction sessions as applicable and because they felt it would improve student learning outcomes. The strongest publicity efforts thus far have been through outreach to student leaders, collaborations with faculty, and the transforming of the online learner orientation.

**Students: Spread the Word**

The librarians’ approach in their outreach to students was to create a TRLM buzz on campus using social media, on-campus advertising, and outreach to the student leaders. Episodes were posted to social media accounts on YouTube, Twitter, Facebook, and Google+.
Advertisements were placed on the rotating banner of the Libraries’ homepage and through the campus television network. The librarians also gave an invited presentation to the Student Senate. The Vice President of the Student Senate, who organized the meeting, was really pleased he extended the invitation to the librarians after he saw how engaged the Senate members were with TRLM. The Senate members definitely agreed they learned something new after watching just four episodes. The librarians asked these student leaders to share the videos with their respective organizations and to contact the Libraries if they were interested in acting in future videos. After this presentation, YouTube and LibGuides statistics for TRLM have grown steadily and thus far, three student volunteers have contacted the librarians.

Faculty Flipped!

The team felt it was also essential to connect with faculty as they are most influential in affecting student perceptions of the Libraries and use of its resources. Special presentations were made to Graduate Education, Leadership, Counseling, Nursing, and Business faculty members because these departments teach the fully online courses and many of the blended/hybrid courses. This led to special collaborations with several interested faculty.

For example, within the College of Business Administration, working with Entrepreneurship and Marketing faculty, a TRLM video was created on using one of the most important industry research databases, IBISWorld. This video was played in classes prior to the research instruction sessions, somewhat flipping the session, and the video was also embedded into their courses in the University’s learning management system, as well as in many of the Libraries’ research guides as relevant. Professors have asked for a similar video for the complicated, Simmons OneView, but at this time, the database is only available on campus, so the librarians decided to wait until the remote access is restored by the vendor before producing a new TRLM episode.

When the Graduate Education and Organizational Leadership faculty were asked what databases they wanted featured in a TRLM episode, they had a slightly different request. Because their students often struggle with identifying empirical articles and their unique searching requirements, the faculty asked for a video regarding this topic. A TRLM video, which demanded an accompanying research guide, let the librarians flip the research instruction session and have more hands-on research time. Students came to these research instruction sessions more engaged and primed for the lesson at hand and left the session much more prepared for their semester-long assignments than in previous semesters. The course instructors embraced the flipped classroom model from this experience; one remarked how the video and research guide brought the course one step closer to being able to be delivered fully online.

The collaboration with the Director of the new Online RN to Bachelor of Science in Nursing degree program led to a new direction for the videos. She requested a welcoming video featuring librarians. The TRLM team felt that librarians in front of the camera did not really fit the TRLM motif. So, a brand new series of videos, Know Your Librarian, was initiated. The Director embedded the video in the course management system and made it required viewing for all the nursing students in the first week of the semester. The Know Your Librarian series has
now grown to include videos introducing liaison librarians to other departments and programs: Education, Sciences, Gender & Sexuality Studies, and English.

Other teaching faculty members have flipped with praise for The Rider Libraries Minute series. One episode of TRLM was filmed at Rider University’s smaller specialized music library. Before storyboarding, the TRLM team met with the Talbott librarians to discover their specialized users’ greatest needs. The team opted to create a video on Streaming Media as it will highlight the useful resources for all students, especially the distance learners who cannot easily physically use in-house library materials. After showing the video to the Music Education faculty they exclaimed, “this is exactly what we needed!”

**Online Learner Orientation**

The Libraries have a prime spot in the online learning orientation presented alongside featured items from the Office of Information Technology. The online orientation website is very complimentary of the Libraries as it states: “The Libraries are strongly committed to excellence in serving user needs, and strive to provide superior library services to our students, faculty, staff and alumni. Dedicated and expert library faculty and staff ensure that user information needs are met…” (Rider University, n.d., Moore and Talbott Libraries section, para. 1). While this praise is appreciated, the librarians have always wanted to do more for the online learner community and feel that TRLM is a natural fit. Members of the HOIST committee, including the Dean of the College of Continuing Studies, the Coordinator of the Center for Distance Learning and Teaching, and Associate Director for Faculty Development, have recognized the Libraries as a model for serving distance learners as the librarians have been responding to the challenge of supporting off campus learners—before it was cool—in a number of now familiar ways: remote access to online databases, virtual reference services, online tutorials, e-reserves, research guides, and now, engaging promotional video content. The committee especially finds that featuring students in TRLM fosters a sense of community and involving students in storyboarding helps ensure the videos are clearer to the uninitiated student. Both of these address the biggest complaint from the distance learners—feeling disconnected from the University.

**Moving Forward**

The online instructional support team (HOIST) is conducting formal surveys to all distance learners and online course instructors in the Spring 2014 Semester. Finally, the timing is right for the Libraries’ assessment targeting distance learners. The Libraries will identify targeted questions for each survey that will help determine the awareness and needs of distance learners. The School of Education librarians have also recently initiated a distance library services working group to address the ACRL Standards for Distance Learning Library Services. Of course, the Libraries anticipate the creation of more and more one-minute videos on a variety of topics. Additionally, since the framework is now in place, a film and media student worker on the team is not a requirement. The team can grow to include students in other majors for example, Marketing, Education, or Performing Arts, which may take these videos in new directions.
Conclusion

This paper discussed how the librarians used information from need assessments to focus efforts on increasing student awareness and use of the Libraries resources and services. With the partnership of experienced and creative students and librarian, Rider University Libraries started three series of promotional videos that are engaging and appealing to students. Creating these videos was not that difficult to learn, and very little budget was needed. This paper discussed the processes and tools used to create and publicize the videos. Since the videos are fun to create, exceeding user expectations, and leaving faculty, administrators, and students demanding for more, the Libraries will create more. When blended and distance education become more prevalent at the University, it is planned to have plenty of current and relevant TRLM videos available. This experience illustrates librarians foraging into promotional videos, which is still relatively new. Since many libraries today struggle to stay viable and funded, they will be encouraged to know that a pilot project on a low budget can still have a positive impact on student awareness of library resources and services.
References


### Appendix

**Storyboard from Using Library One Search episode of The Rider Libraries Minutes**

<table>
<thead>
<tr>
<th>Script</th>
<th>Screen</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theme Music</strong></td>
<td><img src="image" alt="Using Library One Search" /></td>
<td>(Intro Music Fades Up and plays for a couple seconds, then fades down as next shot comes in)</td>
</tr>
<tr>
<td>Narrator: “Here at the Rider Libraries, we have a great tool for students to use while they do their research. It’s called the Library One Search and its Rider’s one-stop academic search engine.”</td>
<td><img src="image" alt="John stands in the stacks and narrates." /></td>
<td>John stands in the stacks and narrates.</td>
</tr>
<tr>
<td>Voiceover: “One Search scours through a large number of Rider’s best databases to find the info that you need. Think of it as the school’s academic-only Google.”</td>
<td><img src="image" alt="Library One Search Rider’s All Inclusive Academic Search Engine" /></td>
<td>Graphic text pop ups that match the major points of what the narrator is saying. (Use Microsoft Powerpoint for animations and screen capture it).</td>
</tr>
<tr>
<td>Voiceover: “To get to the search, just go to the Rider libraries website at [<a href="http://www.rider.edu/library">www.rider.edu/library</a>]. From there, you can see a large search box in the middle of the screen, type in your keyword/title or author that you are researching and hit the search button.”</td>
<td><img src="image" alt="Zoom of URL being typed in, followed by full screen shot followed with zoom to whole One Search Bar" /></td>
<td>Zoom of URL being typed in, followed by full screen shot followed with zoom to whole One Search Bar.</td>
</tr>
<tr>
<td>Voiceover: “One Search will give you online access to all the books (pause) journals (pause) full text articles (pause) newspapers (pause) dvd’s (pause) sound recordings (pause) maps (pause) and more that the library has to offer.”</td>
<td><img src="image" alt="John is using all the items and shot continually cuts to different locations and items (pauses will be longer)" /></td>
<td>John is using all the items and shot continually cuts to different locations and items (pauses will be longer)</td>
</tr>
<tr>
<td>Narrator: “For more info on Library One Search, go to guides.rider.edu/libraryonesearch. This has been _____ with The Rider Libraries Minute.”</td>
<td><img src="image" alt="Text for the LibGuide URL fades in and out on the bottom of the screen." /></td>
<td>Text for the LibGuide URL fades in and out on the bottom of the screen.</td>
</tr>
<tr>
<td><strong>Theme Music</strong></td>
<td><img src="image" alt="TRLM logo fades in, Rider University logo fades in, and then logos and music fade out in unison" /></td>
<td>(TRLM logo in, Rider University logo fades in, and then logos and music fade out in unison)</td>
</tr>
</tbody>
</table>
Faculty and Librarians Unite! How Two Librarians and One Faculty Member Developed an Information Literacy Strategy for Distance Education Students

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Sharon Bailey
Dr. Gregory Klages
University of Guelph-Humber

Abstract
Librarians know that collaboration with faculty is crucial when developing effective information literacy initiatives. Our case study, based on the ADDIE model of instructional design, set out to determine if a collaborative approach between faculty and librarians could effectively support students in a distance education course. Set in a small university, our study details how two librarians, embedded within a distance education course, teamed up with the course’s faculty member to deliver research and citation help to students at their point of need. This collaboration extended from the planning stages to implementation and evaluation, to the identification of future research goals.

Introduction
The University of Guelph-Humber (UofGH) is located in Toronto, Ontario, Canada, and is home to approximately 4,000 undergraduate students. UofGH opened its doors in 2002 to 200 students in Business, Computing, and Media Studies programs. Currently, we have six programs: Business, Media Studies, Justice Studies, Psychology, Kinesiology and Human Services, and Electives; which consist of courses in the Arts, Humanities, and Social Sciences. We are home to approximately 200 faculty, most of whom are contracted on semester basis to teach individual courses.

UofGH is unique in that it is a partnership between the University of Guelph (located in nearby Guelph, Ontario) and Humber College Institute of Technology and Advanced Learning (ITAL), which shares our Toronto campus. After four years at UofGH, successful students emerge with an undergraduate degree from the University of Guelph, and a diploma from Humber College ITAL.

In addition to our full-time programs, UofGH also offers several hybrid programs in Justice Studies and Human Services, in which students attend classes part-time on select weekends during the semester, and complete the rest of their studies via distance.
Distance Education at the University of Guelph-Humber

UofGH offered its first distance courses in 2007. Our distance classes are primarily Electives, with the exception of the offerings in our aforementioned hybrid programs. Currently, we have six distance classes offered throughout the year with an average enrolment of 60 students. While all Guelph-Humber faculty are offered course “shells” with full Learning Management System functionality, those who teach on campus primarily use them for course readings and assignment uploads. As with many North American post-secondary institutions, UofGH plans to expand its distance offerings in the near future (Parker, Lenhart & Moore, 2011). We anticipate our DE offerings to eventually extend beyond those of our Electives program.

In the past, UofGH has provided library services in distance education courses using a macro approach. As defined by Shank and Dewald (2003), a macro approach involves “working with the developers and programmers of courseware to integrate a generic, global library presence into the software” (p. 38). In our approach, a link to the appropriate program research guide was automatically included in all of UofGH’s course websites; at UofGH, we use Springshare’s LibGuides product. As we developed tools for our on-campus students that were also appropriate for DE students, we included these in the course websites as well. An example of this is our Proper Citation Tutorial, a web-based suite of modules that details the basics of APA and MLA, featuring videos, interactive quizzes and a certificate of completion, and was adopted by several distance education faculty for credit in their courses. In addition, the Electives librarian at UofGH, as a result of a request from a different professor who taught on-campus and online sections of his course, created a short instructional video—intended for both sections—on how to search for and retrieve materials relevant to his course content.

In terms of research help, librarians would occasionally hear from distance students via email, telephone, or in-person when they were on campus for other classes. DE students could also use our online chat research help service, Ask a Librarian—financed and staffed by a consortium of Ontario universities—if they had research questions. The Ask a Librarian chat service has the added benefit of operating outside of normal daytime hours, including weekends.

While these approaches did offer our DE students research assistance in a variety of ways, we felt there was still more to discover about our DE students, and potentially, more ways to assist them with their research needs. We felt this could be accomplished through a micro approach, in which we would team up with interested faculty to develop a customized resource component for our DE students (Shank & Dewald, 2003). In the spring of 2013, casual conversations between a DE faculty member and two UofGH librarians ultimately led to a unique pilot program designed to offer students research and citation assistance within one DE course. This pilot was and continues to be built collaboratively; both in terms of deciding the approaches that would be taken within the virtual classroom environment, and also within the approaches themselves.

Literature Review

Academic literature offers many accounts of successful faculty and librarian
collaborations. Raspa and Ward (2000) succinctly sum up the need for such partnerships: “we have reached a point at which neither librarians nor instructional faculty can adequately teach the research process in isolation from each other” (p. 15-16). In terms of what makes these collaborations successful, Bell and Shank (2007) discuss the need to focus on collaboration outside of the traditional library-faculty relationship. Ivey (2003), in her study of the important elements of collaborative teaching and how these partnerships can be initiated, developed and sustained, identifies four behaviors essential for collaborative partnerships: a shared, understood goal; mutual respect, tolerance, and trust; competence for the task at hand by each of the partners; and ongoing communication. Meulemans and Carr (2013) state that while faculty take the lead in inviting librarians into the classroom, it does not “diminish the necessity of librarians taking equal, and if necessary, primary agency in the construction of the learning environment for students” (p. 88).

This collaboration must begin early if it’s to have a positive effect. Gaspar and Wetzel’s (2009) survey of faculty partnering with the library revealed the need for closer collaboration early on to tie in the library components of the course to the instructor’s assignments, and is echoed by Shank and Dewald (2003): “… the closer the link between course assignments and library resources to help with these assignments, the greater the likelihood that students will access library information” (p. 41). In terms of the effectiveness of this collaboration, Manuel, Beck, and Molloy (2005) conclude that this advance collaboration results in better outcomes for students.

The need for librarians to be involved in distance education classes is informed by the ACRL’s (2008) “Standards for Distance Learning Library Services” which calls for “equality of provision” of library services for distance students. Hensley and Miller’s (2010) survey of DE students identified a need for more instruction and communication with designated DE librarians. The literature identifies many examples of the creative endeavors librarians have used to provide assistance in DE courses, including posting in online discussion boards (Figa, Bone, & Macpherson, 2009), web conferencing (Barnhart & Stanfield, 2011), and course specific subject guides (Reeb and Gibbons, 2004), among other strategies. Despite all of these strategies, Brooke, McKinney, and Donoghue (2013), in their review of the literature regarding library support for distance learners, noted that there is no established best practice and that disagreement exists over the best methods of providing virtual reference to DE students. In terms of establishing the effectiveness of embedded librarians in DE courses, Markgraf (2005) was able to tie her efforts within the DE class with improved outcomes for her students, connecting the students who had made contact with her within the course to high achievement in the class research project.

The Pilot

The ADDIE Model

Instructional Design (also called Instructional Systems Design, or ISD) is a cornerstone of effective teaching and learning. Librarians and faculty alike—even if they don’t realize it—often use instructional design models as their framework for curriculum and course development, information literacy programming, and learning objects. While dozens of ISDs are in use in
post-secondary institutions, ADDIE, our chosen model, is a foundational structure upon which many of those ISDs have been built (Bell & Shank, 2007). ADDIE is an acronym for:

- Analysis: The process of defining what is to be learned.
- Design: The process of specifying how it is to be learned.
- Development: The process of authoring and producing learning materials.
- Implementation: The process of installing the instruction product in a real-world context.
- Evaluation: The process of determining the impact of the instruction (Bell & Shank, 2007, p. 43).

We chose ADDIE as a model to keep in mind throughout our pilot as it had been used previously, with great success, during the development of our Proper Citation Tutorial. ADDIE is not a rigid model, and it allowed us to be flexible in our approach. Our pilot started in the summer semester of 2013, during a compressed six-week run of Dr. Klages’ course, AHSS 2240DE: Contemporary Canadian Issues. Our course is an Elective offering available to students year-round, and with eligibility to take the course limited to those students who have successfully completed five credits. Forty-five students were enrolled in the class.

Given that ADDIE was the inspiration behind the development of our pilot, we think it only fitting to continue our use of the model in our breakdown of the pilot. Wherever possible, we split the narrative into two sections—the librarians’ perspective and the faculty perspective—to give the reader the best possible insight into the pilot and its outcomes.

Analysis

The genesis of this pilot developed during several conversations between the librarians and Dr. Klages. These initial discussions, like many good ideas, came as a result of casual conversations on other topics. Jennifer Easter, as librarian for the Media Studies program, in which Dr. Klages is affiliated, delivered several IL sessions to his classes over several semesters; and Sharon Bailey, who had recently been appointed temporary Electives librarian (covering the one-year leave of our Electives librarian) is an acquaintance of Dr. Klages from their undergraduate days at the University of Guelph. Figa, Bone, and Macpherson (2009) recommend that librarians seek out instructors “with a strong interest in pedagogy, a progressive approach to services to their students, and an interest in innovation” when offering their services within a DE course (p. 100).

Academic liaison librarians at UofGH are responsible for all courses within their assigned programs. As Electives librarian, Sharon would therefore be the logical choice for the pilot. However, Hoffman and Ramin (2010) recommend having more than one librarian involved in pilots of this nature for the purpose of knowledge retention, or preparation for when the pilot takes off. Mindful of Sharon’s contract, which ends in mid-2014 upon the Elective librarian’s return from leave, we recognized that knowledge retention was particularly critical. Given
Jennifer’s standing relationship with Dr. Klages and her responsibilities as librarian for the hybrid Justice Studies program, she was ideally suited to the pilot not only in these capacities but also as support for Sharon, who was relatively new to her role.

The two librarians brought to the pilot their experience with online learning: Jennifer had completed four online distance courses through University of Guelph, which utilizes the same course management software as UofGH, Desire2Learn. Sharon, in a previous position at another university, had adapted her on-campus course in book publishing to a distance education format, designing, developing and delivering the course in Blackboard LMS. In addition, before Sharon assumed her role as Electives Librarian she was the E-learning Librarian at UofGH where her primary responsibility was continuing the design, development, and delivery of the online Proper Citation Tutorial through Moodle LMS.

Dr. Klages also brought experience with teaching DE courses. At another university, he had transitioned an in-class course targeted to professionals returning to academia for skills upgrading to a DE format. In 2009, he developed AHSS 2240 as an in-class UofGH course, and the following year, transitioned the course to DE format. He has been the only instructor for the course, which has been offered every term since Fall 2009. This experience allowed him to bring a clear, experience-based understanding of what student support needs from the library might be.

The timing of our pilot was fortuitous. Summer was approaching, typically a quieter time in the Library, and the librarians would have more time to dedicate to the pilot. Our goal going into this pilot was to learn as much as we could about our DE students and their research needs, and to determine if our presence was needed and welcome in this environment. We wanted to know: Could the librarians effectively answer students’ research questions in a DE environment? Could the librarians tie their work to improved student outcomes in the course? We were also interested in how this would play out, day-by-day, for the librarians. Would they be overwhelmed with questions? How would two librarians involved in the pilot work (or not)? Is this something that could be extended past a pilot and offered to our other DE faculty? Finally, we wanted to know: could this pilot be truly collaborative?

**Design and Development**

The librarians recognized that students would access the bulk of the learning material we provided through our dedicated research guide. As the Electives librarian on leave and Dr. Klages had collaborated on the original iteration of the research guide, authoring and producing learning objects for this iteration was largely a matter of repurposing the content of the previous guide and migrating content from Dr. Klages’ course. We also added a welcome message on the main page of our new guide; profile boxes for each librarian including contact information, and additional tabs to better reflect the breakdown of Dr. Klages’ content. Finally, we decided to highlight Dr. Klages’ presence in our research guide by referring to him in sections such as our “Find Key Journals” tab: “Dr. Klages has identified some key scholarly journals that will be helpful in your studies. Click on the links below to browse full text issues”. By doing this, we hoped to leave students with the impression that choosing to search key databases and journals would be necessary for their success in the course.
As both the librarians and Dr. Klages were aware of time constraints (particularly given the compressed course, which in the summer was half the usual, semester-long length), we determined that any discussions regarding further initiatives such as IL videos, online chats, webinars or additional embedded learning objects would need to be tabled until a later date. This afforded us the opportunity to see if our agreed-upon, foundational initiatives for this first phase were effective before moving ahead with content that might be considered redundant, unnecessary, or simply overkill.

The librarians and Dr. Klages agreed that the librarians needed to be integrated into the course, not simply a presence on the discussion boards. This initial decision set the tone, and was the inspiration for many of the approaches the librarians and Dr. Klages incorporated over the course of the pilot. Matthew and Schroeder (2006) stress negotiating the details of the librarian’s involvement in a course before the semester begins. The librarians felt it was important to ensure that Dr. Klages was comfortable with their involvement, and that they were not overstepping their bounds. Shank and Dewald (2003) note that librarians must work with diplomacy and aplomb to ensure faculty feel comfortable sharing editorial content within the course.

It was also important to the librarians that there be a rationale for their involvement in the class. In the pilot classes, Dr. Klages emphasized the importance of research and citation. Students were expected to provide citations for two contributions to discussion posts each week. Students also had a research assignment—an Argumentative Essay—that made up a large portion of their final evaluation. York and Vance (2009) note that the best use of the embedded librarian’s time is when a research assignment is required for the class.

In the UofGH Library, we offer a personalized, “Your Librarian” service, assigning a librarian to each program and advertising the librarian’s expertise within the program. While this service is available to our DE students, in the past, it not utilized as fully as hoped for. With this pilot, our intention was to extend our personalized service into the DE classroom and create those connections with students, which we hoped would extend beyond this class and to the rest of their time at UofGH.

To this end, the librarians appeared in the course’s welcome message, which was posted on the first day of class. Dr. Klages created an introductory post, welcoming students to the course, which also featured a paragraph (written by the librarians) about their presence in the course. The post was signed by the librarians and Dr. Klages. Brooke et al., (2013) notes the importance of DE librarians making contact at the beginning and providing clear instructions on how to use the service. The librarians’ presence in the introductory message set the tone for the course—that students’ use of the service would be important to the successful completion of the course; it also informed the students that they would have support from three faculty in the course, and placed the librarians at the same level as their instructor.

In addition to the discussion boards, in the section dedicated to the Argumentative Essay, the librarians posted a short paragraph about finding sources along with the link to the course research guide. This information also appeared under a Resources tab, the same section of the
course website that students were required to visit to access their weekly assigned readings. By including a library presence in evaluation pieces dedicated to the course, Dr. Klages was reiterating the importance of using library resources to achieve a good mark in the class.

In terms of dedicated library space within the course, the main space consisted of two dedicated library threads in the discussion board – one for research questions and one for citation questions. These threads were grouped together as the second discussion “community” available on the screen, implicitly indicating the relative importance of the threads as resources. We decided to include a dedicated citation thread as Dr. Klages would be emphasizing correct citation throughout the course. The inclusion of a discussion board was to create a place where we could provide “individual attention, address similar problems and easily disseminate pertinent information” (Markgraf, 2005, p. 8). The inclusion of two threads was so that students could quickly locate the information they were looking for, without having to scroll through many conversations.

In previous iterations of the course Dr. Klages had recommended appropriate academic journals on the class website, these were in addition to the research guide content. In conversation with Dr. Klages, we decided to migrate his content to a revised research guide for the pilot. The intent was three-fold: (a) it made the research guide the sole source of information on research for the class assignments, (b) we had research guide content that both librarians and instructor agreed upon, and (c) LibGuide functionality would allow us to track clicks on database and journal links, yielding more data for us to evaluate.

Implementation

With the static content complete – the research guide, the welcome message, and library information on various pages – the librarians’ turned their attention to the dynamic content, the discussion board, where we anticipated most of the action surrounding the pilot to occur. The initial approach to the discussion board was “wait and see.” The librarians posted a brief introductory post in each of the threads, welcoming students to the course and inviting them to post their questions. These posts accompanied the welcome message, signed by the librarians and Dr. Klages, posted in the news section that appeared on the course’s home page.

We waited. The questions were slow to come in. This caused some concern, especially in the first pilot, as it was a six-week course, and students were responsible for producing written work right away, posting two statements on assigned topic each week including citations, in the discussion threads. Our students may not have been posting questions, but they were certainly checking out existing posts within the discussion board. Views were steadily building in the threads (especially the citation thread) but no questions were being asked. That signaled that the students were expecting to find information in these boards. We needed to get them asking questions.

From the outset of the course, Dr. Klages had been gently prodding students to use the library’s services in his responses to their initial discussion posts. The librarians decided to also be proactive in their approach by reading the students’ position statements, noting any citation or research challenges, and creating posts targeting those knowledge gaps. These “unprompted
“posts” were utilized on several occasions. For example, a post was created that focused on how to cite when information—such as the author or publication year—is missing. Markgraf (2005) alluded to this practice of the “lurking librarian” (p. 6). Kinnie (2006) has also noted how proactively posting can be extremely helpful.

During a discussion with Dr. Klages, which centred on the continued dearth of questions being asked by students, an alternative approach was initiated. Instead of the librarians posting information unprompted, Dr. Klages began asking questions of the librarians in the threads, initiating conversations the students could follow and contribute to. An early example of this proactive approach was prompted by Dr. Klages’ observation that students were consulting and citing online dictionaries for their research. His post read, in part, “I wonder if the librarians might offer suggestions for students regarding the use of dictionaries, encyclopedias, etc. Here I am not just thinking of how to cite these sources, or what sources are more reputable than others but also where and when it might make the best sense to use these resources.” We responded with a definition of tertiary sources, how to evaluate their authority, and how to cite them.

Granting of clear and direct professorial authority was something that had been missing in the unprompted posts. Head and Eisenberg (2009) found in their study that “professors played an important role in coaching students through the research process” (p. 32). Dr. Klages, in his role as coach, asked questions relevant to the students’ research needs, and took it even further by musing in his response that perhaps the librarians could be of some help, at which point the librarians would provide the answer.

These questions posed by Dr. Klages allowed the librarians to build trust with the students. Figa et al. (2009) suggest that DE librarians should build trust by answering technical or procedural questions, which will lead to more substantial questions being asked. Fortunately, with the way the course was structured, students initially had questions about their citations for their position statements, which began week one. By the time research was required for their Argumentative Essay, a few weeks into the course, the librarians had proven themselves capable of answering the students’ questions, and they began to ask questions of a more substantial nature. Interestingly, students started asked more substantial questions not only on the discussion threads but also by direct email to the librarians; this is a method of communication we encouraged students to use, mindful of those who may be reluctant to ask what might be perceived as “silly questions” on the discussion boards. Related to this notion of “silly questions,” another benefit of the discussion board, as noted by Figa et al. (2009), is its morale-building aspects; they allow students to judge their understanding against their classmates. A student who has a question—but does not post it because the question seems to them to be irrelevant or immaterial—may be relieved when another student posts that question, or something similar.

The librarians and Dr. Klages also collaborated on answering students’ research questions. Students would post their questions in our research boards, and the librarians and Dr. Klages would each respond. The librarians would comment on the research aspects of the question, and Dr. Klages would chime in, reiterating the librarians’ advice offering additional sources and suggesting viewpoints that students may want to address in their papers.
Manuel et al.’s (2005) survey of faculty attitudes discusses this notion of “reinforcing” as an effective tool in delivering important information to students. By commenting on research questions, Dr. Klages was leaving students with the impression that their effort spent finding and using reliable sources would be rewarded, thus giving students a strong incentive to use library resources (Markgraf, 2005).

In our pilot, 45 enrolled students remained in the course at its conclusion. We used this number as our evaluative baseline (not including data derived from students who did not complete the course).

We had a total of fourteen student posts in the Citation Assistance and Research Assistance threads: nine in the Research thread (written by four students), and five in the Citation thread (written by two students). The librarians and instructor contributed twelve posts to the former, and eleven posts to the latter. There were a cumulative total of 468 student views of posts in the two threads.

Table 1

*Contributions to Citation Assistance and Research Assistance Threads, Summer 2013*

<table>
<thead>
<tr>
<th>Students posting</th>
<th>Citation Assistance</th>
<th>Research Assistance</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student posts</td>
<td>5</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Faculty posts</td>
<td>1</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Librarian posts</td>
<td>10</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Total Posts</td>
<td>16</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

Twenty-six students read at least one post in the two threads, with 17 students reading at least 10, and five students reading 30 or more of the 37 posts in the two threads. Four students enrolled in the course (9%) read all 16 posts within the Citation Assistance thread. Nineteen students (42%) read at least one post.

The average number of posts read by students was 10.4 (28% of the available posts). The average number of posts read by any students visiting the Citation Assistance thread was 3.9 (24% of the sixteen available in the thread), while the average number of posts read by students visiting the Research Thread was 6.3 (30% of the twenty-one available).

Posts within the two threads were viewed an average of 12.6 times; posts within the Citation Assistance thread were viewed an average of 11.1 times, and in the Research Assistance thread, 13.9 times.
Table 2

Views of Citation Assistance and Research Assistance Thread Posts, Summer 2013

<table>
<thead>
<tr>
<th># of Students reading</th>
<th>Citation Assistance</th>
<th>Research Assistance</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20 (41%)</td>
<td>26 (58%)</td>
<td>26 (58%)</td>
</tr>
<tr>
<td>Average posts read</td>
<td>3.9 (24%)</td>
<td>6.3 (30%)</td>
<td>10.4 (28%)</td>
</tr>
<tr>
<td>Total post views</td>
<td>177</td>
<td>291</td>
<td>468</td>
</tr>
<tr>
<td>Average views/post</td>
<td>11.1</td>
<td>13.9</td>
<td>12.6</td>
</tr>
</tbody>
</table>

Evaluation

Our pilot produced rich quantitative and qualitative data. Two measures used to gauge the effect of the pilot were student use of the specialized help (as measured through reading of discussion posts in the citation thread, posting of questions to the thread, and clicks on the course’s dedicated research guide), and shortcomings noted in citation performance in the student final essays (as measured by faculty feedback). Qualitative data emerged from the end of year survey, and the comments and questions asked by our students in the discussion boards.

E1: The Librarians’ Perspective

Our relatively low number of authored posts and high numbers of read posts supports Figa et al.’s (2009) findings in their study, which determined that students use the boards by reading each other’s posts. We would add that students may also have taken advantage of our “conversation” posts with the instructor.

Our contact with students was not limited to the class website. We were surprised by the number of students who chose to contact us in the more traditional ways, with visits to our office, phone calls, and emails to the librarians. This may in part have had to do with an entirely unrelated initiative—Sharon had visited two in-class Electives courses in the early summer, both of which included students who were also taking Dr. Klages’ DE course. Our assumption is that they may have recognized Sharon’s name and felt comfortable contacting her; given that they were taking courses on campus they were free to visit the library, and Sharon in particular, for consultations.

With an enrolment of 45 students, we had what we consider an impressive 134 visits to the research guide home page, which also served as the “Find Articles” tab. While students could navigate to the course guide through the library website, we expected that students would arrive at the research guide primarily via the course website.

The number of visits to the additional tabs on the research guide drop significantly from this point, with 24 visits to the “Find Key Journals” tab and the balance of the tabs (Mass Media Resources, Government Resources, Citation Style, and Find Books) with clicks in the single digits. The research guide, including additional tabs, was accessed 186 times in total. In terms of our Citation Style tab, given the presence of our Citation Assistance thread, in which our posts...
often included a link to our citation tab or other sources of citation help online, it appears that
students were either satisfied with our answers and required no further assistance, or perhaps
visited other resources for additional help.

Eight of the top 10 databases appear on the list of suggested databases on the home page
of the research guide with Academic Search Premier, with 63 clicks, at the top. The bottom two
databases in the top ten appear under the Find Key Journals tab, which maps reasonably well to
the number of visits to that tab in general.

While buildup was slow, considerable spikes in clicks occurred between July 29 and
August 7, roughly corresponding to the deadline for the Argumentative Essay.

Based in part on this data the librarians determined that students took Dr. Klages’
suggestions seriously; not only to visit the research guide in general but to consider both broad,
at times interdisciplinary databases and specific journals that he considered key to their research.
We would also like to think that, upon arriving at the research guide, the students found articles
through the databases, though unfortunately there is no way of knowing this.

In order to gauge the value of the research guide in an embedded librarian context we
wanted to determine if increased promotion, migrated content, and making some other
adjustments to the original research guide made an appreciable difference to the number of visits
during the pilot semester. We compared visits and clicks between the Summer 2012 offering and
Summer 2013. The numbers were striking.

Despite enrolment for the Summer 2013 offering increasing by only nine students (from
36 to 45), visits to the research guide more than doubled in number from 2012 (81) to 2013
(186). Students did more than visit; the number of database clicks increased from 55 to 186.
Interestingly, our decision to promote Academic Search Premier (an interdisciplinary database
with Canadian content) from an "additional databases" box in a different tab to the main articles
page had a clear impact: the number of clicks shot up from zero to 63. Databases that did not
change location from 2012 to 2013 also enjoyed a boost, doubling in clicks between the two
years.

E2: The Faculty Perspective

Tying improved research outcomes to participation in the Research Assistance thread is
difficult to quantify. The D2L course statistics revealed a significant correlation between student
attention to posts in the Citation Assistance thread and superior writing outcomes, however.

More students without citation problems in their final essays read posts in the citation
assistance thread than their peers. Students with major problems in their citations were more
than 50% less likely to read any posts in the citation thread than their peers who did well, and
about 25% less likely to read posts than did their peers who had only minor problems.

Almost 50% of students who submitted final essays had no problems with citation skills
in their final essays. Of these students, 65% read at least one post in the citation assistance
discussion thread. The average number of posts read by the students with high performance was 7.5.

About 20% of students in the pilot who submitted final essays had minor errors in their citation skills. Of these students, 50% read at least one post in the citation assistance discussion thread. The average number of posts read by the students with acceptable performance was eight.

About 28% of students in the pilot who submitted final essays had major errors in their citation skills. Of these students, less than 20% read any posts in the citation assistance discussion thread. Those who did, read all of the posts in the thread.

Table 3

Student Attention to Citation Assistance Thread and Citation Errors in Argumentative Essay

<table>
<thead>
<tr>
<th># of essays</th>
<th>No errors</th>
<th>Minor errors</th>
<th>Major errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students who read post(s)</td>
<td>20</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Average # of posts read</td>
<td>7.5</td>
<td>8</td>
<td>16</td>
</tr>
</tbody>
</table>

As indicated by data-tracking of which students viewed posts, as well as which students posted queries to the thread, the assistance offered appealed to two types of students: students who were already committed to behaviors that would likely produce high grades, who were seeking to avail themselves of every opportunity for advantage, and students who were performing at a middle level, who were attempting to optimize their performance without being aggressively pro-active.

The high-achievers, open to any opportunities to improve their final grade, or to have an extra set of informed and critical eyes check their work before assessment, appreciated accessible help from the librarians. They tended to ask particular, focused questions, often related to small citation details, well in advance of the assignment being due. Other students tended to seek out help from the librarians in the last few days before the essay was due, asked more general questions, and seemed to simply be seeking any kind of guidance they might take advantage of. While motivated by different concerns, and taking quite different approaches to the assistance available, both groups of students showed improvement in their outcomes, with performance with regard to citation quality and course final grades skewing upwards among both groups of students.

Two of three pieces of signed feedback provided by students at the end of course referred positively to the citation and research assistance, with one even noting that she had taken away a skill that produced benefits in her other academic work during the term. These low levels of written student feedback in end-of-semester surveys are not unusual.
Along with measurable outcomes associated with attention to citation and research assistance, this pilot provided useful data for testing whether student attention to citation and research assistance was consistent with student attention to other information available on the course site. The Course Content thread was the first portion of the Discussion page of the course website, and allowed students to read the instructor’s summary responses to the students’ weekly topic discussions. These posts were used to correct common errors, point out particularly useful paths of inquiry, and to propose possible future outcomes related to the topic in question. Thirty-three students (73%) read at least one post in this thread. The average number of posts read by the participating students was 7.3. Eight students (18%) read all of the 19 posts. Posts were read an average of 17.6 times.

Table 4

Course Content Thread Traffic, Compared to Citation and Research Assistance Thread Traffic Totals, Summer 2013

<table>
<thead>
<tr>
<th></th>
<th>Course Content</th>
<th>Citation and Research Assistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total posts</td>
<td>19</td>
<td>37</td>
</tr>
<tr>
<td>Average posts read</td>
<td>7.3 (38%)</td>
<td>10.4 (28%)</td>
</tr>
<tr>
<td>Average views/post</td>
<td>17.6</td>
<td>12.6</td>
</tr>
</tbody>
</table>

Results of the summer pilot were compared to several student performance measures of the previous three terms within which the course was offered: Winter 2013, Fall 2012, Summer 2012. The results generally indicate a positive outcome for the pilot.

Some performance measures are tied very closely to the pilot’s area of intervention. For instance, the number of final student essays that showed evidence of shortcomings within their citation practices. Others were more circumstantial, such as the final grade achieved in the course by students.

In the previous iterations of the course being considered, the approach to communicating academic citation expectations for the course was to require students to provide proof of completing an online citation tutorial offered by the Library, as well as comments made by the instructor in observing citation practices used in twice-weekly student posts to the course website. The former strategy was abandoned during the pilot, largely due to the intensified workload required of students in the accelerated six-week summer version of the course.

With regard to citation practices, the percentage of student essays that showed evidence of major errors in their citations remained static throughout the four terms assessed. The percentage of essays that did not show evidence of any noteworthy errors increased significantly, however. In Fall 2012 and Summer 2012 terms, these essays constituted 30-35% of the works submitted. In Winter 2013 and Summer 2013, the result increased to 55-60%. That the increase was seen in Winter 2013 suggests that the result may not have been purely related to the pilot. As no other variable (other than the actual students enrolled) changed from Summer 2012 and Fall 2012 to Winter 2013, however, the result may also be anomalous. Comparing the two most
recent six-week iterations of the course, that Summer 2013 results showed marked a significant increase over the Summer 2012 iteration is a promising result.

Changes in student performance in the course, assessed by comparing student final grades, suggest that the Summer 2013 offering departed from the established record. Students completing the course with an A grade (80% or above) constituted about 17.5% of students in Summer 2012 and Fall 2012 (and an anomalous 2% in Winter 2013). In Summer 2013, 24% of students completed the course with an A grade. D grades or lower (60% or below) ranged from a high of 18% in Winter 2013 to a low of 8% in Fall 2012. In Summer 2013, only 3% (one student) who completed the course received a D grade.

Results of this pilot certainly indicate that further research is merited. Indications are that provision of focused and committed research and citation assistance within the distance education course online format likely provided high-performance and mid-performance students with an important tool for improving their grades through decreasing occurrence of citation errors. Student feedback suggests that the focused and readily-available assistance invited student solicitation of help where it might not otherwise have been sought out, and that as a result students noted a higher level of confidence in their citation skills across their academic work.

Where the pilot appears to have not made any significant difference was in the citation performance or knowledge level for students who indicators suggest were already struggling academically. In this regard, it could be argued that students who showed little commitment to the course generally were unlikely to avail themselves of help, particularly if they regarded that help as honing a skill that they already likely had little respect for or curiosity about.

This interpretation is supported by the comparison of student attention to the Citation and Research Assistance threads and the Course Content thread. While almost three-quarters of students in the course read at least one post in the latter thread—identified by the instructor as critically important as a source of information—only about half the students read at least one post in the former threads. This result would seem to indicate that a significant number of students deprioritized the information available within the Citation and Research Assistance threads (at least compared to the Course Content thread), despite affirmations from the instructor within the weekly discussions that this information would benefit them.

Having a section of the course website devoted to research and citation support corresponded with student experience of the ‘real world’, where they would go to the Library to seek out such assistance. It also allowed students to seek out assistance on something they found challenging, without having to admit to the instructor that they were confused. This second observation seems warranted in that a number of students sought out assistance offline or directly via email from the site librarians. Certainly, based on teaching experience over the preceding decade, students are finding information abundance an increasing challenge. Many of them have difficulty identifying reputable, trustworthy information sources, capitalizing on sources that offer a variety of positions, and citing these sources correctly (let alone knowing when these sources need to be cited). Having a course site section devoted to these issues helps to reinforce the importance of these concerns in students’ minds.
Reflections

R1: The Librarians’ Perspective

Our reflection begins by returning to our original research questions. We felt we were able to effectively answer students’ questions in the pilot. While the number of posts by students in our threads was relatively low, the posts read were quite high, revealing that students were using the discussion board, just not in the way we anticipated or intended. The students who did read the posts in our threads, read a lot of posts; as previously mentioned, there were also quite a few students who did not engage our services at all. While the majority of students did not seem to be interested in sharing their questions in the threads, judging by the number of posts read, there was a need for information on research and citation. As always, hard data to back up these kinds of claims is difficult to produce, but the positive comments in the discussion boards and the end of semester survey help support this. We did not encounter a question that we felt we could not effectively answer in the DE environment. We found having two librarians involved in the pilot to be extremely helpful—the ability to bounce questions off one another, brainstorm ideas for unprompted posts to introduce into the discussion board, and collaborate on answers to tricky student questions was very useful. Having experienced the pilot, we know that the workload is manageable and thus something we could attempt in other distance courses.

We felt there were some aspects of our pilot that were essential to its success—first and foremost, our decision at the beginning to make our pilot as collaborative as possible. Another essential element was taking our collaboration with Dr. Klages beyond the planning stage for the pilot and into the pilot itself. Our status as partners within the course was set right at the beginning, and it was quickly established that students seeking our assistance (by asking questions or reading the posts in the library threads) was something that was necessary for the successful completion of the course.

Many instructional design models, ADDIE included, recognize the iterative and at times messy nature of instructional design. ADDIE’s analysis, developmental, and design stages were critical to building our pilot framework but, given the nature of a pilot, we recognized and accepted that certain elements of our implementation may need to change on the fly. The ADDIE model, which allows for the front-loading of work, tends to be responsive, rather than reactive, an approach that suited us well when working through the stages of the pilot.

Between the two librarians we act as liaisons for four of the seven programs at UofGH. As all students in all programs are welcome in this course, we realized that outreach strategies in a virtual environment would also be an investment in our overall perceived value as subject librarians in the on-campus environment. Furthermore, we recognized how demonstrating to students that we support their research and citation needs in situations where they might be outside of their comfort zone may extend to perceived value to their home programs, as well.

A challenge we face, when reflecting upon the pilot, is the fact that we are unable to gauge if students visited their own program guides during the semester or if indeed they visited either guide at all. However, as a recent study by Credo Literati shows that while many students are at least partly aware of the scholarly resources available to them through their institution,
over two thirds of those students actively choose publicly available online sources such as Google and Wikipedia throughout their research process (McKiel & Dooley, 2013). We can therefore assume that at least some students in the class may have not visited the research guide at all or, if they did, they did not conduct their searches through the recommended databases.

Finally, we were interested in investigating the collaborative nature of this kind of endeavor with a faculty member. Could our work be truly collaborative? We felt at the end of this pilot that it had been. While it was easy enough to find the time to map out our approach over the course of several meetings before the pilot, the real challenge was continuing our dialogue throughout the semester. As previously mentioned, we were fortunate to start the pilot during the summer semester—typically, a much quieter time of year—and we were able to continue the conversation to the end of the course. This conversation took place, mostly through email, but on some occasions we were communicating with each other through the discussion boards. Ivey’s (2003) important elements of collaborative teaching—working with a faculty member who understood and shared our goals for the pilot and with whom we had trust and ongoing communication—were essential to the pilot’s success.

**R2: The Faculty Perspective**

The faculty member perspective on this pilot is shaped by several key factors. Firstly, the faculty member is a contract, part-time instructor. This means the instructor works without job security, and is perhaps more dependent on positive student feedback than tenured, or tenure-track faculty. In this type of course, students sometimes come up against their own discipline-specific training, such as having learned to use a particular citation style specific to the fashion of their program of study, and resent and resist being compelled to learn a different style for an elective course.

These two factors introduce several considerations. Like many faculty, the instructor is seeking to optimize his time spent on the course, while increasing student satisfaction. In previous iterations of the course, students tended to resent being compelled to learn proper citation methods (particularly if they were in a program where essay writing was not a frequent undertaking), and instructing students in these skills tended to take significant time away from teaching the mandated course content. This pilot offered the opportunity to off-load citation skill teaching to recognized and experienced experts, to add in additional voices to class discussion, to build in the capacity for student queries to get answered more quickly, and ideally, to improve student outcomes and thus student satisfaction in the course.

Additionally, it can’t be overlooked that the faculty member and librarians had established trust relationships, in one case gained through working as peers in another organization two decades previously, and in the other through contemporary ongoing consultation regarding provision of library assistance to courses taught by the faculty member. Even the nature of the pilot’s introduction as an idea—during a casual meeting devoted to general discussion of how to improve student performance—speaks to the importance of finding common professional ground, offering a track record of performance and receptivity to new ideas, as well as—ideally—some degree of personal trust and common cause.
Further Research

Fortunately, this particular course, taught by Dr. Klages, is offered year round. As a result, we were able to offer assistance to students in the Fall 2013 and Winter 2014 iterations of the course. The information gathered from Fall 2013 and Winter 2014 will be especially useful as the summer iteration is an anomaly in that it is a compressed course. The information we gather from our work in these two courses will complement and expand upon what we learned in our pilot.

One of the obvious outcomes of the pilot was an established library presence within the course website. We were also able to bring Dr. Klages into our research guide by collaborating with him on content, and by mentioning him by name, as a way of enticing students to use those resources. We think this idea has some merit and we want to investigate this idea of faculty presence in our research guides further.

Statistics from the Summer 2013 course, and preliminary statistics from Fall 2013 indicate that students who did not participate in the library’s discussion threads at all—neither authoring or reading posts—exhibited the same behavior in other threads in the course. Statistics also indicated that while the citation thread had a higher number of posts, the research thread had more visits. Given this, we wonder if students viewed the volume of posts in the citation thread as a deterrent, rather than an indicator of its value. This is something we will explore further in the Fall 2013 and Winter 2014 iterations of the pilot.

Similarly, given that students gravitated to only a handful of databases and journals in our research guide, we wonder if the sheer number of resources we included in the research guide was also viewed as a deterrent. What we viewed as a positive—more links offers students a variety of ways in which to find information—students may have seen as too much choice. We would like to explore this possible gap in perceived value and optimize our research guide content and its arrangement for subsequent iterations of the research guide.

We are also interested in investigating the use of synchronous methods of engagement, such as chats and webinars, to determine if it will be an effective way to communicate with students. We also look forward to developing embedded, interactive e-learning tutorials and other e-learning objects that could be of use to both our DE students and our on-campus students.
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Enhancing Mobility: Integrating New Services into Your Library’s Mobile Platform to Increase Traffic

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Abstract
Kimbel Library launched its mobile environment and ran it in full production for several months yet usage patterns were quite low and flat. The library only saw a substantial increase in usage when new, value-added services were integrated into this platform. Upon implementing and integrating discovery services, chat and SMS capabilities, and computer availability maps into our mobile environment the library witnessed and continues to see a steady and significant increase in usage. These services, any issues encountered in their integration, and solutions to resolve these issues are identified, and usage trends and overall increases in mobile platform usage are revealed. Web vs. native app usage trends, devices used, and other metrics and statistical information will be assessed. This paper will also explore possible future enhancements to our mobile services, such as geolocation and location-based services for enhancing library instruction, tutorials, library tours, and the possible development of an augmented reality environment for bridging the gap between physical and online resources and services.

Background
Coastal Carolina University (CCU), is a mid-sized public, comprehensive liberal arts institution located in Conway, SC and as of Spring 2012 enrolled 9,335 students. The University offers 66 major fields of study toward the baccalaureate degree and seven master’s degree programs in accountancy, business administration, education, marine and wetland studies, and writing and is now offering its first doctoral program: the Ph.D. in Coastal and Marine Systems Science. Coastal Carolina University is a part of the South Carolina system of public education and has close ties with its founder, the Horry County Higher Education Commission (Coastal Carolina University, 2013).

The University is formalizing and expanding its online education programs by the recent creation of the Coastal Office of Online Learning (COOL) which will manage all online course offerings and expand the university’s technology infrastructure, while managing a marketing plan for the exceptional quality of online learning programs at CCU (Coastal Carolina University, 2013, August 6). To better support these distance and online teaching and learning initiatives Kimbel library added a Distance Services Librarian in April 2012 to serve as the point person to handle any and all online learning-related issues.
Library Services

As with most academic libraries, Kimbel Library has experienced well over a decade of transformative change in transitioning from serving as a physical repository for print materials into serving as a gateway for the electronic delivery of online resources and services. Over the years, the library implemented remote authentication, enhanced interlibrary loan and document delivery operations, added link resolving and a discovery layer to the library’s ever-growing collection of electronic journals and books, and provided synchronous access to librarians via online chat and SMS protocols, etc. As the first decade of the 21st century was coming to a close, mobile phone popularity was increasing at an exponential rate. As early as 2008, mobile phone usage had increased to a 61% worldwide penetration rate and mobile phone subscriptions outnumbered landline subscriptions almost four to one (Bridges, Rempel, & Griggs, 2010). As these mobile phones became web-enabled and applications for these devices were being developed at a dizzying rate, it became evident that the vast array of services that libraries had developed for the online environment would need to be reconfigured and made functional via these mobile devices.

Mobile Technologies

By the end of the year 2011 and moving into calendar year 2012, creating access to library resources and services via mobile technologies was not a particularly new endeavor for academic libraries. Since Kimbel Library was actually lagging behind the library industry curve in its mobile environment rollout it was deemed by library administration and the library technology department that there would be no need to perform a feasibility study or any systematic processes to identify need; the proof was in prior research (Paterson & Low, 2011) and more importantly the demonstrated behavior of the university’s student population witnessed every day by Kimbel Library faculty and staff. Instead, a preponderance of effort by the library technology team was targeted toward identifying the best mobile environment for creating an optimal user experience and obtaining the highest return on investment for the library. Developing a mobile web application in-house was considered as was configuring and customizing an open source package. Since the need for both a web and native application for mobile services would best serve the library’s user community the mobile platform development team also strongly considered selecting a hosted, vendor-created solution for providing the variety of library services and access to resources the library envisioned for its user community. Finally, when identifying the needs of the user and weighing this information alongside the general knowledge base of the library technology department and the amount of time and effort it would take to develop an in-house solution, it was decided that best option for all parties was to select and proceed forward with a base package created by a vendor and leverage the library’s skillset into customizing and configuring this environment to include value-added services and mobile-optimized access to resources.

Upon making this decision the library focused on an informal needs assessment that served more as a “wish list” of the features and functionality the library deemed as most advantageous to incorporate for its users. This, in turn, would aid the library in identifying the vendor that could best accommodate this preferred functionality the library hoped to incorporate:
- Integration with the library’s catalog.
- Access to patron’s “My Library” account.
- General information: hours, location, etc.
- Functionality for real-time access to reference services.
- Cross-platform functionality.
- User access to their preference of a web application or a native application.

After performing considerable research the library technology team narrowed the list of vendors down to three: Boopsie for Libraries, Innovative Interfaces, Inc.’s AirPAC, and Library Anywhere by LibraryThing. Based on available functionality, overall look and feel, scalability/extensibility, cost, flexibility for unique customizations, and overall return on investment, the library chose Library Anywhere. Several months of configurations and customizations, alpha and beta testing, and general usability testing occurred, and as the fall semester of 2012 commenced the library had its first iteration of a mobile platform replete with both a web and native applications able to function in both iOS and Android operating systems ready for production.

Production

The library launched a university-wide advertising and promotion effort to communicate to the university community that the library had recently unveiled a new mobile platform from which to access library resources and services. This information was conveyed via all usual and customary avenues of advertising, including email blasts to university students, faculty, and staff, paper bookmarks and table toppers, online points of access and news about this mobile interface were made available, this information along with a visual rendering of the mobile platform were advertised across the university’s television system, and strategic points of access to the mobile environment were integrated into the library’s existing website.
Figure 1. The library’s first iteration of its production mobile platform.

The library technology team felt the first iteration of a mobile platform was a reasonable one. As shown in Figure 1, the standard information that the library’s in-house statistics indicated as most asked for by our user community at various service points, such as hours and location, were featured. Also included was access to library-related events, the ability for a user to check their circulation activities, a link to a low-functioning chat interface, and access to a few information resources that had been optimized for mobile devices by their respective vendors. Also notice at the top of Figure 1 that there is a catalog search field available, but it was not clear to users what was being searched, nor was it particularly intuitive that this search functionality was even available.

The library technology mobile development team has a reasonably robust administrative interface at its disposal to analyze usage trends, overall traffic patterns, and actual number of uses and total number of pages the mobile interface has served. Usage trends were monitored over several months and despite the library’s best efforts at advertising and marketing through all traditional avenues and via all forms of online advertising and consistent postings to social media, and as word of mouth communication and marketing hopefully increased, a hard truth was becoming very evident: the mobile platform was not being embraced by the library’s user community nor was it gaining any noticeable traction in usage with time. To paraphrase an old...
quote: “We built it and they did not come,” and with this reality the obvious ensuing question was quickly forthcoming: “Now what needs to be done?”

Figure 2. Statistics for the first four months of mobile platform use.

Figure 2 demonstrates that after the first month of artificially high traffic due to internal testing, that the mobile environment was just not being utilized as envisioned. There was a slight uptick in usage in the first month of 2013 due to the library’s marketing efforts, word of mouth, and continued internal testing, but the overall usage patterns were not justifying the mobile platform’s creation or cost. In informally interfacing with the student user community and obtaining information from the library’s instruction librarians and via various reference service points, it was clearly apparent that there was just not enough functionality to generate considerable use. Unintuitive access to the library’s catalog and the provision of access to a few services and general library information were just not going to increase use. So, Phase 2 of the mobile platform rollout was to consist of identifying value-added services that were known to be of high importance to our users, providing a better chat environment, and providing more comprehensive access to the library’s rich array of information resources.

Enhancements

Through perhaps a bit of serendipity, the library was in the process of implementing a discovery platform independent from any mobile-related activities. Most of Kimbel Library’s
librarians were not particularly satisfied not only with the way access was being provided to the catalog via the mobile platform, but with the integrated library system’s OPAC itself. Over the years it has proven to be cumbersome, unintuitive, doesn’t provide excellence in handling information search and retrieval queries that the library and its users demand, was limited to displaying only what the library owned or provided access to, and had just not been embraced by the library’s user community. In various user surveys it was not uncommon to see words like “clunky,” “not user-friendly” and “useless” used when describing the catalog’s public interface. As a strategic direction the library was integrating a discovery platform into its web presence, but once the development team realized that the discovery platform featured responsive coding for resizing the interface for any manner of mobile devices, it was obvious that the discovery layer would make an excellent addition to the mobile platform. And what was doubly exciting about adding the discovery platform was that not only was the primary search interface mobile-optimized, but the discovery layer greatly improved mobile usability for access to all of the library’s resources included in this discovery service. By virtue of using the discovery platform the library could now provide access to all of its electronic resources in a mobile-optimized fashion, which proved to be an excellent enhancement to the mobile environment.

To serve as an enhancement to the location and hours functionality the development team integrated with Google maps. This not only provided a much richer interface for accessing the library’s location, but allowed users to begin using geolocation vis a vis the library’s Google presence. The inclusion of a map and geolocation was a value-added service in and of itself but it also lays the groundwork for a whole host of possibilities for future development of location-based services. Additionally, the library continued providing access to the user’s library account, as it is a modestly used service across all interfaces and platforms.

Another enhancement that has proven to be well-liked by the library’s user community was a new, more user-friendly chat interface that was especially popular by users who were using their smart telephones to access the library’s mobile site. This new chat service also allowed the development team to include SMS capabilities to create a real-time chat environment; metrics and anecdotal information gained from the librarians working various service points revealed that the ability to text a librarian proved to be very popular as it is already engrained in the majority of mobile device user’s daily activities (Kalkbrenner & McCampbell, 2011).

As with the discovery platform, the development of the library’s mobile platform also profited from concurrent development of another feature that was occurring outside of any mobile platform-related work. The library had greatly expanded its physical space and in turn increased by 150 the number of computers available to our users with the opening of the Bryan Information Commons (Coastal Carolina University, 2012, August 28). Since the library and commons are the only 24/7 environments on campus, these spaces have consistently high traffic and are heavy utilized by CCU students. Therefore, access to a computer can be difficult to obtain, especially during peak times. To partially address this issue, Kimbel Library’s Technology and Systems team was in the process of developing dynamic computer availability maps to let students know in a real-time environment whether there are available computers in the commons and the library. Another well-liked feature of these maps is the identification of the types of operating systems that are available since some users prefer Macs to PCs.
It was obvious that these maps would be a valuable addition to the library’s mobile platform. By embedding responsive coding into these maps users have been able to utilize these from any mobile devices to quickly ascertain whether a computer is available, and if so what type of operating systems were available in the library and information commons in a real-time environment.

The inclusion of a discovery service, a more robust chat and text environment, the addition of geolocation for maps and the addition of computer availability maps has transformed the mobile interface from a largely flat environment that provided access to the catalog and a few information resources to a highly-functional, robust environment where users can search the vast array of library-licensed resources, chat or text with a librarian in a real-time environment, and offers users the ability to utilize dynamic computer availability maps to find out if a computer is available, all from the user’s smart phones or other mobile devices. The library’s mobile development team and librarians in general began noticing a clear and consistent uptick in mobile platform use. But it was the inclusion of a native application to these services that remarkably increased traffic to the mobile environment.
The first iteration of the library’s mobile platform, which was in full production approximately four months, consisted of only a web application and mobile-optimized web pages to serve as the mobile interface. The mobile platform development team, utilizing gut sense, anecdotal information, and a host of research-based information had every reason to believe that users would embrace mobile-based access to the library’s services and resources by using a native application. In January 2013, the library included this native application in addition to its web application for access to its mobile environment. Remarkably, this native application currently accounts for 83% of mobile platform use. So, the native application, coupled with the provision of these many enhancements as described above was apparently the balance of access, functionality, and aesthetics necessary to create an environment that would be embraced by the library’s users.

Metrics and usage statistics have shown a clear and consistent increase in mobile platform use from February 2013, when Phase 2 of this service was launched. Predictably, the only decreases in use were in the summer months, yet use was considerably higher in these months than in Phase 1 of the mobile platform’s launch (see Figures 4 and 5). Ironically, the look and feel of the mobile platform’s Phase 2 interface is not considerably different from Phase 1 (see Figure 6).

![Figure 4](image.png)

*Figure 4.* Increase in mobile platform use driven by Phase 2 enhancements.
The Future

With the introduction of geolocation by virtue of including Google maps into the library’s mobile platform, along with ongoing advances in mobile technologies, the library’s mobile environment will only continue to transform and offer more robust, highly functional access to resources and services. The continued growth of mobile applications that provide myriad gadgetry and functionality, using location-based services via the mobile platform for library tours and potentially enhanced access to the library’s collections, using augmented reality to begin bridging the gap between physical and virtual information resources, and continued extensibility and functionality into all manner of social media are just a few of the near-future enhancements the mobile platform development team envisions. (Johnson, Adams, & Cummins, 2012). As technology continues to grow smaller and faster, there will be limitless opportunities for future enhancements for making the library’s mobile platform highly functional while featuring as much utility and access to library resources and services as conceivable.
Figure 6. Current mobile platform interface in production
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Facing Off: Comparing an In-Person Library Orientation Lecture with an Asynchronous Online Library Orientation

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Abstract
A study to compare the effectiveness of an in person library orientation with an online asynchronous orientation was conducted with three sections of Social Work Research Methods, a required course in the University of Iowa’s Master of Social Work program. Two sections of the course received an online orientation involving short videos, text and links to resources that they could complete at their convenience. One section of the class received a 50-minute live lecture covering the same information by the liaison librarian for Social Work. Each section also took part in a live question and answer session with the librarian in a computer lab. Each student was asked to take an anonymous pre-test before the orientation and an anonymous post-test after their lab session. Findings from this study will be used to tailor library instruction for future Social Work Research Methods classes.

Introduction
Librarians in educational institutions have been adapting to changes in technology and the needs of their students since there were first librarians in academic institutions. This author believes most instruction librarians are primarily practical in outlook: more concerned with what allows them to achieve their educational goal than with theories of education. This outlook is particularly relevant in distance education settings where standard methods of classroom instruction are often impractical. The author of this paper has worked with remote students both online and in off-campus locations at several colleges and universities and often tries new techniques to provide library instruction as opportunities present themselves. This paper presents the results of a study comparing the effectiveness of an in person library instruction lecture with the effectiveness of an asynchronous online library orientation.

For the past five years, the University of Iowa’s distance education librarian has provided one-shot library orientations in the Master of Social Work program’s Research Methods course both on campus and at off-site locations. The method of presenting detailed library information has evolved from a traditional face-to-face lecture to a lecture followed by a lab session to an online pre-class orientation followed by a lab session. Anecdotal evidence and personal feedback from students and instructors indicated that the changes were positive and well appreciated. Certainly the librarian felt he was using his time more effectively. Anecdotal evidence, however, can only go so far in evaluating the effectiveness of library instruction.
Literature Review

Librarians at several institutions have conducted a variety of studies and research to measure the effectiveness of library instruction, though little has been done to compare in person, real time instruction with asynchronous online orientations. While research from areas of academia outside the library can be instructive, it generally focuses on semester-long courses rather than relatively brief library instruction. With gratitude to those who have already studied this topic and shared their knowledge, this small study is offered in the humble hope that it advances effective service to distant learners.

An analysis of 10 studies comparing computer assisted and in-person library instruction by Zhang, Watson, and Banfield (2007) found little difference between modes of instruction but did note that hands on experience positively affected learning outcomes. Most of these studies involved undergraduates and it was not always clear whether hands on experience was provided through lab sessions, interactive tutorials or other means. Shaffer’s (2011) study of the effectiveness of online tutorials with a pre- and post-test and citation analysis found that graduate Education students showed similar levels of improvement after either in person or online library instruction. Churkovich and Oughtred (2002) found that students generally scored better on a post-test after an in-person lecture from a librarian than after an interactive computer-mediated tutorial—not online—without guidance by a librarian. They noted, however, that the librarian’s lecture included hands on learning activities.

University of Iowa Study

In the fall semester of 2013, three sections of Social Work Research Methods were offered. These classes provided an opportunity to compare the effectiveness of a traditional lecture with the effectiveness of an online library orientation. Following library instruction, students in all sections had an in person lab session with the librarian allowing them to ask questions and get guidance on their individual research topics.

The online library orientation consisted of short videos illustrating research concepts and text explanations of library services and sources. The online orientation was given to one section of Social Work Research Methods on campus and one that met in Des Moines, about two hours from UI’s Iowa City campus. One on campus section of the class received a 50-minute face-to-face library orientation lecture covering the same information. Before library instruction in any format was made available to students, a 17-question online pre-test was assigned to all students to determine a baseline of library knowledge and comfort. The same questions were asked of all students following library instruction and lab sessions.

Goals of Library Instruction

There are two main goals of the library instruction program for Social Work at the University of Iowa: (a) to present useful information about library resources and services to students and, more importantly, (b) to encourage students to work with the library and Social Work Liaison Librarian as needed. An important part of the library instruction program, therefore, is some type of interaction with the Librarian. At the time of this study, that
interaction was provided through an in person lab session during class in a computer lab. More specific, and more easily tested, goals of the library instruction program include:

- Analyzing question for key concepts and search terms
- Choice of best research resource
- AND/OR/NOT
- Access to online and print articles and books
- Quality and scholarliness of articles
- Library contact information and services
- Approachability of library staff

Implementing the Study

The study was implemented with the cooperation of two Social Work Research Methods instructors on campus and one in Des Moines. For the convenience of the reader, classes are designated On Campus A, On Campus B, and Off Campus. Each instructor graciously distributed a pre- and post-test to their students and facilitated either an in class library orientation or online tutorial and subsequent lab sessions with the librarian. Due to limited space in the computer lab, each on campus class was divided into two lab sections, but each student only worked with the librarian in one lab session. While students in the off campus cohort did participate in the pre-test, there were no usable responses to the post-test.

Timeline

- August 28, 2013: Link to the online pre-test was distributed to all three classes in the first week of the Fall 2013 semester and 59 results were collected between August 28, 2013 and September 9, 2013.
- September 3, 2013: In-person library orientation on campus provided to On Campus A. None of the pre-test responses collected after September 3, 2013 indicated they came from this section.
- September 10, 2013: First lab session for On Campus A and only lab session for Off Campus.
- September 12, 2013: First lab session held in On Campus B.
- September 19, 2013: Second lab session for On Campus B.
- September 24, 2013: Second lab session for On Campus A.
The study's 17 questions focused both on user behavior, knowledge of the library, specific outcomes of instruction and the section in which students were enrolled. Questions focused on how students normally began research, book and article citations, what is included in the library catalog, when to cite information, selecting databases, choosing search terms and ranking the scholarliness and credibility of several sources. This study yielded answers to two questions:

1. Does library instruction, online or in person, make a difference in students' research skills?

2. Is library instruction more effective in person or online?

**Hypotheses**

- Hypothesis 1: Students’ library research skills will improve after library instruction.

- Hypothesis 2: Students’ library research skills will improve at least as much or more after an online library orientation and hands on lab session than after an in person lecture followed by a hands on lab session.

Typical of academic library instruction, library instruction goals for MSW students are ambitious and require sharing detailed information in limited time. This can lead to overwhelming students with information and decreasing information retention. While developing a program of library instruction through asynchronous, online orientations, the researcher’s assumption has been that students will retain more if they can listen and observe demonstrations of search techniques, pause when needed and replay sections of the orientation.

**Analysis of Answers**

Several themes became evident in the analysis of the answers and are best explored by analyzing the pre- and post- test answers of individual questions. The survey did not require students to answer questions before proceeding and many of the 27 responses to the post-test did not include answers to all questions. Total answers to individual questions are included in the discussion when they are relevant.

The initial question about how students began the research process asked survey participants to choose one of five possible answers or to add their own choice in a text entry box:

- Ask friends or family
- Google or other internet search
- Wikipedia
- Head to the library
• Ask a librarian

• Other (with a text entry box)

In the pre-test, all text entry answers for the “Other” choice related to databases or resources provided by the library and may reflect confusion about what the library provides. More consistent answers might be solicited by rewriting the answer choice to read, "Head to the library online or in person."

Before the library instruction 79.63% of respondents started their research with Google or another Internet search service while 18.51% used the library or a resource provided by the library. No one claimed to ask a librarian at the start of his or her research. After online or in person library instruction, 60% started with Google or something similar, 33.33% used the library or a library resource and 6.67% (one person) asked a librarian.

Localizing the results to students in On Campus A, eight out of nine respondents (88.89%) started with Google while one answered "Other" and described library databases in the text entry before the in person library lecture. There was one significant difference in the post-test: While six out of seven respondents chose Google, one chose “Ask a Librarian.” While statistically small, this difference suggests that meeting the librarian in person encourages students to contact a librarian later when needed.

Results were slightly different in On Campus B. Before taking the online orientation, 15 students (83.33%) chose Google to start their research while two students chose the library and one chose “Other” and indicated library resources (combined 16.66%). After the online orientation, three out of seven students (42.86%) chose Google to start their research while two students chose the library and two chose “Other” and indicated library resources (combined 47.14%). That none of these students selected “Ask a Librarian” may suggest that online orientation—without a video of the librarian personally—does not make students more comfortable contacting a librarian.

Questions about identifying parts of a citation asked participants to type their answer into a text entry box. In both the pre-test and post-test, students in all sections were consistently able to recognize the journal title in an article citation.

Students had more difficulty recognizing the title of a book in a book chapter citation. On the pre-test, 26 out of 54 students identified the chapter title as the title of the book. On the post-test, one student out of 13 answered the question incorrectly.

Localizing the question results by section, four out of nine respondents answered the question correctly after in person library instruction while 11 out of 18 students who took the online orientation answered the question correctly. Six students out of seven answered the question correctly on the post-test in each section. One student who had in person library instruction declined to answer the question while one student who used the online orientation answered the question incorrectly.
An effort to avoid influencing answers about the University of Iowa library catalog during the pre-test created potentially confusing question. The question asked what a "typical" library catalog contained and included, among other choices, (a) information about books, videos, and other items in the library, (b) the complete text of all the journal articles in the library, and (c) both A and B. Both before and after the library instruction, roughly half the respondents chose A and half chose both A and B. There was no significant difference among sections. It is unclear whether students were basing their answer on the University of Iowa library catalog or what they perceive as a typical library catalog.

When asked which of four choices did not require a citation, 47 (87.04%) correctly answered “common knowledge.” After library instruction, all 14 students in both sections who answered the question answered correctly. There was no significant difference in answers given by students who received library instruction in person and those who received it through the online orientation.

Several aspects of the library instruction provided both online and in person are difficult to quantify and but still important to analyze in the study. A set of three questions was developed around a hypothetical situation. One question related to Boolean search strings had to be discarded due to a typographical error that changed the meaning of one answer. Students were asked to "...assume you are interested in researching the effect of religious beliefs on the provision of social services to rural populations.” They were then asked to choose the best database from four choices and recommend search terms.

Both the online orientation and in person lecture emphasize that different resources cover different journals. Since there is not a "correct" answer in real life, the test question asks whether Academic Search Elite (a general topic database), Sociological Abstracts (a subject database covering scholarly journals), Google Scholar (a search engine focusing on academic resources), or Social Work Abstracts (a database focusing on social work practice), would be the best resource for the topic. Although each resource is a reasonable choice, the researcher believes Sociological Abstracts would best provide scholarly articles on the topic. Neither the in person nor online library instruction used this particular topic as an example, but both versions of library instruction discussed scholarly articles and a variety of resources, including Social Work Abstracts and Sociological Abstracts.

On the pre-test, 40% (22) of respondents chose Social Work Abstracts as the best choice, 29.09% (16) chose Academic Search Elite, 21.82% (12) chose Sociological Abstracts and only 9.09% (5) chose Google Scholar. Ebsco’s Academic Search products are used widely in Iowa and are available to public high schools statewide. Although students in the Master of Social Work program can come from anywhere, the majority of students are from Iowa and it is safe to assume they are at least familiar with Academic Search Elite and Google Scholar, which may account for both the popularity of Academic Search Elite. Students may also associate Google with less scholarly sources and transfer that feeling to Google Scholar. The majority of students (44.44%) in the section receiving instruction through the online orientation chose Academic Search Elite while 44.44% of students in the section receiving in person library instruction preferred Social Work Abstracts. As these results were on the pre-test and no library instruction
had yet taken place, these results are an interesting baseline. Students may have chosen Social Work Abstracts based only on the name.

On the post-test, 50% (7) of total respondents chose Social Work Abstracts as best, followed by Academic Search Elite with 28.57% (4), Sociological Abstracts with 14.29% (2) and Google Scholar with 7.14% (1). This finding surprised the researcher and is causing a re-evaluation of how database choice is covered in library instruction for Social Work. Interestingly, students who received in person library instruction still preferred Social Work Abstracts (57.14%), a 12.7% increase, with 14.29% preferring each of the other choices. After taking the online orientation, students equally preferred Academic Search Elite and Social Work Abstracts (42.86%), a slight decrease (1.58%) from the pre-test results for Academic Search Elite and an increase (9.3%) for Social Work Abstracts. Both forms of library instruction seem to have affected students’ database choice, though not in the way anticipated by the researcher. The online orientation seems to increase self-efficacy in choosing databases, perhaps because students can return to the orientation to remind themselves about the characteristics of the databases.

There was no significant difference between the pre-test and post-test for all students in choosing alternate search terms for the idea of "rural populations." The final eight questions asked students to use citations and abstracts, when available, to rate the scholarliness and credibility of four articles using a 10-point scale.

The first article, from Church & State, discusses news related to a controversial issue in Indiana. The 52 students who answered the question on the pre-test gave it a mean score of 2.96 for scholarliness and 3.77 for credibility while the 11 students who answered the question on the post-test gave it a mean score of 3.64 for scholarliness and 4.79 for credibility. Students in On Campus B rated the article 2.67 for scholarliness and 3.78 for credibility before taking the online orientation and 3.20 for scholarliness and 3.71 for credibility after taking it. Before in person library instruction, students in On Campus A ranked the article 2.78 on scholarliness and 3.56 on credibility but ranked the article 4.00 on scholarliness and 5.86 on credibility afterward.
The second article, from *Adults Learning*, discusses a community leadership course aimed at building trust and understanding between faith communities in England. The 50 students who answered the question on the pre-test ranked it 5.76 on scholarliness and 5.98 on credibility. Fourteen students answering the question on the post-test ranked it 7.0 on scholarliness and 7.14 on credibility. Before taking the online orientation, 18 students in *On Campus B* ranked the article 5.78 in scholarliness and 5.72 in credibility but seven students ranked it 6.14 for scholarliness and 6.29 for credibility after the online orientation. In *On Campus A*, eight students ranked the article 5.5 on scholarliness and 6.71 on credibility before in person library instruction and seven students ranked it 7.86 on scholarliness and 8.0 on credibility after.
An article from the website Terrain.org was ranked 3.4 for scholarliness and 3.71 for credibility by 48 students on the pre-test and 3.0 for scholarliness and 2.54 for credibility by 13 students on the post-test. In On Campus B, 17 students ranked it 2.71 for scholarliness and 3.33 for credibility before the online orientation and 2.43 for scholarliness and 2.57 for credibility after. Eight students in On Campus A ranked the article 3.25 in scholarliness and 3.38 in credibility before in person library instruction and six students ranked it 3.67 for scholarliness and 2.5 for credibility after.
The final article, from the *Journal of Personality*, compares the findings of three national surveys on religiosity. Before library instruction of any sort, 51 students ranked it 8.45 for scholarliness and 8.12 for credibility and 14 students ranked it 8.86 for scholarliness and 8.79 for credibility after library instruction. Before the online orientation, 18 students in *On Campus B* ranked it 8.56 for scholarliness and 7.56 for credibility while seven students ranked it 8.57 for scholarliness and 8.71 for credibility after the online orientation. In *On Campus A*, nine students ranked the article 8.11 for scholarliness and 8.11 for credibility before in person library instruction and seven students ranked it 9.14 for scholarliness and 8.86 for credibility after.
One interesting finding from these results is that students were successfully able to differentiate more and less scholarly articles, although any library instruction seemed to increase the perception of scholarliness. Students who took the online orientation showed less extreme changes in their rankings than students who had in-person library instruction.

Another interesting finding is that students seemed to correlate scholarliness with credibility. Although each of the four sources was considered credible by the researcher, students consistently gave higher credibility scores to articles they rated as more scholarly.

**Limitations of Study**

There are several significant problems with this study that should be addressed in future research:

- **Sample Size:** Although the size of the sample for the study is limited by the enrollment of the Social Work Research Methods classes, it is unfortunate that there was such a small response on the post-test and particularly problematic that none of the usable post-test responses came from the single off-campus location. It may be useful to repeat the study when the course is offered at other off-campus locations.

- **Typographical error:** The typographical error that rendered the question on Boolean search strings unusable was particularly regrettable.
Unclear Questions: Rephrasing questions about the library catalog and catching the typo in the Boolean search string might have provided interesting information.

Timing of the post-test after library orientation: In order to test the effectiveness of an orientation combined with a lab session, the post-test was not made available to any group of students until after their lab session. Scheduling issues for the three classes created a situation where students in the in person class might not get access to the post-test until four weeks after the in person library instruction lecture while students in who took the online orientation could take the post-test the following day. From the date stamps of when students actually took the post-test, it seems most students took the post-test soon after it became available to them.

Conclusions

The data show clearly that students’ library research skills improve with library instruction. In person lecture seemed to make students more comfortable with the library, but did not necessarily provide better retention of information. Online orientation seemed to increase students’ self-efficacy. Given the convenience of the online orientation for librarians, teachers and students, it seems reasonable to continue developing the online orientation and incorporating more “personality” to encourage the comfort students found from the in person contact with a librarian.

The first hypothesis stating that library instruction in any form would lead to an improvement in students’ research skills was borne out. For the second hypothesis, it is less clear that students receiving the online tutorial would improve at least as much or more than students receiving in person instruction.

Implications for Practice

In person communication, by its personal nature, automatically fosters a relationship between librarian and student. That relationship can be built on and used to help students feel more comfortable contacting librarians. It may be possible to facilitate a similar relationship through asynchronous communication methods like video or writing, but there are more barriers to overcome. The advantages in convenience and portability of the online orientation are useful, but it may be helpful to use videotaped welcome or other more personal message to increase the “personality” of the online orientation and help foster relationships with off-campus students.
References


Mobile Resource Use in a Distance Learning Population: What Are They Really Doing on Those Devices?

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Zach Young  
Frontier Nursing University

Abstract  
Mobile device use has been soaring in recent years in all user groups. Mobile learning is no longer an optional activity for academic institutions, but a necessary endeavor. Developing a curriculum around mobile learning is essential, particularly for distance-based, non-traditional students. Understanding how students use their mobile devices is important to supporting mobile learning initiatives. Student survey responses were examined to determine how students use mobile devices in education. Librarians must stay on the forefront of mobile technology by using their skills in curating and teaching to support this important educational initiative and to become leaders in this area.

Introduction  
There is little argument that mobile technology is ubiquitous. According to data from a June 2013 report, 56% of American adults own a smartphone, and that percentage is much higher (70%) for college-educated adults (Pew Internet & American Life Project, 2013). In a September 2013 report, 43% of Americans 16 and older reported having either a tablet or an e-book reader (Pew Internet & American Life Project, 2013). These mobile devices are being used for a wide variety of activities and tasks such as email, web browsing, gaming, shopping, and much more. Using mobile devices for learning activities is another inevitable use. Mobile learning is a burgeoning field within educational technology that deals with this phenomenon. Despite its relative infancy, many definitions and even theoretical frameworks have been developed to describe mobile learning. Traxler (2007) noted that mobile is not just an adjective describing a new type of learning, but that mobile learning is “an entirely new and distinct concept.” Koole (2006) developed a theoretical model for mobile learning based on device usability, learner, and social aspects. She then used the model to evaluate mobile devices. Kearney, Schuck, Burden, and Aubusson (2012) expanded on that framework to include understandings on mobile pedagogy, citing personalization, authenticity, and collaboration as three distinctive features of the revised model. El-Hussein and Cronje (2010) also investigated mobile pedagogy, and devised a definition of mobile learning that includes mobility of technology, mobility of learners, and mobility of learning itself. What all these definitions have in common is describing the process of learning mediated by a mobile device (Kearney, Schuck, Burden, & Aubusson, 2012). At its simplest, mobile learning is the provision of education on a mobile device (Yousef, 2007).
For the non-traditional distance student, a mobile device offers a convenient opportunity for learning. These students are most often juggling other responsibilities in addition to their coursework, and therefore may rely more on a mobile device for accomplishing tasks, including studying and completing coursework. Yousef (2007) notes that distance educators have always provided resources that could be used at a time and place convenient to the student. Mobile learning is a logical extension of flexible course delivery for distance education.

As mobile devices proliferate, it is important to examine and develop the potential for mobile learning with distance students. Understanding how students actually use their devices, and what apps they prefer to use, can help with this activity. Librarians, with their skills in curating and teaching, are poised to lead initiatives for mobile learning in their institutions.

**Background**

Frontier Nursing University (FNU) is a private, non-profit, distance-based graduate school of nursing offering Doctor of Nursing Practice and Master of Science in Nursing degrees for students seeking to become Certified Nurse-Midwives, Family Nurse Practitioners, or Women’s Health Nurse Practitioners. Courses are offered completely online with two on-campus visits, an orientation and a clinical intensive. In 2008, FNU began a project to both increase mobile-ready content within online courses and introduce students to clinical reference resources on handheld devices. Faculty created podcasts and videos to supplement or replace text-based material in their courses. These resources were made available in downloadable format so that students could view or listen to them on their mobile devices. Clinical reference resources available on mobile platforms were selected to add to the library collection and be used within the curriculum. Library faculty were heavily involved in the selection of materials, training, and troubleshooting of these resources from the beginning.

As part of this initiative, the university provides all clinical students with drug and clinical reference apps to improve their access to information while completing their clinical rotations. For the first three years of the project, Epocrates Essentials was used as the main drug reference. In July 2011, it was replaced with the Lexi-Complete suite of databases from Lexicomp. DynaMed, a clinical reference resource from EBSCO, is also provided, as well as Natural Standard, a complementary and alternative database. Both of these apps are included in the library’s subscription to the web products, and the mobile versions run through the free Skyscape app. Another clinical reference in the library’s collection, Essential Evidence Plus from Wiley, has a mobile website which is given to students. The library’s subscription to The Prescriber’s Letter also allows students to download the app. Other free apps such as Epocrates Rx and Mobile Prescribing Reference (MPR) are recommended to students. Evernote and Dropbox are also suggested to students as beneficial apps for keeping track of information they need to recall quickly and for document storage. Information on these apps is provided to students through a non-credit online course that aims to prepare them for their clinical experience.

Just prior to beginning their clinical rotations, students come on campus for an 8-day intensive on clinical skills. During this time, librarians conduct a one hour and 15 minute session where they demonstrate select apps that have been provided or recommended. The majority of the session focuses on using Lexicomp as a drug reference. Instruction on using DynaMed and
Natural Standard via the Skyscape app is also included. If time allows, the mobile website for Essential Evidence Plus is shown (including instruction on how to create an icon on the home screen to go directly to a website in iOS), and the Evernote and Dropbox apps are discussed. Finally, students are asked to share other apps that they use.

To evaluate the project and further investigate students’ mobile use, student surveys were examined. The objectives of the examination were to determine if mobile device use allowed for additional study time for students, if students utilized library provided resources, and to discover potentially unknown mobile resources utilized by students.

Methodology

FNU has four 11-week terms in its academic year. Students are asked to complete a satisfaction survey at the end of each term. For this study, survey data from Summer 2012 through Spring 2013 was analyzed. The average enrollment during this period was 1,426 students. An average of 480 students responded to the survey in each of the four terms, for an average response rate of 34%. Some questions that did not require an answer or were not applicable to all students had lower response rates. Students were e-mailed a link to the survey and responses were collected in SurveyMonkey.

The survey includes a variety of questions about students’ use of mobile devices and resources in order to monitor the institution’s mobile learning initiative. Responses to these questions were analyzed for usage patterns and trends. In particular, students were asked in a free response question to name up to five apps that assist with their education at FNU. Over the four terms, 1,092 students listed at least one app in response. The responses were collected and counted to determine which apps are most popular with FNU students. To be counted, the response must have been a recognizable app. Answers that referenced computer software or devices instead of mobile apps were not counted. Likewise, responses such as “n/a” were also discarded. Different spellings and name variations were taken into account. Some responses were grouped together under a more general term. For example, “Safari,” “browser,” “Internet,” etc. were all categorized as “Internet browser.” Likewise, many different apps for creating flashcards were grouped together.

Results

As shown in Figure 1, over 50% of students responding to the surveys felt that having a mobile device allowed them more time in their day to study and complete coursework. Additionally, in Spring 2013, 85% of students reported that they used their mobile device to assist with schoolwork at least occasionally. This percentage increased from a low of 78% in Fall 2012. Students that used their mobile device for school work often or very often rose from 55% in Fall 2012 to 62% in Spring 2013 as shown in Figure 2. Mobile devices are also used frequently to access institution-specific information such as email, directory, catalog, calendar, announcements, and academic resources. In Spring 2013, 85% of students acknowledged using their devices for these purposes.
Students participating in clinical practicums displayed even higher usage of mobile devices. Though usage declined slightly in Spring 2013, in Winter 2013, 93% of clinical students reported using their mobile device to access information to assist in clinical at least occasionally. Seventy-nine percent of students used their mobile device for clinical information often or very often. These results are displayed in Figure 3.
Over 300 different apps were named as being used to assist students with their education over the four terms. There was a notable variance in the number of apps mentioned each term, shown in Figure 4. The number of unique apps listed rose by 15% from Summer 2012 to Fall 2012, with another 12% increase from Fall 2012 to Winter 2013, reaching a high of 157. However, in Spring 2013, the number dropped to 141, nearly equal to the Fall 2012 level. Figure 5 shows the 20 apps mentioned most often and their percentage of the overall total of apps mentioned. Epocrates, Lexicomp, DynaMed, Email, and AHRQ were not only the top five apps overall, they were consistently ranked as the top five apps each term, though not always in the same order. Health care related apps accounted for 12 of the top 20. The number of mentions for all apps fluctuated throughout the four terms, both in raw numbers and as a percentage of all responses. Figure 6 shows the fluctuation by percentage of responses for selected apps. Email was named fairly consistently, with between 40 and 49 mentions each term, though percentage-wise it dropped in popularity from a high of 18% in the first term to a low of 14% in the last. Skyscape and Internet browser also had consistent levels of popularity. Skyscape was mentioned 5% to 6% of the time in all terms, with Internet browser being named 4% to 6% of the time. Epocrates showed a slight but steady decline over the four terms, with 33% of mentions in Summer 2012 and 23% in Spring 2013. The Sanford Guide also decreased in popularity, going from 11% of mentions in Summer 2012 down to 4% in both Winter 2013 and Spring 2013. Dropbox saw a significant increase in popularity from 6% in Summer 2012 to approximately 11% in the next three terms. Flashcard apps became more popular during this period as well, jumping to 7% of mentions in Spring 2013 from 4% in the previous terms. Essential Evidence Plus also had a marked increase in mentions, from approximately 3% in the first three terms to 6% in Spring 2013.
Figure 4. Number of unique apps mentioned by students.

<table>
<thead>
<tr>
<th>Mobile Applications</th>
<th>Percentage reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epocrates</td>
<td>28.30%</td>
</tr>
<tr>
<td>Lexicomp</td>
<td>24.91%</td>
</tr>
<tr>
<td>DynaMed</td>
<td>19.51%</td>
</tr>
<tr>
<td>Email</td>
<td>16.40%</td>
</tr>
<tr>
<td>AHRQ</td>
<td>16.39%</td>
</tr>
<tr>
<td>Medscape</td>
<td>12.45%</td>
</tr>
<tr>
<td>Blackboard Mobile</td>
<td>11.81%</td>
</tr>
<tr>
<td>Dropbox</td>
<td>9.80%</td>
</tr>
<tr>
<td>iGeriatrics</td>
<td>6.23%</td>
</tr>
<tr>
<td>Sanford Guide</td>
<td>5.95%</td>
</tr>
<tr>
<td>Skyscape</td>
<td>5.31%</td>
</tr>
<tr>
<td>Flashcards</td>
<td>5.13%</td>
</tr>
<tr>
<td>Internet browser</td>
<td>4.95%</td>
</tr>
<tr>
<td>Micromedex</td>
<td>4.76%</td>
</tr>
<tr>
<td>pregnancy wheel</td>
<td>4.21%</td>
</tr>
<tr>
<td>EE+</td>
<td>3.75%</td>
</tr>
<tr>
<td>podcasts</td>
<td>3.75%</td>
</tr>
<tr>
<td>Evernote</td>
<td>3.57%</td>
</tr>
<tr>
<td>Facebook</td>
<td>3.30%</td>
</tr>
</tbody>
</table>

Figure 5. List of 20 apps mentioned most often and their percentage of total responses (n=1092).
Students at FNU are increasingly using mobile devices as learning tools. Well over 50% of students reported using their mobile device to assist with schoolwork. With steady growth in positive responses to this question, it appears this trend will continue. Student comments from the survey revealed more specific information on how these devices are being used as learning tools as shown in Figure 7. However, some students expressed frustration with mobile technology, also shown in Figure 7. Still, the majority of students reported that having a mobile device allowed them more time in the day to study and complete coursework. This finding is consistent with the Pew Internet & American Life Project’s report from November 2012 that found that 44% of smartphone owners said that their phone saves them time due to being able to access information at all times. The higher rate of students who agreed that a mobile device is a time saver indicates that students may appreciate the time saving capabilities of a mobile device more than the general population.

Results of this study also indicate that mobile learning is of particular importance for students completing a clinical practicum. An average of 88% of clinical students reported using a mobile device to access information while in clinical. In their 2013 Mobile Trends Report, Epocrates predicts that by 2014, 9 in 10 healthcare providers will be using a smartphone in their practice (Epocrates, Inc., 2013a). The high adoption rate of mobile technology by students will prepare them well for their professional practice.

Asking students to list their most helpful apps is an interesting insight into how they think of mobile technology. Free response was chosen over multiple-choice options so that students would not be influenced by listed choices. However, a limitation of this choice is that names of apps can be problematic. Students previously received Epocrates Essentials, and can also use Essential Evidence Plus. The similarity in names created responses such as “evidence essentials,” making it hard to know which app the student was referring to. Likewise, DynaMed,
Skyscape, and Medscape are so similarly named that it is easy for students to confuse them. To further complicate matters, DynaMed (and Natural Standard) run through Skyscape, meaning that the Skyscape app must be installed, and in some cases opened first, to access the other content. Students indicating Skyscape as a helpful app could be using DynaMed, Natural Standard, any of the various free resources that Skyscape provides, or some combination thereof. This ambiguity may decrease the validity of the results.

Some of the free responses also indicated a lack of understanding of terms surrounding mobile technology. Many items listed, including two in the top 20 (Essential Evidence Plus, podcasts), are not even apps. Essential Evidence Plus has a mobile website instead of an app. A few responses indicated the library website as a useful “app,” but the FNU library has neither an app nor a mobile website. Podcasts, while something consumed on a mobile device, are usually not considered apps in and of themselves. The question could be revised to define “app” in a stricter sense, but gaining an overall impression of mobile use rather than just most popular apps could be beneficial. For future studies the question could instead ask students how they use their mobile device to help with their education.

<table>
<thead>
<tr>
<th>Positive Comments</th>
<th>Negative Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Used to listen to blackboard and camtasia while doing household tasks, commuting or exercising.”</td>
<td>“I still don’t understand how to use my mobile devices for school work.”</td>
</tr>
<tr>
<td>“Best for listening to lectures while doing other things like driving, walking or cleaning”</td>
<td>“I prefer to use my laptop for ALL schoolwork. It allows for easier reading and usage.”</td>
</tr>
<tr>
<td>“Portable and can study waiting for appointments, when it’s slow at work, when riding in the car as a passenger”</td>
<td>“I wish I could have some instruction on how I can utilize my iPhone more. Technology use is not intuitive for me but I believe that I will need this more and more as my coursework progresses and would love to be and feel more proficient with mobile device use.”</td>
</tr>
<tr>
<td>“My iPod was very useful in supplementing classes with the videos &amp; lectures, a great resource.” (Fall 12)</td>
<td>“I used [app name redacted], which has a good deal of overview information, but was very buggy, constantly updated, and frequently crashed.”</td>
</tr>
<tr>
<td>“I use Dynamed and Lexicomp daily at work. I am so grateful for access to these services and that I was taught how to effectively use them at clinical bound.”</td>
<td>“It’s too small, so I just occasionally used my phone to check my email.”</td>
</tr>
<tr>
<td>“I use an app [on] my iPad to review all of the journal articles I read, and also to take notes on any PowerPoint lectures (and write on the slides through an iPad app). I find both of these features very useful for my studies.”</td>
<td></td>
</tr>
<tr>
<td>“I got the electronic version of the pathophysiology textbook so I could take it with me everywhere instead of lugging a 10 lb book everywhere and it was the best purchase I’ve ever made.”</td>
<td></td>
</tr>
</tbody>
</table>

Figure 7. Qualitative responses from students regarding mobile device usage.

Apps that were distributed by the school (Epocrates, Lexicomp, DynaMed) were the most likely to be listed as helpful with education. Apps suggested or required within courses (AHRQ
Apps that were suggested or demonstrated by librarians (Dropbox, Evernote, MPR) also made the list of most helpful. Conversely, an app didn’t necessarily have to be recommended to students to be popular with them. Blackboard Mobile is not officially supported by FNU yet was the seventh most popular app overall. Twenty-four students listed the Blackboard Collaborate app, which is not available under FNU’s Blackboard Collaborate license.

The most popular overall app, Epocrates, presents another ambiguous situation. As mentioned previously, clinical students received Epocrates Essentials (or Epocrates Essentials Deluxe, which is no longer available) from July 2008 until June 2011, when it was replaced with Lexicomp. Epocrates Essentials is a comprehensive clinical reference app with drug and disease information (Epocrates, Inc., 2013b). Epocrates also offers Epocrates Rx, a basic drug reference app, which is free. Once FNU began providing Lexicomp, Epocrates Rx was still recommended as an additional app for clinical students. At the beginning of the study period, students who had received Epocrates Essentials from the school may still have been enrolled, but that number would have decreased as the study went on. Graduation of students who received Epocrates Essentials could explain its gradual decline in popularity, but overall “Epocrates” was still mentioned the most frequently. It appears that for many respondents, “Epocrates” refers to the free Epocrates Rx. Students who received Lexicomp must be using the free app supplementally.

There has been much debate over the utility of mobile apps as compared to mobile websites as discussed by Charland and Leroux (2011). Results of this study suggest that the mobile web is an important part of students’ mobile device use. Various terms to describe browsing the Internet were consistently indicated as helpful with educational pursuits. It can be reasoned that while there is an app for most things, students need the freedom to search the web when apps alone are not providing what they need.

For advanced practice nursing students, health care apps were obviously important as 12 of the top 20 were specifically related to health care. Communication is another key use of a mobile device, as evidenced by the popularity of email and Facebook apps. Students were not listing their favorite apps overall, but most helpful apps for education. Given that Facebook’s Third Quarter 2013 report states that there were an average of 507 million mobile daily active users in September 2013 (Facebook, Inc., 2013), it is likely that more than 36 FNU students use Facebook on a mobile device. However, these 36 felt that it helped them with schoolwork. Some even added comments explaining that they used the social media app to keep in touch with classmates and study groups.

Productivity apps such as Dropbox and Evernote have untapped potential in the educational setting. Students are beginning to use these apps, perhaps at the suggestion of librarians, but a concentrated teaching effort could increase their use and expand their capabilities. Clinical students, or any students with a professional practicum, need to be able to quickly recall facts and other information from their coursework. Evernote, with its capability to tag notes and organize them into different notebooks, presents an excellent solution for having that information readily accessible. While students may be familiar with the concept of tagging prevalent in social media, they will need guidance from librarians to create effective taxonomies relevant to their profession.
Mobile learning is an important component of distance education. The flexibility it offers non-traditional distance students makes it an ideal method to access, deliver, and store content. It must be considered as a core service point for academic libraries serving distance education programs.

Providing and demonstrating apps will make students more likely to use them, but they will also seek out apps on their own to use in their education. Thus librarians and other educators working with mobile technology need to be prepared to help students on both fronts. They should proactively make efforts to include apps and other mobile resources in their instruction. Using mobile technology in teaching requires additional knowledge, skills, and creativity. Educators should also react to students’ mobile usage patterns. First they should determine what resources students are using and then share those resources with other students. This sharing can be accomplished in instruction and/or by creating a mobile resources guide, which lists preferred apps and their uses for the learning community.

With so many students using mobile devices, it is imperative that institutional resources be available on a mobile platform. These resources include not only access to the school’s learning management software, but informational items such as calendars, directories, and announcements. Students see communication as an important use of a mobile device. Institutions in higher education can use mobile technology as an opportunity to reach out and connect with their distance students.

As ubiquitous as mobile technology is, there will still be some students who are not comfortable with it. The terminology is often confusing and the technology changes at a rapid pace. Once again, librarians can ease student reluctance with instruction and readily available guidance information.

Librarians’ traditional skills, expertise, and ability to stay current with technology are indispensable in a mobile learning environment. They can and should be prepared to lead mobile initiatives within their institutions.
References


Teaching an Online Information Literacy Course: Is It Equivalent to Face-to-Face Instruction?

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Molly Montgomery
Idaho State University

Abstract
College-level students arrive fairly confident in their research abilities, but the when the university began a new requirement for information literacy competency in the General Education Requirements; distance library faculty had the opportunity to teach an online section. A technologically savvy health science librarian and technologically challenged distance librarian co-taught the online section while there are four face-to-face sections taught at the main campus. The goal was to teach the same competencies, present equivalent material and assess learning with equal rigor in all five sections. The sections agreed to similar final projects and final exam, and a non-graded knowledge survey has been given to students in all sections at the beginning and end of the semester as a pre-and post-test to help assess if the online course is equivalent to the face-to-face sections. Other factors in teaching experience and technology also affect the student competencies.

Introduction
With the plethora of Internet sources readily available, students have become very adept at using electronic media, but the popular search strategy locating resources for research materials has become a random search of the Internet. In addition, evaluating sources and selecting materials for research is a difficult task for many, so students often just pick the ones they “like.” Idaho State University offered a two-credit course for several years, but with budget restraints and staff shortages, this was changed to a one-credit course, and enrollment was advised mostly for the remedial students. However, as a one-credit course, many students felt it was too much work, and they focused on assignments for the courses with more weight, and the success rate was low.

With a revision of the university General Education Requirements, the Information Literacy component is required for all programs beginning with the Fall 2013 semester. Several departments quickly developed an information literacy course focusing on information issues in their discipline, although they were not all approved. The Nursing Department opted to require the course offered through the College of Arts and Letters, which is taught by library faculty. There are four sections (three traditional face-to-face) offered at the main campus, and one online section co-taught by librarians at extended sites at opposite ends of the state.
When the information literacy competency finally was incorporated into the General Education Requirements, the library faculty asked the librarians that did the most library instruction to teach the course. However, both of the instructors for the online section were new to the information literacy course and one instructor was new to teaching at any level for any course. Both were ready for the challenge, although unsure about many issues related to online course development.

**Literature Review**

There are several recent articles about online instruction intended for students, faculty and higher education administrators. Useful articles for new online instructors focused on “best practices” and were authored by instructional design professionals. Tunks (2012) explained the effective use of Web 2.0 tools to personalize classes and engage students, one of the most important factors in student success in an online class. Tunks emphasized that there are many instructional tools (including Web 2.0 tools) and the selection should be based on how the tool will be used, and the students should be made aware of any technology demands at the beginning of the term, beginning with a few informal or trial projects and ample opportunity to address questions and concerns, and gather feedback from the students. In addition, Tunks recommends students reflect on how they might use the tool in their own discipline or personal life (2012).

McGee and Reis (2012) focused on course design “best practices,” beginning with “defining course objectives before coming up with course activities, assignments and assessments” (p. 11). McGee and Reis also noted that writing those objectives from the student perspective will aid in implementing active learning practices. After developing all objectives, then a course outline and syllabus should be prepared, with time allotments carefully aligned throughout the semester. McGee and Reis noted several studies that demonstrate “varied interactivity and prompt feedback are keys to student engagement” (p. 13). Further studies found that “student motivation decreases when technology is at odds with or superfluous to instructional outcomes,” (p. 15) and that technology selections be adept to student mobility, access and potential for future use. Arispe and Blake (2012) did a study of various personality traits in a hybrid course and found subjective evidence that all students benefitted from a synchronous chat element, encouraging instructors to implement online chat to engage with students.

Lorenzo (2011) assessed learner engagement and academic success in community colleges with online components, and found several key factors. The first is to recognize the importance of student engagement for student success and retention, and to use Web 2.0 tools to optimize student engagement for online students. Lorenzo quotes Instructional Designer Brenda Ward Watkins, suggesting that “anything you can do in a face-to-face course, you can do online” (p. 8). McClenney’s research claims ‘intensive student engagement is key to student success and needs to happen early and often…” (as cited in Lorenzo, 2011, p. 8).

Articles on library instruction in the online environment usually focus on being embedded into a course, comparable to presenting a one-time research presentation. However, Usova (2011) describes the steps to developing a hybrid course addressing the Information Literacy Competency Standards developed by the Association of College and Research Libraries.
Usova’s instructional design includes determining the learning goals, creating ways for students to learn before, during and after class. In addition, Usova encourages using multiple forms of communication, collaboration, utilizing online resources, and a variety of assessment measures. Usova encourages instructors of online and hybrid classes to seek professional assistance for information technology and class management systems, they can be very time consuming. In addition, Usova emphasizes the importance of keeping materials organized and providing timely communications with students as vital elements of success.

**LLIB 1115 Course Development**

Although librarians are great at providing assistance for students with their research, many have little or no education background such as preparing assignments, assessing student work, and other educational issues important for effective instruction. One online class instructor for this course has an undergraduate degree in elementary education with limited technology expertise. The other instructor was more technologically savvy, but was new to teaching and new to the university. So, developing a course and teaching materials with an approach to develop skills and understanding based on educational theories and methods required the cooperation of both instructors.

The instructors for all sections of LLIB 1115 Information Literacy met and discussed the competencies and goals submitted with the course proposal early in June 2013. We agreed to require an annotated bibliography for the final project, requiring between 15-20 sources they would gather throughout the semester in various assignments. All instructors agreed to have a final comprehensive exam. An ungraded “knowledge survey” would be given to the students as a pretest and posttest to help assess if the online class instruction was equivalent to the sections taught in the face-to-face traditional format.

After all the instructors reviewed the competencies and goals for the course, the instructors for the online section developed a list of key concepts and skills important for student success, and compiled it into a plan for the semester. One instructor was eager to develop tutorials and quizzes and began preparing in early June for the Fall semester class. The other instructor, on a 10-month contract and off for the summer, reviewed the materials developed and corresponded with the co-instructor via e-mail.

Probably the most challenging factor at this point was selecting a text. Both sections taught at the main campus were requiring a text, and planned to use it heavily throughout the semester. The online instructors had a goal to present equivalent content and assess competencies at the same level of rigor as much as possible. However, we were unable to locate a current text that covered all the information literacy skills and concepts well, so we chose *The Curious Researcher* (Ballenger, 2011) and *Research Strategies: Finding your way through the information fog* (Badke, 2011) and several supplementary articles. The students for the online section were encouraged to purchase the texts in e-book formats, alleviating the stress of getting to the correct university bookstore facility that actually had them in stock, especially for distance students.
Both instructors for the online section are librarians at distance sites, in Meridian and Idaho Falls, and the Instructional Technology Resource Center (ITRC) for faculty assistance with Moodle (the class management system used by the university) has a staff member in Meridian, so the librarian in Meridian set up and maintained most of the Moodle material. As the Idaho Falls instructor became more daring, the Moodle system was maintained by both. The ITRC staff recommended we use SlideRocket to develop our tutorials, which was easy to learn and develop screencasts. However, at the end of the summer, the ITRC announced this software would no longer be available, so we had to quickly purchase and learn new software. Camtasia (Techsmith) was purchased, and the Meridian instructor continued developing tutorials. Eventually a second license for Camtasia was purchased for the Idaho Falls instructor in late October: a little late to be useful for developing tutorials.

Most of the tutorials developed for the class provided a brief introduction to a topic and/or explained an assignment, and were five to seven minutes long. Many students commented that they really appreciated all the time devoted to developing tutorials specifically for this class. In addition to this appreciation, the ease of developing the videos relieved their fears about developing their own presentations for the final project.

Assignments & Assessments

Active interaction with the students was an important part of the course from the beginning of the semester using the online forum, and we had some very intriguing “discussions” online. It amazed both instructors that issues on copyright, fair use and the costs of information were so fascinating to the students! The theoretical approach to entice the students to learn more about information management worked. Then, we progressed to library orientation of how materials are organized, what services are available for distance students, and when we finally got to the research process in the sixth week of the semester, they were eager!

Part of the final project was to develop an annotated bibliography on a topic the students chose, although we suggested it be an issue relevant to their area of study. The last half of the semester, we led the students to various formats of information to select three-four sources on their topic. For each source, the citation was required in either APA or MLA format, and the annotation required an evaluation of the source for scope, currency, objectivity, reason and expertise (SCORE), a summary paragraph which also explained the relevance of the material to their topic, and their search strategy. Although the students were eager to start their research, the quality of the first assignment was a major disappointment for the instructors. We had used tutorials to explain the citation styles, the students had done well on a quiz on the style used in their program, and they did a practice annotation assignment. Yet the citations were filled with major and minor errors, and we wondered if the students could identify the major elements of a citation! Where had we gone wrong?

Up to this point most graded work for the class was submitted online, such as multiple-choice quizzes, responding to specific questions in a forum. The exception was the library orientation section, which included a list of questions to briefly answer on the worksheet. The annotations for reference works was the first assignment requiring them to provide citations in an acceptable format, using paragraphs to explain their search strategy and the relevance of the
source to their topic. Both instructors used TrackChanges in MSWord to review each assignment, and the scores were added together for one grade that reflected the assessment of each instructor. We developed a rubric to help assess the annotations and citations, and that helped tremendously. We posted the rubric to the online class, and used it to explain our grading, and the students improved tremendously on the next several annotation assignments.

In grading, both instructors noticed that the student work was assessed at different levels, one more casual and lenient than the other, so the dual approach to grading was very effective. Also, the rubric helped develop a consistency that reflected justification for the grades. Without the rubric, the grades appeared to be assigned inconsistently and with nonchalance.

Each new resource format had difficulties for the students with their citations, and the most challenging format was the online government documents. We reserved websites for the last format of the semester for the students to find resources on their topic, hoping the previous weeks of citation scrutiny would help. All the assignments provided citations that were easy to locate again using Google, however once again, the errors were overwhelming. The students tended to use the same format for websites as for articles or books. The idea that government documents are often authored by government agencies was a totally new concept to most. Several students visited with the instructors about how to find the publisher of a website and other citation elements required by both APA and MLA. In assessing the annotations, both instructors kept APA and MLA handouts at their fingertips, referring often to the pages for less frequently used formats, such as videos and interviews. Reviewing the annotations for the websites consumed more time than any annotations assignment, yet students prefer using websites in their research!

Most students appreciated the SCORE assessment rubric, which was developed to help determine whether a source should be used for college-level research projects. Many students are aware that there are unreliable sources of information, especially on the Internet, but recognizing quality sources is difficult for most. Evaluating sources on citation elements is fairly straightforward. However evaluating a source based on accuracy of information is difficult when the topic is new, controversial or dependent on prior knowledge, so students are encouraged to assess how the authors attained the information, and the reason for sharing the material. Presented in a video tutorial for the online section (see: http://isu.libguides.com/aecomtent.php?pid=464344&sid=3802046), points are awarded to an article, book, website or other source based on:

- **Scope**: Level of depth, as determined by the intended audience (professional vs. popular).
- **Currency**: Information is current and valid.
- **Objectivity**: Where/how the author(s) attained the information, as evident by documentation.
- **Reason**: Author’s purpose.
- **Expertise**: Author’s background & credentials.
The SCORE assessment results in a “credibility score” for each source, but does not factor in relevance. The students are to make their own judgment about the information presented, and whether it would enhance the understanding of their research. However, students often attempted justifying sources they “liked” although the evaluation revealed a source to be low on the “credibility” score.

**What We Learned**

As we progressed through the semester, we found several issues that the literature did not address that will be factored in future classes. The first key to teaching online is to be willing to try new things. Technology enables many activities for online students, and many of those can be adapted to traditional instruction, but the willingness to try is important. Students will recognize the attempt and view the instructors as versatile and willing to learn, which helps develop camaraderie in the class. Also, when students saw that the instructors were still learning, the students did not expect perfection and the instructors found that the students were willing to try new technologies they were not willing to attempt before.

The next important factor is everywhere in the literature: to develop your goals, objectives and competencies as the first step to planning the course. The activities, assignments and assessments should all be reflected in these, as presented by Lorenzo (2011), McGee and Reis (2012) and Usova (2011). Each assignment was revised with the idea that we wanted to the students to be excited about the resources available to them, and encourage them to share what they learned with other students. The final annotated bibliography is supplemented with a narrated PowerPoint presentation where they share their topic, their research process, and interesting bits of information they learned about their topic.

The instructors discovered that providing examples of expected work and highlighting the quality factors was important for the students to understand the requirements. We felt that the expectations of each assignment were very clear until we received the first annotations and discovered that very few understood them. Providing examples and grading very consistently with clear, constructive and positive comments was a time consuming, but effective way to communicate and maintain the standards required for a college-level course. In addition, the grading rubrics we developed helped express to the students what those standards were and made consistent grading easier.

Another important key for co-teachers, whether for online or traditional courses is to carefully outline the responsibilities of each instructor, and to make sure that one instructor’s input on grading does not overpower the other. To have equal responsibilities for developing tutorials, assignments and assessments it is important to share the workload, but also to balance the amount of influence on student grades. If students perceive that both instructors share the workload and grading influence, everyone benefits from a positive professional relationship.
Conclusion

The instructors learned a great deal about teaching an online class, and as librarians have developed a deep appreciation for teaching faculty. While spending a great deal of time to develop instructional materials and assess student learning, we both are looking forward to teaching the course again. The Meridian librarian will be teaching another online section and the Idaho Falls librarian will be teaching a traditional face-to-face section next semester.

Future classes taught by these instructors will continue to begin with a theoretical foundation of information management and control, and an annotated bibliography will be the final project. Both instructors will require a video presentation based on the final project. However, the instructors have learned a great deal about class management, developing assignments, assessment so the students’ learning progresses with less frustration. Further assessment of the “equivalence” of the online section and the traditional face-to-face sections will be processed after the completion of the semester when competencies will be evaluated and the knowledge surveys will be compiled.
References


Embedded Librarians: Just-In-Time or Just-In-Case? A Research Study

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Abstract
Embedded librarians in online courses provide a wealth of service and information to students. Though students indicate that these services are valuable, the librarians providing embedded services frequently note that these projects are very time consuming. This study examines the provision of a less time-intensive model of embedded librarianship and its impact on students’ performance on research-related assignments in their course. A librarian was embedded in four sections of a course for either two weeks or the full semester. Data indicated that there was no significant difference in student performance in any of the sections, which indicates that a limited-duration embedded librarian can be as successful as a full-semester embedded librarian.

Background
Hillsborough Community College (HCC) is the fifth largest community college in Florida with an FTE of 21,675 (Hillsborough Community College, 2013). The college has five campuses located throughout Hillsborough County, Florida. Librarians at HCC provide library instruction and reference services for students at each campus. For the 2010-2011 school year, librarians provided 427 library instruction sessions with 10,006 students attending (A. Dufault, personal communication, May 1, 2012). Of these instruction sessions, only four were provided to students in online courses (J. Bullian, personal communication, April 17, 2012). While all students, regardless of the format or mode of their course, have access to both the library materials and services from the library’s website, not all students are provided the opportunity to participate in a formal library instruction session. Students taking online English courses from the Plant City Campus do participate in formalized library instruction for their class, as it is provided by the campus librarian while embedded in their course. The online embedded librarian at the Plant City Campus participates in the online classroom as a co-instructor in the learning management system (LMS) to provide course-specific library instruction and research assistance to students.

This online participation has proved valuable to students. During the fall 2011 term, a study was conducted to examine the effects of the online embedded librarian on students’ perception and utilization of librarian-provided resources. Data from the study indicated that the embedded librarian increased students’ awareness of and utilization of the library resources and the librarian. While this was a positive finding, the librarian wanted to examine the implementation of an embedded librarian project that was less time-intensive.
Literature Review

Library instruction is effective in increasing students’ use of and selection of quality academic research materials (Hovde, 1999; Hurst & Leonard, 2007) and in increasing students’ skills in using electronic resources (Ren, 2000). These are essential in increasing students’ information literacy skills. An online embedded librarian is often enrolled or included in the LMS as a co-instructor, assistant instructor, or teacher assistant (Clark & Chinburg, 2010; Figa, Bone, & Macpherson, 2009; Markgraf, 2004; Shank & Dewald, 2003; Shumaker & Talley, 2009; York & Vance, 2009). The online embedded librarian participates in the course in many ways; involvement can include participation in discussion boards, sending and responding to course messages, and providing instruction within the course (Dinwiddie, 2005; Markgraf, 2004). These kinds of communications and instruction are course-specific, thus the information that is shared between the students and librarian is much different than what a student would find by using the library’s website. Librarians embedded within courses are able to proactively provide assistance to students that address specific needs and issues that arise in a course (Francis, 2012; Markgraf, 2004).

Students are unlikely to leave the LMS to locate supplemental resources for their course (York & Vance, 2009); instead they rely heavily on their course readings and instructor for research help (Head & Eisenberg, 2009). Additionally, students frequently overestimate their research skills, which makes them unlikely to seek research assistance (Gross & Latham, 2007; Kruger & Dunning, 1999). These two things, the lack of venturing beyond the LMS for information and the overestimation of research skills, make the librarian a key person to include in an online course with a research requirement. The online embedded librarian is able to provide instruction and assistance to students at their point of need within the LMS environment.

While librarians have praised the embedded librarian model (Bennett & Simning, 2010; Calkins & Kvenild, 2010; Dewey, 2004; Edwards, Kumar, & Ochoa, 2010; Figa et al., 2009; Markgraf, 2004), they have also frequently cited concerns with the scalability of such a project (Bozeman & Owens, 2008; Calkins & Kvenild, 2010; Dewey, 2004; Dugan, 2008; Edwards, 2011; Edwards et al., 2010; Kesselman & Watstein, 2009; Markgraf, 2004; Matthew & Schroeder, 2006; Shank & Dewald, 2003; Shumaker & Talley, 2009; York & Vance, 2009). Matthew and Schroeder (2006) and Calkins and Kvenild (2010) describe variations of a less time-intensive model of the embedded librarian. They recommend a librarian embed into courses for a shorter duration during the time students are working on a research-related assignment. This point-of-need model provides students the opportunity to gain the required skills and apply them immediately to complete their assignments in a familiar setting (Leibiger, 2011).

This study follows the recommendations of Matthew and Schroeder (2006) and Calkins and Kvenild (2010) by embedding a librarian in an online course for two weeks and examines students’ learning from this situated learning experience.
Project Design and Method

This project was designed to examine students’ information literacy skills when in an online English course with a just-in-time librarian or a just-in-case librarian. A just-in-time librarian is one who is embedded in the course for a limited time at a strategic point in the course. A just-in-case librarian is one who is embedded in the course for a full semester.

Four sections of an online English 1102 course were selected; three sections had an embedded librarian for a two-week duration, and one section had an embedded librarian for the full duration of the semester (see Table 1). The four sections of the course were all taught completely online by the same instructor. The embedded librarian provided embedded communications and instruction within the learning management system (LMS) during the selected weeks of embedment. The librarian and library services were promoted by the instructor to the students by including the librarian as a co-instructor in the course, providing information about the librarian in the syllabus, and allowing the librarian to have full access to the course. This access allowed the librarian to create a library-specific discussion board, to post announcements, and embed instructional tools throughout the course.

Table 1

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<th>Weeks Librarian Embedded in Course Section</th>
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<td>Week 1</td>
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During the weeks the librarian was embedded within the course, she monitored communication tools on a daily basis. This included logging into the course LMS daily and monitoring the library-specific discussion board and course messaging. Additionally, she logged into a course-specific instant messaging tool on each day of the embedded period during specific times that were advertised to students. She also offered a synchronous online instruction session to students during the time of embedment.

During weeks that the librarian was not embedded in the course, students continued to have the opportunity to communicate with her using the standard methods of communication to which all students at the college have access. These include email, telephone, and in-person visits to the library. Instructional tools created by the librarian included an instructional video and a LibGuide. These tools were included as links in the weekly modules of the course. The video was available only during week two, while the LibGuide was linked in each weekly module.

The research question for this project was: What are the differences, if any, in students’ information literacy skills, with a two-week embedded librarian and a full-semester embedded librarian? This question was addressed by:
1. Examining the differences (if any) in student performance on an instructor-assigned library research assignment;

2. Examining the differences (if any) in student bibliographies on one essay in the course;

3. Examining the difference (if any) in access of and utilization of librarian-provided materials;

4. Conducting a face-to-face interview with the course instructor; and

5. Maintaining a researcher notebook.

Students’ information literacy skills were evaluated using both the library research assignment (1) and the bibliography from the first essay in the course (2). Student utilization of the librarian-provided materials (3) were examined to provide information that demonstrates which, if any, of the provided resources were used, along with the frequency and timing of their utilization. The instructor feedback, via the face-to-face interview (4), provided the researcher with information about the context of the study. Finally, the librarian-researcher maintained a researcher notebook (5) during the project and noted unusual events and issues that could have impacted the study. This research was approved by the University of Florida Institutional Review Board (IRB 02 for non-medical research – 2012-U-1339).

Library Assignment

Students completed a library assignment during week five of the course that was designed to familiarize students with the resources appropriate to use for other assignments in the course. Completed library assignments for each section were examined by the librarian-researcher independently of the course instructor. The librarian-researcher marked each answer correct or incorrect on the assignment. Correct answers were given a point. Incorrect answers received zero points. A score of 13 points indicated a paper with no incorrect answers.

Citation Analysis

Citation analysis was used to evaluate the resource selection of students in the sections of the course for their first essay. Librarians use variations of this methodology to evaluate the number and quality of resources cited in bibliographies. These methods can be quantitative or qualitative. A quantitative citation analysis, such as those conducted by Barratt, Nielsen, Desmet, and Balthazor (2009), Clark and Chinberg (2010), Davis and Cohen (2001), Davis (2002), Hovde (1999), Hurst and Leonard (2007), Malone and Videon (1997), and Robinson and Schlegl (2004), examines bibliographies to determine and quantify the types, ages, and origin of resources used by students in research papers. Qualitative citation analysis is a methodology that examines student bibliographies in conjunction with the research papers or essays they accompany to evaluate the appropriateness of the resources used (Ackerson, Howard, & Young, 1991; Ackerson & Young, 1994; Lindauer, 1985; Knight-Davis & Sung, 2008; Kohl & Wilson, 1986; Young & Ackerson, 1995).
A qualitative method, based on the Young and Ackerson (1995) model, was used to evaluate the citations from the students’ first essay in each section of the course. This method assessed each student bibliography as a whole, examining the appropriateness of the resources, the timeliness of the materials, and the quality of the resources for the topic. As this is a subjective method, a detailed rubric was used for the evaluation (see Appendix). Two librarians, the librarian-researcher and a librarian from another campus of the community college, evaluated each of the bibliographies. Scores calculated by the librarians for each student were combined and averaged to get a single score for each bibliography.

Log Data Analysis

In addition to looking at student work, the librarian-researcher examined student access of library-provided instructional materials. If students successfully completed their assignments, yet never accessed any of the library instructional materials, it cannot be claimed that the librarian had any impact on student learning. Student access of the library-provided materials was monitored using the Blackboard Statistics Tracking feature.

Instructor Interview

The researcher conducted a face-to-face interview with the course instructor at the conclusion of the course. The interview was designed using Patton’s (1987) methodology for qualitative interviews, and was used to gather qualitative information from the instructor regarding her perception of students’ use of the library and performance of students in the sections with differently-timed embedded library services.

Researcher Notebook

The researcher kept notes about her experience in the sections using an online word processing program. These notes consisted of reactions to events and reflections on the sections and projects as they occurred.

Results

Descriptive Data

Seventy-seven students were enrolled in the four sections for the full duration of the first five weeks of the course; of these, 30 students provided permission for their work to be viewed by the librarian-researcher. Twenty-three of these students completed at least one of the two assignments. Twenty-two students completed the library research assignment, and twenty-two students completed the first essay. One student completed only the library research assignment, and another student completed only the first essay.
Communication with Students

Students communicated with the librarian using communication tools within the course LMS (course messaging, instant messaging, and discussion board) and the telephone. Questions were most often posed to the librarian using the LMS course messaging system and the course discussion board. Twenty-four questions were posed to the librarian. Eleven (45.8%) of the questions were sent using the course messaging system, nine questions (37.5%) were asked in the course discussion board, two questions (8.3%) were asked via instant message, and two questions (8.3%) were asked by telephone. Students did not contact the librarian using regular email or in-person visits at all during this project.

Comparisons of communications with students demonstrate that students in Sections C and D (librarian embedded during weeks 4 and 5 and librarian embedded for full semester of the course) more frequently contacted the librarian for assistance; they posed 75% of the questions, with each group posing 37.5%. Students in Section A (librarian embedded during weeks 2 and 3) posed 16.7% of the questions and Section B (librarian embedded during weeks 3 and 4) posed 8.3% of the questions.

Library Research Assignment

The library research assignment was completed during the fifth week of the course by twenty-two students in this study with a maximum score of 13 points. The five participants in Section A had an average score of 10.80 points (SD=2.387); the seven participants in Section B had an average score of 10.71 points (SD=2.289); the six participants in Section C had an average score of 9.5 points (SD=2.739); and the four participants in Section D had an average score of 10.00 points (SD= 2.449) (see Table 2). A one-way between subjects ANOVA was conducted to compare the effect of duration of the embedment of the librarian on students’ library research assignment scores. Results indicate that there was no significant difference between at least one of the groups at the p<.05 level [F(3, 18)= 0.363, p=0.781]. This suggests that the duration of the librarian’s embedment in the course did not have an impact on students’ performance on the library research assignment.

Table 2

<table>
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<th>Score on Library Assignment</th>
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<tr>
<td><strong>Mean</strong></td>
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<td>Section C</td>
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Citation Analysis of Critical Analysis Essay

Students (n=22) completed their critical analysis essay during week five of the course. The maximum score possible for the citation analysis of each bibliography was 9. The five participants in Section A had an average score of 6.51 points (SD=2.65); the seven participants in Section B had an average score of 2.57 points (SD=2.12); the five participants in Section C had an average score of 4.43 points (SD=3.61); and the five participants in Section D had an average score of 5.60 points (SD=3.19) (see Table 3). A one-way between subjects ANOVA was conducted to compare the students’ scores on the citation analysis in the four sections. Results indicate that there was no significant difference between at least one of the groups at the p<.05 level for the four sections [F(3,18)=2.126, p=0.133]. This suggests that the duration of the librarian’s embedment in the course did not have an impact on students’ selection of resources for their critical analysis essay.

Table 3

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<tr>
<th>Score on Citation Analysis</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
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<tr>
<td>Section A</td>
<td>6.51</td>
<td>5</td>
<td>2.65</td>
</tr>
<tr>
<td>Section B</td>
<td>2.57</td>
<td>7</td>
<td>2.12</td>
</tr>
<tr>
<td>Section C</td>
<td>4.43</td>
<td>5</td>
<td>3.61</td>
</tr>
<tr>
<td>Section D</td>
<td>5.61</td>
<td>5</td>
<td>3.19</td>
</tr>
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</table>

Student Performance and Utilization of Library Resources

Students who accessed the LibGuide linked within the weekly modules in the course earned a higher score on their library research assignment than students in the course who did not access the LibGuide. An independent samples t-test was used to examine the differences between all students regardless of section. There was a significant difference in score on the library research assignment for students that accessed the LibGuide (M=10.88, SD=2.156) and students that did not access the LibGuide ((M=8.67, SD=2.251); t(20)=2.116, p=0.047). This suggests that students who accessed the LibGuide performed better on the assignment than students who did not access the LibGuide.

Students who accessed the LibGuide linked within the weekly modules of their course did not obtain a significantly different score on citation analysis than students who did not access the LibGuide. An independent samples t-test was used to examine the differences. There was no significant difference in scores for students who accessed the LibGuide (M=4.71, SD=3.23) and students who did not access the LibGuide ((M=4.22, SD=2.91); t(20)=0.330, p=0.745). This suggests that students who accessed the LibGuide did not perform better on their selection of resources for their critical analysis essay.
An independent samples t-test was used to examine if differences exist in library research assignment scores for students who contacted the librarian (M=11.33, SD=1.506) and students who did not contact the librarian (M=9.88, SD=2.527), t(20)=1.317, p=0.203. Students’ communication with the librarian did not have a significant relationship with their score on the library research assignment. Likewise, an independent samples t-test was used to examine if a significant difference existed in citation analysis scores for students who contacted the librarian (M=5.44, SD=2.86) and students who did not contact the librarian (M=4.18, SD=3.20), t(20)=0.089, p=0.384. This suggests that students’ contact with the librarian did not have a significant relationship with their score on the citation analysis.

Instructor Interview

The instructor of the course is very supportive of the involvement of the librarian in the course. During the face-to-face interview with the instructor, the instructor indicated that she was very pleased with the project and had received positive feedback from her students about the librarian’s involvement in the course. She specifically noted that students “mentioned how helpful the librarian is,” and were very pleased with the LibGuide, saying that the students “have raved about the LibGuide.” The instructor indicated that the embedded librarian added value to the courses. In particular she noted that she felt that the librarian’s availability in the course improved students’ confidence in their ability to conduct research. Communications from her students suggested that they are “more comfortable just knowing that the librarian is there to help, even if they do not contact her.” These statements from the instructor suggest that it is the presence of the librarian that is important, not necessarily the actual communications between the librarian and students. Additionally, the instructor noted that there has been a decrease in library-related questions directed to her since the librarian has participated in the course as an embedded librarian.

Researcher Notebook

The researcher-maintained notebook was used to note any unusual occurrences, issues with the courses, and reminder notes for the researcher. The data from the journal was analyzed using open coding followed by the constant comparative method to find similarities and differences in the data. Themes from this process were identified as challenges with the LMS tracking tool, time management issues, awareness of the guest role of the librarian in the course, and surprise with student performance in the course. These issues, particularly challenges with the LMS, time management, and role of the librarian are frequently noted in the literature on embedded librarians. Student performance was quite a surprise, as the librarian had often embedded yet never previously assessed student work.

Summary of Findings

Overall findings from this study demonstrate that students utilized the librarian and library-related materials embedded in their course. Use of materials and communication were more frequent during times students were working on research-related class assignments. Students in all sections of the course more frequently accessed the LibGuide for the course during weeks that they were working on research-related assignments in the course. No findings
that suggest the timing, or duration, of the embedded librarian affected student access of the LibGuide were noted.

Analyses of the communications initiated by students in each of the sections demonstrate that students were more likely to communicate with the librarian using the LMS provided communication tools. Additionally, it is clear that students utilized the librarian for assistance with both library-related and course-related matters. Communications initiated by the students in each of the sections indicate that the students more often communicated with the librarian about library-related matters during week four of the course.

The overall findings from the library research assignment indicate that the timing and duration of the librarian embedded in the course has no significant impact on students’ performance on the assignment, though students that accessed the LibGuide from the course obtained a higher score on their library research assignment. Likewise, the findings from the citation analysis indicate that the timing and duration of the librarian embedded in the course has no significant impact on students’ performance on their resource selection for the critical analysis essay.

Discussion

Findings indicate that there were no significant differences in students’ information literacy skills with a two-week embedded librarian compared with a full-semester embedded librarian. Instead it was found that students who accessed the course-specific LibGuide created by the embedded librarian performed significantly better on one of the assignments in the course than students who did not access the LibGuide.

Instruction for students in the four sections of this course included a LibGuide, a recorded video orientation to the library, and an online synchronous library instruction session. Of the students in this study, 21 of the 30 students (70%) accessed the LibGuide from within one of their weekly modules and 28 of the 30 students (93.3%) accessed the recorded video orientation to the library, while only three of the 30 students (10%) participated in the online synchronous library instruction session. The LibGuide and recorded video orientation to the library were required as part of the students’ weekly assignments, while the online synchronous library instruction session was an optional activity that was announced by the librarian. Students’ lack of participation in the optional activity demonstrates the need for the instructor’s support to ensure student participation.

There were no significant differences found in student access of the LibGuide between students in the four different sections of the course. Rather, it was found that students in all sections of the course demonstrated higher access of the LibGuide during weeks that research-related assignments were due. This indicates that students are more likely to use library-provided materials during times of the course that require library research, regardless of the presence of a librarian actively embedded in the course. Students that accessed the LibGuide from within the course LMS obtained a higher score on their library research assignment, yet they did not score higher on the citation analysis of their critical analysis bibliography.
The examination of the differences in students’ information literacy skills in sections of the course with a two-week embedded librarian (Sections A, B, and C) and a full-semester embedded librarian (Section D) indicate that there was no significant difference in student performance on either the library research assignment \([F(3,18)=0.363, p=0.781]\) or the scores on the citation analysis of the bibliographies of the citation analysis \([F(3,18)=2.126, p=0.133]\). The lack of differences found between the groups suggests that the duration of the embedded librarian in the course does not impact students’ information literacy skills. These findings suggest that librarians would be able to serve additional sections of courses by focusing on providing a two-week embedment for courses.

The primary goal of the online embedded librarian in this project was to provide instruction and communication of tools and services to increase students’ information literacy skills. While students utilized the tools and communicated with the librarian, the data from this study indicate that student performance on the activities used to measure information literacy skills did not differ between the courses with differing treatments. This suggests that the librarian could implement additional two-week embedded librarian services, in lieu of full-semester projects, to serve a larger number of students. Additionally, the data suggest that students are more likely to access the instructional materials during weeks that assignments are due, thus the timing of the embedment should take place during those times.

**Findings Related to the Literature**

This study attempted to address two needs frequently noted in the literature for library services to distance learners: the need for assessment of information literacy skills of students in online courses with an embedded librarian; and the need for a more scalable method for providing embedded librarian services to students in online courses. Hines (2008) found that librarians providing services to distance learning students most frequently assessed student satisfaction and perceptions. She suggested a need for assessment of student learning from such projects. Walsh (2009) explored the assessment methods librarians are using to evaluate students’ information literacy skills and found that librarians are using a wide variety of assessment methods. Challenges noted by Walsh (2009) include a need for an assessment that is both easy to administer and useful for collecting data that truly assesses students’ information literacy skills and application. Like Clark and Chinburg (2010), Edwards (2011), and Walton and Hepworth (2013), this study evaluated students’ information literacy skills by examining student work products after participating in courses with information literacy instruction. The time-intensive nature of an online embedded librarian project is frequently noted as a barrier for providing such services (Bozeman & Owens, 2008; Matthew & Schroeder, 2006; York & Vance, 2009). As seen in this project, the librarian spent more than 20 hours working with Section D of the course over the first five weeks of the semester. This amount of time, coupled with the lack of differences in student information literacy skills between a full-semester embedment and a two-week embedment provide support for the suggestions of Matthew and Schroeder (2006) and Calkins and Kvenild (2010) for a much shorter duration of embedment. The findings of this study support the findings of Carlock and Anderson (2007), Ferrer-Vinent and Carello (2008), Leibiger (2011), McMillen and Fabbri (2010), Tennant and Miyamoto (2002), and Weaver and Pier (2010), that library instruction in a course that is directly related to and timed with assignments is successful in improving students’ performance.
Conclusion

The results of this study support the findings of others in the literature that recommend a short duration of embedment in online courses (Calkins & Kvenild, 2010; Matthew & Schroeder, 2006) as the time-consuming nature of such projects prevents them from being widely adapted. The lack of difference in performance between students in the two-week embedded librarian sections and the full-semester embedded librarian section indicate that a lengthy period of embedment is not necessary to provide relevant library materials and communications to students in online courses. Rather, timing the embedment to coincide with students’ research-based assignments is most effective.

As the number of online courses grows, institutions must address the information literacy needs of these online students. Online embedded librarians are one way of reaching students in these courses (Bozeman & Owens, 2008; Markgraf, 2004; York & Vance, 2009). This study found that students utilized the librarian embedded in their course, as well as the materials that the librarian provided for instructional purposes in the course. Students that utilized the materials performed better on their library research assignment, suggesting that the involvement of the librarian in the course was useful in addressing students’ information literacy skills.

This project provides ample information for the researcher to continue exploring the involvement of the librarian in online courses, particularly examining the student interactions with content, librarian, and fellow students for their information literacy needs.
References


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Figa, E., Bone, T., & Macpherson, J. R. (2009). Faculty-librarian collaboration for library services in the online classroom: Student evaluation results and recommended practices for implementation. *Journal of Library & Information Services in Distance Learning, 3*(2), 67-102.


## Appendix

### Citation Analysis Rubric

Evaluator Name: ______________________  Student Indicator: ________________

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<thead>
<tr>
<th>Citation #</th>
<th>Type of resource</th>
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**Total**

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**Criterion 1**: Was the type of source appropriate for the topic?

**Criterion 2**: Was an appropriate decision made vis-à-vis retrospective versus contemporary sources for the topic?

**Criterion 3**: How good was the quality of the source for the topic?

**Type of resource:**
- A = Audio/visual
- B = Book
- J = Journal article
- M = Magazine article
- N = Newspaper article
- W = Website

**Scores:**
- 0 = inadequate
- 1 = marginally adequate
- 2 = adequate
- 3 = superior
Making it Work: Creating a Student-Friendly Repository of Instructional Videos

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Michael Schofield
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Abstract
This case study investigates how a team of librarians at Nova Southeastern University (NSU) worked together to assess and optimize their library’s current instructional videos in order to create a mobile-first video hosting platform, known as LibraryLearn. Instructional library videos serve as invaluable resources for students who are not present to partake in synchronous library training. However, once a library has produced a substantial number of videos, the need to organize and routinely update these videos can become a rather daunting challenge, especially when facing obstacles such as loss of original video files, decentralized access points, and viewing incompatibilities among different browsers, operating systems, and mobile devices. In order to enhance user experience and maximize productivity, the development of the LibraryLearn video platform helps to overcome issues regarding usability, accessibility, and incompatibility in order to provide students with “on demand” library instruction.

Introduction

Instructional library videos are an essential component of distance librarianship and serve as invaluable resources for students who are not able to partake in synchronous library training. However, the need to organize and routinely update these videos can become a rather daunting challenge, especially when facing obstacles such as loss of original video files, diverse formats, decentralized access points, viewing incompatibilities among different Internet browsers, operating systems, and mobile devices, and inconsistent project leadership. This case study analyzes how a team of librarians assessed their library’s existing instructional videos in terms of user experience and content creation, implemented a uniform procedure for producing library tutorial videos, and designed a centralized, device-agnostic platform for hosting instructional videos known as LibraryLearn.

The Setting

Nova Southeastern University (NSU) is the eighth largest not-for-profit private institution in the United States and has been a pioneer in distance education since 1972 (Office of Institutional Effectiveness, 2013). The NSU Library system is primarily comprised of four
branches: (1) the Alvin Sherman Library, Research, and Information Technology Center (Sherman Library); (2) the Health Professions Division Library; (3) the Law Library; and (4) the Ocean Sciences Library. Because NSU awards associate’s, bachelor’s, master’s, specialist, doctoral, and professional degrees in education, business, social sciences, health professions, law, marine sciences, and other disciplines, each library branch specializes in serving the research needs of its respective programs. The 325,000 square-foot Sherman Library serves as the university’s main library on its main campus in Fort Lauderdale, Florida and operates as a joint-use facility through a unique relationship between NSU and the Broward County Board of County Commissioners.

Currently, NSU offers distance education programs in 12 countries, 16 states, and Puerto Rico (Office of Institutional Effectiveness, 2013). Course delivery varies by program ranging from traditional face-to-face meetings at the main or regional campuses to programs held exclusively online or with a blended instruction approach. All programs, whether local or distance, are supported by the NSU Libraries. Of the nearly 27,000 students enrolled in Fall 2012, approximately 21% were undergraduate, 64% were graduate, and 15% were professional students. An estimated 22% of NSU students attend classes outside of Broward County, Florida; of which, 2% attend classes at international sites. To best serve these unique student demographics, NSU librarians utilize a combination of synchronous and asynchronous library instruction, such as video tutorials and recorded workshops, to help students learn how to efficiently use the library for their research.

**The Problem**

Although the NSU Libraries have created an abundance of helpful instructional videos on how to use research tools and resources, the librarians did not have a consistent method for presenting and maintaining these videos. Thus, students were exposed to diverse video formats that often hindered the ease and fluidity of viewing multiple recordings, disrupted accessibility compliance, and resulted in incompatibility issues among different browsers and mobile devices. Moreover, librarians lacked an efficient process for inventorying and updating existing videos, which often resulted in duplicated work efforts and diminished productivity. Additionally, the lack of a centralized location for storing video files often resulted in the loss of data upon staff departures. In order to overcome these challenges, a team of NSU librarians came together to investigate best practices for creating, maintaining, and hosting videos as well as for how to lead a video reorganization project through transformational change.

**Review of the Literature**

As methods for library instruction evolve, librarians have found innovative ways to incorporate technology, including instructional videos, to meet the needs of students. Over the years, studies have identified best practices for creating instructional videos. Many of these studies (Anderson & Mitchell, 2012; Bolorizadeh, Brannen, Gibbs, & Mack, 2012; Bowles-Terry, Hensley, & Hinchliffe, 2010; Ergood, Padron, & Rebar, 2012) agree that instructional videos should be brief. Anderson and Mitchell (2012) recommend that tutorials be modular in design and distinct so that they may be viewed separately or in groups. As for content recommendations, Bowles-Terry et al. (2010) suggest that the most important information should
be introduced at the beginning of the video in a clean, straight-forward manner. Tutorials can also be standardized through the use of a common introductory slide and a final slide with a summary of the video’s major points (Ergood et al., 2012). Videos should also include captions to not only meet accessibility standards but to also assist viewers who do not have access to computer speakers, as well as English language learners who might benefit from processing the information both visually and aurally (Bowles-Terry et al., 2010; Ergood et al., 2012).

Once a video has been created, the location and findability of the video is also an important consideration for a video’s effectiveness. If students are unaware that a video exists, it stands to reason that they will be unlikely to view and utilize the video. Several studies (Bolorizadeh et al., 2012; Bowles-Terry et al., 2010; Ergood et al., 2012) recommend linking videos in places where students will most need the information, such as embedded within course syllabi, online subject guides, and database web pages.

In addition to effective manual promotion, such as linking to or embedding videos, the crux of findability depends on the availability of browse, search, and view screens for all digital library objects within an application (Clark, 2013; Ellis & Callahan, 2012). McGrane (2012) stresses the importance of the social layer to findability, wherein content might be discovered when shared on social media. Because the likelihood of content appearing within top search results partially depends on the number of times that the content has been shared, this knowledge should inform the design and content in such a way that encourages sharing. McGrane asserts that “mobile is social, social is mobile”; thus for content to be seen it needs to be shared, and for it to be shared it needs to be mobile-friendly (2012, p. 27).

As librarians begin to create instructional videos, managing and updating the videos becomes an essential and time-consuming task. Bowles-Terry et al. (2010) note that keeping all librarians aware of instructional videos and their locations can become a challenge in large library systems. Additionally, Anderson and Mitchell (2012) recommend that tutorials be easy to update even for librarians without advanced technological skills. Content strategists agree that the ease with which content is created is crucial not only for its quality and currency but also for the ability to tailor how it is presented based on circumstance (Ellis & Callahan, 2012; McGrane, 2012). The term content modeling is used to describe a content-management process that modularizes each segment in order to iron out inconsistencies, eliminate the potential for confusion, and more finely control how content is viewed. As a result, content creators can be guided through a step-by-step process rather than be given an otherwise blank slate with no instruction.

As new technologies and information about best practices evolve, librarians will most likely find that they will need to reformat their videos and instructional materials. While several studies (Anderson & Mitchell, 2012; Bowles-Terry et al., 2010; Mestre, 2010) encourage librarians to create multiple formats that would appeal to students’ various learning styles, a recent study by Mestre (2012) found that students prefer and perform better when using a static web page tutorial as opposed to a screencast tutorial. Accordingly, an ideal platform would include both static and dynamic content. Bolorizadeh et al. (2012) also highlight the increasing use of mobile devices. According to a survey conducted by the Pew Research Center, as of May 2013, 63% of adult cell phone owners reported that they use their cell phones to access the
Internet (Brenner, 2013). In June 2013, the Pew Research Center also reported that a majority of Americans own smartphones (Smith, 2013). Because mobile devices are becoming the primary method of Internet access, a device-agnostic design has become an increasingly important consideration for librarians to ensure that their videos will be mobile-friendly.

In order to continually incorporate emerging technologies and current best practices into asynchronous library instruction, librarians need to develop an efficient system for project management that is guided by effective leaders. As the digital age expands, the need for effective leadership is an increasingly important component of librarianship, especially in regards to innovation and creative problem-solving (Germano, 2011). Accordingly, the American Library Association (2009) identifies transformational leadership as a core competency of the profession and recommends that graduates from ALA-accredited master’s programs in library and information studies should comprehend and utilize this leadership style. Transformational leadership emerges when leaders and followers elevate one another to progressive levels of motivation and engagement, which ultimately produces a transformation effect upon all participants involved (Burns, 1978). As a result, transformational leaders operate as agents of change that guide followers toward new perspectives, ideas, and innovation (Bass, 1998). When drafting the core competences, the concept of transformational leadership primarily refers to leading change in libraries (Hicks & Given, 2013).

Integral to this transformation process is the development of high-performing teams, which requires a thorough understanding of team dynamics (Curphy, 2008). Though transformational leaders do not always possess managerial authority, they create cultures of change by utilizing the individual strengths of others (Germano, 2011). Transformational leaders embrace creativity, are willing to take risks, lead by example, re-examine current policies, and think in terms of “the big picture.” Accordingly, transformational library leaders can achieve cooperation among team members to participate in a change project by expressing a shared vision, demonstrating reliability, communicating effectively, abating anxiety, and encouraging feedback (Düren, 2013). Ultimately, transformational leadership can help libraries adapt and evolve, especially when embracing modern technologies and new processes regarding user experience (Germano, 2011).

The Library’s Solution

To expand upon the existing process for creating instructional library videos, the Sherman Library’s Director of Distance and Instructional Library Services (DILS) held a day-long retreat in February 2013 to discuss opportunities for enhancement. At the retreat, librarians from the Sherman Library’s DILS and Reference departments reviewed current issues regarding instructional video presentation and maintenance. These discussions included a thorough evaluation of the advantages and disadvantages of various file formats such as Flash and MP4, hosting sites such as YouTube, TeacherTube, iTunesU, and Vimeo, and available video editing software at the library, which included Camtasia and Captivate. Additionally, this investigation included an analysis of best practices at other institutions as well as standards in web design produced by the World Wide Web Consortium (W3C) regarding accessibility and usability. Internal guidelines and current processes were also examined relating to video inventory, updates, quality, content, length, and file storage. Lastly, discussions included
In order to meet the needs of all local and distance students, the retreat concluded with a decision for the library to build a centralized platform to self-host its instructional videos, which would be governed by consistent procedures for presentation and maintenance. Accordingly, an Instructional Video Working Group was established to design the platform, draft policy guidelines, and implement these changes. As a result, the project transpired in four main stages: (1) planning, (2) development, (3) beta trial, and (4) live release. In the planning phase, which occurred during the Spring 2013 semester, the working group assessed student needs, investigated video options, and provided instructional design feedback regarding the platform template. During the development phase, which occurred during the Summer 2013 semester, the working group established documentation of guidelines, shared file directory structures, standardized file naming conventions, controlled vocabularies, and content creation instructions, while the Web Librarian built the platform. Upon completion, the project entered the beta trial phase during the Fall 2013 semester where librarians could begin to add content and provide feedback. After the platform’s live release to students in the Spring 2014 semester, the working group will shift its focus to usability testing with local and distance users.

**Building a Working Group**

The process for designing a student-friendly repository required a transformation in how the NSU librarians created instructional videos. While autonomy in video production would still be encouraged, NSU librarians now needed to consider their actions in relation to an overarching procedure. To lead this transformational change toward a more collaborative process, the Instructional Video Working Group was integrated as a subset of the library’s Online Media Committee, which oversees librarian-created online content. Although the decision to establish the working group was announced during the retreat, the operational logistics for assembling the team still needed to be addressed. Accordingly, the committee’s co-chairs utilized the Rocket Model of Team Performance as a prescriptive framework to build an effective, high performing team. Using the metaphor of a rocket, this model identifies six interrelated components that influence results: talent, mission, buy-in, norms, morale, and power (Curphy, 2008).

The Rocket Model emphasizes that successful work teams include the right number of members that possess clearly defined roles and the skills necessary to achieve team goals. The two main criteria for selecting the working group members are primary job function and related skills, which led to a team comprised of instructional librarians across the four branches of the NSU Libraries that possessed knowledge of student needs, video editing, and basic web design. Once the working group was assembled, the team began to meet twice a month to discuss various components of the project. The committee’s co-chairs served as the project’s leaders, where they acted as agents of change and represented the project’s key sponsors, and reported directly to the library’s Web Team with input from the working group regarding instructional design.

The working group established its mission at the first meeting and clearly expressed the mission on the committee’s internal LibGuide, which was used as a shared workspace and...
communication tool. Early in the process, the group developed an aspirational yet achievable project timeline with benchmark goals to help the project stay on track. Buy-in among team members was achieved through a combination of shared vision along with specific, realistic team goals. As the meetings progressed, norms emerged regarding decision making, policy drafting, and member accountability. The committee’s internal LibGuide, which displayed meeting agendas, minutes, action items, draft policies, and goal timelines, helped enable project transparency and facilitate communication. Additionally, electronic surveys were available on the internal LibGuide to provide members an opportunity to candidly submit anonymous feedback if they opted not to share their ideas and opinions aloud during the group meetings. For members unable to attend the meetings in person, an online meeting room was set up using Blackboard Collaborate. By making these discussions as inclusive as possible, group morale remained high. Finally, the working group was continually empowered by the library’s administration, which viewed the project as a high priority and provided group members with the time and resources necessary to achieve their goals.

Establishing Best Practices

Based on the research presented in the Review of the Literature section of this paper, the librarians established video creation guidelines for five key areas: video management, length, content, location, and format.

**Video management.** In order to track which videos had already been created prior to the video reorganization project, the working group generated an inventory of the NSU Libraries’ existing instructional videos. This inventory was produced as a shared spreadsheet so that it could be utilized by all NSU librarians and updated every time a video is created or modified. The spreadsheet includes all pertinent video information such as video title, format, original creator, and date last modified. In addition to updating the spreadsheet, the library’s Systems department created a shared media file that could be accessed by all NSU librarians. Accordingly, all original video files and their components (i.e., thumbnail images, sound files, transcripts, etc.) are now saved to the shared drive where they can be accessed from any office computer. The use of a shared media file helps prevent the loss of video files if the original creator should ever leave the library. The shared drive also helps facilitate collaboration among librarians working on the same video project. As the number of videos in the shared drive grows, order is maintained through a strict folder directory and file-naming standard.

**Video length.** In accordance with the literature, videos are kept short and to the point (Anderson & Mitchell, 2012; Bolorizadeh et al., 2012; Bowles-Terry et al., 2010; Ergood et al., 2012). If several videos are needed to fully cover a topic, the videos are to be created in a modular format as recommended by Anderson and Mitchell (2012). These modular videos can then be displayed in the Related Videos section of the video hosting platform.

**Video content.** All videos now begin with a common introductory title slide with the NSU Libraries logo and are produced in a widescreen (16:9) format. This standardization gives the videos a cohesive and branded appearance. For the video content, important information is introduced at the beginning of the video in a clean, straightforward manner and is utilitarian rather than overly flashy (Bowles-Terry et al., 2010). Closed captions are also included in order
to comply with federal accessibility standards. Throughout the video reorganization project, the working group’s leaders documented all of these requirements and related best practices in a *Guide to Making Instructional Videos*. This guide has been uploaded to the library’s online knowledge base and has been made available to all NSU librarians so they can easily refer back to policies as they work on creating videos.

**Video location.** As recommended by Bowles-Terry et al. (2010), librarians are now aware of all available videos because they are hosted on a centralized platform. Self-hosting the videos was chosen over using a hosting service, like YouTube, in order to retain more control over the videos and to ensure that NSU’s international students would not be impeded by blocked sites. (YouTube, for example, is blocked in several countries around the globe.) Additionally, unlike YouTube, the LibraryLearn platform possesses the ability to generate persistent URLs for individual videos, which can then be linked at the point of need where students are most likely to use them. These permanent URLs will not change, even when a video is updated. As a result, librarians no longer have to spend time manually redirecting links to videos. Moreover, students can easily bookmark videos and will always be led to view the most up-to-date version without encountering broken links or outdated materials.

**Video format.** For the videos to be viewable on the widest array of current and future devices without requiring a plugin, they are formatted as both MP4 and WEBM files and embedded with the HTML5 `<video>` element without Flash fallback. By utilizing these formats, producing and maintaining videos remains relatively unencumbered while ensuring compatibility with more than 80% of global browser usage (“Can I use…,” 2013).

**Developing the Video Platform**

Design can often be an afterthought, especially in academic projects, but it is important to underscore the fundamental role that design played in shaping the conversation from a platform that passively bundled library videos together to one that actively improved the quality of the content.

**Mobile-first and flat.** Color schemes and graphics are ancillary, but the early axiomatic decision to create a repository that was mobile-first and flat determined not only much about the potential accessibility and usability of the website but how it is to be maintained as browsers and devices evolve. Establishing this simple baseline early in the development of the project was an important factor regarding the time required to manage content. Ultimately, this decision translates to fewer human hours spent over the long haul in a discipline where budgets are universally tight.

*Mobile-first* technically refers to the structure of a cascading style sheet (CSS), but it also describes the philosophy with which project development was approached. Everything about LibraryLearn was made to perform well on screens that fit in the palm of a hand. In a world of ever increasing device complexity, designing for one specific device is no longer feasible. One cannot anticipate how or with what equipment a patron will connect to the library, so ensuring that the site performs and behaves predictably across a large array of devices means that the design would be light on graphics and multimedia except for the videos themselves. Grigorik
(2013) reports that for every one-second of load time there is a 65% bounce-rate increase; because buffering a five minute video on a slow connection is already time consuming, it was decided that complicating the rendering of the website with graphics, gradients, or box-shadows would be detrimental. This premise basically defines flat design: a simple color scheme with a substantial amount of white space on a flat plane, without depth.

As a starting point, this design provides several benefits regarding usability. First, the website loads quickly. Second, LibraryLearn is more manageably backward compatible with older but popular browsers, like Internet Explorer 8, because its core design makes minimal use of newer browser features. While the user experience can be made better for modern browsers, mobile-first helps ensure that the website is functional for the widest possible number of browsers and devices. Third, the project leaders are required to make key decisions about which content is to be included on a page because there is only one column of real estate and patrons will scroll only so far. These conscientious decisions will ensure that the layout remains free of clutter.

Fine-tuning the content management system. Sensibly producing videos with related handouts, guides, screenshots, transcripts, related video series, etc., could require a lot of content. One way to help maintain this content is through the use of content modeling. McGrane (2012) describes content modeling as a method of breaking content into manageable and malleable chunks so that specific portions can be arranged in various templates as befit the circumstance of the user. Because much of the library’s web presence was already part of a larger WordPress network, the working group decided to develop LibraryLearn as a custom theme for WordPress. While this decision provided library staff with a familiar interface, the out-of-the-box WordPress is inadequate for such fine control because it only allows users to create a new post or page where all content is entered in a single text area. Thus, a custom WordPress theme needed to be tailored to the NSU Libraries’ specific needs.

As is, WordPress inseparably bundles different types of content together in a single block using a template hook called the_content(). If the corresponding video content (i.e., handouts, images, transcripts, video series order, etc.) should ever need to be changed, then the entire entry would need to be manually edited within that block. This inability to control content at a granular level presented the following obstacles.

- The layout of the content would be fixed and could not be manipulated, whereas NSU librarians wanted the ability to optimize for different screen sizes.

- Different headings, sections, or content types within the_content() template could not be properly semantically marked up with HTML5 or microdata, which facilitate both the findability and accessibility of the content to search engines and screen readers.

- The default WordPress editor is, essentially, just a title field and a WYSIWYG editor with no further instruction for the content creator. While WordPress’s user-friendly interface is preferred to other options, the information required for each individual video was complicated enough that staff would have to constantly refer to external instructions, which would slow and add tedium to the process. Additionally, without being able to
validate specific fields, such as the presence of a transcript or the two required video formats, it would be easier for sub-par or otherwise broken content to slip through the cracks.

Without getting too specific or technical beyond the scope of this paper, the project leaders concluded that the right option for this repository was a highly customized-to-the-task theme. Accordingly, the most important function was to break apart content into manageable chunks, which was done by creating a custom post-type. In addition to the two default post-types – a post and a page – a third post-type called instructional video was created with a unique editor. In this new template, the top section of the form includes a brief, step-by-step overview of the entire video creation process, which ultimately helps save time and increase productivity by eliminating the need for staff to make external references to procedural guidelines. The rest of the content has been divided into seven custom fields, which store the content chunks on their own and are accessible from anywhere in the template array.

1. **Special Templating:** a drop-down list of options that allow staff to change the template based on the makeup of the video. Once selected, the template identifies which individual components (i.e. the WEBM, MP4, SRT / VTT, and thumbnail) need to be uploaded or exported (from Adobe Captivate, YouTube, etc.).

2. **Checklist:** a list of unchecked boxes that must all be ticked before the video can be published; this field is used to ensure and remind staff to include all of the individual components.

3. **File Name:** a field where staff link to the actual video files (MP4 and WEBM), which are hosted on an external media server.

4. **Accessibility:** a required checklist that ensures the presence of captions or a transcript.

5. **Description:** a brief, hand-crafted summary of the video and related content, which is extracted for search results and external embeds.

6. **Subjects:** a controlled taxonomy of subject headings that is in sync with other aspects of the library web presence such as the electronic library, database indices, and LibGuides; these specified subject categories, along with a custom API, help dynamically syndicate “relevant” videos to different parts of the website. (For example, a Basics of Business Research video could automatically be pushed to any page where a patron is looking for business articles, if desired.)

7. **Related Materials:** a field where handouts or relevant links can be attached or shared.

By making these customizations, librarians are guided through the process for adding content with helpful reminders of what components should be included. Ultimately, the content modeling strategy helps to increase efficiency and productivity in uploading and maintaining the instructional videos on the platform.
Conclusion

Based on an extensive literature review and effective project management, the NSU Libraries created a device-agnostic platform for hosting library tutorial videos in order to meet the instructional needs of its unique student demographics. In terms of user experience, NSU students now possess a centralized, search-friendly location for finding instructional library videos that features a clutter-free interface that can be accessed on all mobile devices. Moreover, the LibraryLearn platform provides librarians with persistent URLs for each individual video, which allows them to easily link and embed videos within course syllabi, LibGuides, and at other points of need. Since the persistent URLs will not change even when a video is updated, students can bookmark videos to always view the most up-to-date or current version. The platform’s customized design also possesses the capability to automatically query for topically relevant videos, which can be pushed directly to the user.

While this video reorganization project required a transformational change in how the NSU Libraries produced instructional videos, a standardized process for content creation helped ensure consistency and increase productivity. Moreover, the customized WordPress dashboard has been enhanced through content modeling to provide staff with step-by-step guidance on the new publishing procedures for instructional videos. As the project continues, the Instructional Video Working Group will shift its focus to usability testing in order to determine the effectiveness of the platform. With a systematic process for creating and maintaining videos established, the working group will move forward by tracking how often the videos are viewed, documenting user satisfaction with the content, and assessing whether users are learning from the videos.
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A Universe of Information, One Citation at a Time: How Students Engage with Scholarly Sources

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Abstract
We spend hours teaching students where to go to find resources, but how do students really use those scholarly resources – and other resources – in their papers? Inspired by the Citation Project, University of Richmond liaison librarians examined First-Year Seminar papers to see what types of sources students used in their writing, how they incorporated those sources, and the various citation conventions they used. By focusing on the degrees to which students integrate source material into their writing, we recommend pedagogical practices that can enhance students’ understanding of source integration and citation standards.

Background
The University of Richmond (UR) is a private, liberal arts university located in Richmond, Virginia. Founded in 1830 and located six miles from downtown Richmond, UR consists of five schools offering undergraduate, Master’s and law degrees: the School of Arts and Sciences, the Robins School of Business, the Jepson School of Leadership Studies, the University of Richmond School of Law, and the School of Professional and Continuing Studies. First-Year enrollment in the fall of 2013 numbered 805 students, with 56% of the students having attended public high schools and 13% identifying as first-generation college students. Further demographic statistics show the University’s commitment to diversity: 25% of the enrolling class were United States students of color, while 11% were international students (University of Richmond, 2014).

With 318 full-time undergraduate faculty, there is a 8:1 student-faculty ratio and an average undergraduate class size of 15 students. No classes at the University of Richmond are taught by teaching assistants (University of Richmond, 2014). Boatwright Library, the main library on campus, houses more than 500,000 volumes of books, 100,000 bound periodicals volumes and hosts over 200 online databases. Thirteen liaison librarians work closely with faculty and students.

Beginning in the fall 2010, the Faculty Senate voted to replace an over two-decade-old, year-long freshmen Great Books sequence with two First-Year Seminars (FYS). The seminars are taught in a diverse range of disciplines; courses are currently offered on more than 30 topics, covering a wide range of interests, from bioethics and math, to art history and English. Drawn from every school and many departments across the university, they challenge students to build
critical reading and thinking skills, establish a foundation for effective written and oral communications skills, and develop information literacy and library research skills.

First-Year students arrive with a range of experiences in using library resources. This necessitates requiring an introduction to academic research strategies and resources, focusing on the substantial scholarly collections at the University of Richmond. The librarians are embedded in the First-Year Seminars and collaborate with FYS faculty to provide at least one hands-on library instruction session and research assignment to each of over 54 sections of FYS each term, as well as opportunities for personal research consultations to all First-Year students.

**Writing and Research in the First-Year Seminar**

As we refer to a writing assignment called a *research paper*, it often wrongly implies a one-size-fits-all, generic form. When scholars refer to their own writing, they rarely use that label. Excessively rules-based, the research *paper* is too often still taught as a *product*, what Jennie Nelson (1994) referred to as a “rhetoric of the finished word” rather than a “rhetoric of doing” (p. 65). The result is that students are often “passive spectators,” outside of any academic discourse community (Nelson, 1994, p. 66). The benefits of research assignments are overshadowed by a focus on concerns about grammar, punctuation and appropriate types or numbers of sources.

It is critical to dispel the schoolmarmish (Nelson, 2001) and trivialized views associated with information literacy often found when library instruction is referred to in the literature, moving toward a “situated, process-oriented literacy relevant to a broad range of rhetorical and intellectual activities” (Norgaard, 2003, p. 125). Placed within a first-year writing curriculum which purports to teach students how to think critically, develop a sense of inquiry and write informative, well-researched academic prose, the research paper assignment often fails to teach, or even to assess, any of those skills.

**First-Year Seminars at the University of Richmond**

The overall goals of the FYS Library Research Sessions are to introduce students to fundamental library resources and services, while developing students' sense of critical inquiry in the context of library research. Fundamental research competencies acquired during their first year will help students identify information resources for course assignments, as well as begin to develop skills for research inquiry within the academic community. This tiered approach provides students with a foundation to conduct more developed and complex research throughout their General Education and Upper Level courses, as well as to meet faculty expectations for research assignments throughout the curriculum.

Librarians at the University of Richmond use tiered research instruction based on Bloom's Taxonomy of Educational Objectives of lower and higher order thinking and competency skills (as written in Anderson, Krathwohl, & Bloom, 2001), as well as the research of Kenneth Burke (1941) and the research edited by Gerald Graff, Cathy Birkenstein and Russel Durst (2010): encouraging students to think about research and writing as a means of joining the academic conversation. Despite all of these collaborative and coordinated efforts, the liaison
librarians continued to discover that students’ research abilities were not at the level that faculty expected. While there is often a disconnect in academic libraries between the timing of library instruction and the reception of feedback about students’ finished research products, liaisons at UR are active in the campus faculty community, sit on faculty committees, and attend FYS workshops where faculty expressed continued concerns about how students were conducting research.

The liaison librarians had also been expressing similar concerns with each other, often feeling frustrated and beginning to question how we were going to move beyond providing students with just a surface understanding of resources and the research process. It felt as if we took students to the edge of the information cliff and then pushed them over without continued guidance. But whose role was it to provide that continued guidance: librarians, English faculty, or FYS faculty? In the FYS courses at UR, FYS is the sole sequence of courses that all students take, taught by faculty from across university disciplines. We do not have any freshmen composition sequence, as there is at many other institutions.

The liaison librarians at UR believe it is both the librarians’ and the faculty’s responsibility, as changing roles are putting liaison librarians more into direct classroom instruction. In a time when our profession feels prone to marginalization, the liaison librarians at UR understood that it was crucial for us to become more engaged in pedagogy and familiarize ourselves with the entire learning experience of students. It was time to move beyond what to call information literacy and do something about it to connect IL to what matters most: student learning. This was the liaison librarians’ opportunity to demonstrate their role in the learning process.

At this point, in the fall of 2010, the University of Richmond’s Head of Research and Instruction attended a post-conference workshop at the Georgia Information Literacy Conference. This workshop, led by Sandra Jamison, detailed the first phase of the nationally scoped Citation Project. The Citation Project focused on “responding to educators’ concerns about plagiarism and the teaching of writing,” and addressing concerns that “little empirical data is available to describe what students are actually doing with their sources” (The Citation Project, n.d.). It was a kairotic moment, and UR’s Head of Research and Instruction returned to Boatwright inspired to begin a local study and discussion to examine how UR’s students were conducting research. While one of the major outcomes of the original Citation Project was a desire to find ways to address and prevent plagiarism (n.d.), that was not part of our study plans for UR. We were more concerned with addressing how students conducted research, discerning the gaps in the way students used resources and beginning discussions on our campus to improve students’ research, critical thinking and writing skills.

The Planning Stage

Taking our inspiration from the methodology of the Citation Project, we planned to adapt their format and analyze a localized random sample of research papers. Initially, we focused on a set of test papers from our First-Year Seminar classes. This test phase taught us a great deal in terms of logistics, practice and even pedagogy.
Our longitudinal project will look at how students are using resources, not whether or not they are plagiarizing. It is important for us to learn how our own students engage with resources as they write, and to what extent they are using sources in their research and writing. While the Citation Project excluded a percentage of the sampled papers because of documentation errors (n.d.), our localized study includes all randomly selected papers in the analysis. This will allow us to review the accuracy of student citation practices, as well as the type of resources used and the ways those sources are integrated into the paper. We will also look at all of the sources used in each paper, while the Citation Project only looked at the first 30 citations, or first five pages of the paper (n.d.).

We received IRB approval in the early planning stages and completed our pilot study during the 2011-12 year, analyzing 29 papers from 5 different classes, with 572 citations coded overall. Our preliminary results show that students use resources which they perceive to be most scholarly; of the citations analyzed, two-thirds of the citations refer to either books (44%) or to journal articles (22%). Students in the pilot group were able, for the most part, to cite information correctly; 65% of the citations were marked correct, with the remaining 35% marked incorrect. However, they overwhelmingly preferred to quote from their sources – 54% of citations are for direct quotes – rather than summarize or paraphrase; one reason for this is may be the fact that they find paraphrasing challenging, and often fall into the pattern of "patchwriting" (6%). The results also show that students misunderstand fundamental aspects of citation, such as incorrectly citing a secondary source, not making clear where the reference could be found in the original, and complete misattribution of a source. See Appendix A for complete pilot results.

Phase Two of our study begins with the 2012-13 incoming freshmen. The call for end-of-Fall term papers went out to faculty in November and will go out again for Spring term FYS in April. We intend to collect at least 50 papers from the two terms to analyze for the first year of our study. During the next four years, we will collect papers once a year to examine the changes in our students’ use of sources, research abilities and engagement with resources. The timeline is as follows: Fall/Spring 2013-2014 First-Year Seminars (Fall and Spring term paper collection); 2014-15 (second year classes), 2015-16 (third year classes), 2016-17 (Capstone/Thesis papers).

**Participation and Discussion on Campus and Beyond**

It was important to obtain faculty buy-in for our project, as well as ongoing support. Developing a new dialogue on our campus related to how students were using resources – and having data to underpin the conversation – relied on campus-wide participation. During the fall term of 2012, the Head of Research and Instruction was part of a FYS Faculty Learning Community, where she was able to explore an individual research project with other FYS faculty. It was during this time that the pilot study took place, as other liaison librarians provided the critical time component to actually code and document the results. Our government documents and social sciences librarian focused on learning SPSS and generating reports from our collected data. During the spring term of 2013, we participated in a presentation to UR faculty to present our pilot results and gain support from the faculty to move forward. In
presenting the early results to the faculty, it was critical to go beyond the ugly and look at the positives of what we were learning, while also addressing the areas of opportunity.

During the fall of 2013, we presented the results from our pilot at the Virginia Library Association statewide conference and laid out the plans for our longitudinal study, offering suggestions for those who might want to try it at their own institution.

Lessons Learned

The pragmatic lessons learned from the pilot can be summed up as follows. Don’t underestimate the amount of time that is needed. This is a long-term commitment and while some of the finding of the sources can be outsourced to student assistants, a more critical eye is needed both for consistency and accuracy of coding. Simply finding the sources can be challenging. References may not be – and typically aren’t – accurate; foreign language documents, partially cited documents, or invented citations can be problematic to locate, especially when we are committed to not excluding a paper if at all possible. Also, don’t only look at the negatives, what students didn’t do in the papers or in their use of resources. There are many ways to frame this to faculty and if the discussion is presented as a set of data points to learn from, or opportunities for improved student learning, it can lead to a positive discussion on campus.

Finally, the philosophical question that we are still asking is, whose role is it to teach students about appropriate citing and to instill good research practices? This may represent a step beyond what some librarians are used to teaching, as it moves into what to do with the resources rather than just finding or evaluating the resources. We have this discussion on our campus frequently and have librarians that approach the topic with different frames of reference. Some librarians have advanced degrees and are adjunct instructors at the university, so their interest is both from a librarian and faculty perspective; they are teaching the students directly across an entire term. Other librarians have broad subject disciplines for which they are responsible and provide library instruction in these areas, so they are interested in learning more about improving student research skills.

Plans for Further Discussion on Campus

Faculty are trying to develop students who can critically read, unpack, and digest complex texts. Students need to be able to apply this new knowledge to their writing and transfer writing ability to different situations and genres. As part of the discussion plans for our campus, we have looked internally at how research skills are taught to students both from the librarians and the faculty. As we investigated these differences in the library literature, we discovered that some of the problems may stem from a lack of rhetorical understanding or commonality between how the research paper is taught and how it is understood by librarians and faculty in the disciplines. Components of information literacy as introduced by librarians are lacking in connections to rhetorical theory that move beyond the finding skills often associated with library instruction (Fister, 1993; Norgaard, 2003; Purdy & Walker, 2013).
As far back as 1993, Barbara Fister warned that if librarians “fail to bear the rhetorical uses of information in mind, they risk teaching at cross purposes to the course instructors” (p. 213). Rolf Norgaard in 2003 argued for the need for librarians to “‘rhetoricize’ information literacy” (p. 126) and proposed that composition instructors and librarians look not at writing and information literacy, but at “writ[ing] information literacy” (p. 125).

Jennifer Nutefall and Phyllis Ryder (2010), among others (Fister, 2013; Jacobs 2008; Purdy & Walker, 2013), have examined this disconnect by noting differences between faculty and librarian research practices. Librarians often focus on audience and write about “techniques for library instruction,” while faculty in the disciplines follow research processes “typical for ‘expert’ researchers” (Nutefall & Ryder, 2010, p. 445). Nutefall and Ryder further complicate this relationship by examining the conceptual differences in research timing between librarians and faculty, looking at how and when research process discussions are most beneficial for students. Without a clear understanding about how students approach research, the strategies used and the timing of students’ research questions, faculty and librarians could very easily be working at odds (2010). Nutefall and Ryder found that while librarians expect students to define an early rhetorical purpose, faculty expect fluidity, anxiety and uncertainty in the early stages of inquiry (2010). This helps to explain why librarians traditionally express concern with unclear or unfocused writing assignments from faculty. That the assignments might be purposefully messy rocks the foundation for much of librarians’ ordered and linear view of how students should approach research (Fister 2013; Purdy & Walker, 2013).

Conclusion

Using our longitudinal citation study as the genesis of a new conversation on campus, we have an opportunity to address the ways that students apply rhetorical knowledge and develop critical thinking, reading and writing abilities. We plan to address something key that was missing in the original Citation Project; according to Veach, “the entire discipline of library science and the sub-discipline of information literacy [that] were absent from the discussion” (2012, p. 105). We hope to begin to answer Norgaard’s early call of “writing information literacy” (2003) and place the information literacy of the library into praxis with a writing-intensive First-Year Seminar. In our pilot study over the last year, it is evident that students can find information, but have great difficulty interacting with and understanding what they are reading. Karen Kaiser Lee refers to this problem as an inability “to draw conclusions from and analyze” sources (2013, p. 47).

We are just beginning our research, so our long-term results are four-five years out. But, as with the focus on revising the ACRL Information Literacy Standards (Association of College and Research Libraries, n.d.) in 2013-14, there are new opportunities for closely looking at what students are doing with information as they write in a new millennium. Librarians must answer Norgaard’s (2003) call and work to place the information literacy of the library into praxis with writing-intensive first-year seminars, thereby moving ahead the discussion, and building upon research paper, information literacy and first-year writing legacy studies and scholarship. Unless librarians heed this call, they and information literacy will continue to be marginalized. By examining student research and resources, we hope to change this paradigm and move the conversation forward on our campus.
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Would You Watch It? Creating Effective and Engaging Video Tutorials

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Abstract
Video tutorials are a common form of library instruction used with distance learners. This paper combines professional experience and literature reviews from multiple disciplines to provide a contextual overview of recommendations and findings for effective and engaging videos. The tools for tutorials appear in five main categories: screencasts, slidecasts, live action video, animation, and interactivity. Not all tools work for every task or skill level, so it is important to have an understanding of the options available to creators. While the category and combination of tools used can vary, some general design principles and considerations apply to any form of online video. The type and length of content, compatibility with different devices, accessibility to all viewers, and quality audio are vital to making video tutorials that distance learners will want to watch.

Introduction
Meeting the user at their time of need is a not a new thought in the library world. The growth of online education has driven libraries toward video tutorials as a way to assist distance learners. Librarians have actively produced tutorials as an extension of reference service, generally focusing on tools, search strategies, and other re-creations of typical research questions or interactions. Directional videos explaining processes and procedures are also common in libraries. Even promotional videos, highlighting services or introducing spaces, have become prominent on library websites. Library video tutorials can vary in length from 30-second demonstrations to large-scale information literacy modules that take hours to complete.

Tutorials, when based in educational pedagogy, can provide a valuable, enriching experience beyond the traditional classroom (Mestre, 2012). A video tutorial not only offers librarians an opportunity to teach efficiently, but also enables students to approach learning independently (Hogarth & Luke, 2010). Virtual students value the convenience of asynchronous video instruction, expect learning objects to engage them, and are accustomed to multimedia environments that encourage self-discovery (Lippincott, 2005). Viewers want video that will establish and maintain their interest. Students are happier and more engaged when video is inviting and stimulating, improving their overall perception of the library and the research process (Sachs, Langan, Leatherman, & Walters, 2013). The format must be familiar and direct. Learners will come to tutorials with a wide spectrum of comfort levels and different learning styles (Mestre, 2010), and use tutorials to satisfy a variety of needs (Green, Pinder-Grover, & Millunchick, 2012).
In 2010, Seminole State College of Florida Library began creating video tutorials and posting them online. Seminole State offers two-year and four-year degree programs. Online students comprise 17% of total enrollment, making it the second largest “campus” (Seminole State College of Florida, 2013). Librarians at Seminole State are responsible for the information literacy instruction of both in-person and online students. Our initial goal in creating online video tutorials was to reach distance learners, though they have also proven useful as review material for face-to-face library instruction. While creating our own video tutorials and reviewing library literature on the topic, some questions emerged. Are we designing video tutorials that students will actually want to watch? Are the designs of our videos both engaging and effective? To answer these questions, we began experimenting with a wide variety of tools and techniques to create different styles of videos. We also pulled research from a large collection of publications on libraries, educational and multimedia theory, instructional design, video production, business training, web standards, and accessibility for the disabled. This paper combines our professional experience and literature reviews from multiple disciplines to provide a contextual overview of recommendations and findings for effective and engaging videos.

**Tools for Tutorials**

There are multiple tools to choose from to make video tutorials. The tools appear in five main categories: screencasts, slidecasts, live action video, animation, and interactivity. Some are low-cost and easy to use, while others take more time to learn but offer valuable features for tutorial creation. Not all tools work for every task or skill level, so it is important to have an understanding of all the options available to creators. Depending on the message or lesson, it is sometimes appropriate to use a combination of tools to successfully reach distance learners.

**Screencasts**

Screencasting tutorials have become a favorite tool of educators in recent years. Even the business world has gravitated towards their use as a training tool due to their ease of creation and familiarity to users (Pierce, 2009). Screencasts comprise the bulk of the existing video used in libraries and are ideal for distance learners. A screencast is a form of video tutorial recorded directly from a computer screen. The software will capture everything done from a desktop: mouse clicks, typing in a search box, resizing boxes, and scrolling through a web page (Farkas, 2009). Voice narration usually accompanies the screen recording to replicate a classroom or one-on-one instructional experience. With high-end screencasting software, the creator has the ability to remove extraneous portions of the video and add audio post-recording to create a concise, attractive learning experience. In a Turkish study of undergraduate students learning spreadsheet applications, the use of screencasts positively affected not only comprehension and knowledge of concepts, but also achievement and performance of learned skills (Tekinarslan, 2013). In another study, Green et al. (2012) report that students had a favorable perception towards screencasting, and attributed their improvements in course performance to screencast availability. This was particularly true in those students with the least familiarity with the concepts. Lower achieving students reported watching a greater number of screencasts, helping to increase their mastery of the content. Yet even students with higher grades viewed the same tutorials in order to review material that they missed or needed clarification on, indicating that students were able to successfully utilize screencasts to meet their individual needs.
Many screencasting tools are free or inexpensive, easy to use, and perfect for beginner experimentation. Tools like Jing, CamStudio, ScreenR, and Screencast-O-Matic allow simple, straightforward live desktop capture with few technical requirements. This type of screencast software is perfect for quickly providing distance learners with an “on the fly” tutorial for virtual reference needs. While quickly made tutorials can have some mistakes and a sloppier flow than more polished versions, a student in need of a quick demo values immediacy over perfection (Brown-Sica, Sobel, & Pan, 2009). By sharing the librarian’s screen to demonstrate a search tool or process, frustration and confusion associated with non-visual forms of communication can be greatly curbed (Price, 2010). It takes only a matter of minutes to produce a video tutorial from start to finish because the recording action is in real time. Many of the low-end screencasting software like Jing, Screencast-O-Matic and ScreenR provide free hosting for recorded content.

Other more advanced high-end screencasting software is available to handle complex development needs. The key difference lies in their editing capabilities, in addition to improved functionality and capture quality. Software like Camtasia, ScreenFlow, and Adobe Captivate allow creators to add callout boxes, highlighted areas, transitions, and zooming, and to include other video and images to screencasts after recording. At Seminole State, we use Adobe Captivate as our main screencasting tool because it offers the ability to edit mouse movements, on-screen typing, sequencing, and length of events. Captivate also integrates other Adobe products, including Photoshop and Illustrator, for enhanced graphics creation. Camtasia and Captivate provide the most control over screencasts; however, they are also the most expensive. Fortunately, both Adobe and TechSmith – provider of Camtasia – offer substantial educational discounts.

**Slidecasts**

Another mode of creating video tutorials takes the form of a slidecast. Slidecast is a conjunction of the words slide show and podcast, which points to its usefulness as a portable multimedia learning object. Using a frame- or slide-based approach, slidecasts are individual pieces of information linked together to create a movie. Unlike traditional slideshows of self-advancing slides, slidecasts use auto-advance settings to create a streamed video-like effect. The content of the slides may include graphics, images, text, animation, audio, and computer screenshots working in conjunction to create a dynamic presentation (Kroski, 2009). In contrast to screencasting, the creator would need to take multiple screenshots of the desktop and place them together to give the illusion of movement on a page. While slidecasting does not work well for most resource demonstrations, the real advantage of a slidecast is that it is easy to manipulate the content and pacing of the lesson. Higher end screencasting software like Camtasia and Captivate does allow for the integration of both slides and screencasting. There is little research specific to slidecasting’s effectiveness, but much of the screencasting research is directly applicable as it accomplishes comparable goals using different tools.

No complex recording or streaming techniques are necessary to produce quality slidecasts (Kwong, 2008). Slides produced with a presentation program like Microsoft PowerPoint are uploaded to a secondary application for additional features and hosting; important to note is that hyperlinks will not function in a slidecast after hosting, even if they were part of the original presentation (Reyna & Stanford, 2009). AuthorSTREAM is a hosting
website where creators can upload their slidecasts and easily share the publically accessible video. Audio, animation, and slide transitions are added before upload to AuthorSTREAM to create a seamless video presentation. Another option is to download a PowerPoint slideshow as a Windows Media Video file type (.wmv) and upload it to a hosting platform like YouTube. The original PowerPoint slideshow must already have the slide transitions, animation, audio, and slide advancement built into the file before the conversion and upload to a hosting site. The hosted slidecast allows for easy embedding into “applications such as blogs, wikis, video sharing services, and learning management systems” (Reyna & Stanford, 2009, p. 1). Creators can generate a self-advancing slidecast and share the PowerPoint file with distance learners instead of hosting on a separate site. The disadvantage of this method is that it requires the learner to have PowerPoint or PowerPoint Viewer on their device to view the tutorial.

Adobe Captivate and Articulate Studio are software programs that can take a slidecast to new levels of interactivity and engagement. Creators can design slides using Captivate or upload existing PowerPoint slides. Captivate allows the creator to easily generate the movie effect for the slides, and include other features like screencast integration, quizzes, and interactive elements. Articulate Studio is comprised of three separate programs: Presenter, Engage, and Quizmaker. Articulate Studio works within the existing framework of PowerPoint to enhance the slidecast with multimedia interactions, assessments, self-test questions, characters, and navigation (Jawaid & Ashraf, 2012). The cost of Articulate Studio may discourage some libraries from experimenting with this tool; however, special education pricing makes this a more affordable option.

**Live Action Video**

It is possible to add a real-life aspect to tutorials using live action video. This tutorial type involves video footage of people and physical spaces. Live action works well to show motion and tell a story (Lipkowitz, 2013). It does not work well to show abstract and complex concepts (Halls, 2010) or computer-based training. The distinct advantage over other tutorial types is that live action reflects actual experiences and real people to make the information relatable, even less intimidating. When deciding who will function as the “actor” in a live video tutorial, it is interesting to note that theatrical skills are important to viewer stimulation and interest. A research study on accounting video lectures found that the person delivering the information is not as important the style used by the lecturer (Calk, Alt, Mills, & Oliver, 2007). In other words, the instructor’s knowledge of the subject matter is secondary to their likability for effectiveness. Live testimonials from students can provide a video with more authenticity (Lipkowitz, 2013). Incorporating seemingly unplanned footage like interviews or testimonials into a video makes them appear more realistic and natural to the viewer, as opposed to studio-created, scripted video. When possible, it is advisable to incorporate both formal and informal styles into video recording, as some concepts are more dependent on exact phrasing and some actors will simply perform better in one style (Majekodunmi & Murnaghan, 2012).

The equipment used to capture live action footage can range from webcams to professional grade cameras. Recording directly from a webcam and integrating footage with screencasting or slides is accomplished using software like Articulate Replay or Adobe Presenter. Webcam footage with additional media is helpful to recreate a lecture-style tutorial.
Library building orientations and physical tasks are ideal candidates for live action tutorials. Classroom lectures recorded in front of a live audience can help capture the “spontaneous, vigorous interactions” of a natural learning environment (Hart & Proulx, 2005, p. 19). Equipment choices and recording techniques for lectures, orientations, and tasks require greater consideration than in webcam recording. Record footage with a steady camera mounted on a tripod (Halls, 2010). The location should be in a place that is “visually, sonically, and logistically suitable” for filming (Hart & Proulx, 2005, p. 19). Use external microphones instead of the built-in camera microphone to obtain a higher quality sound and reduce background noise (Halls, 2010). Purchasing a professional grade video camera is expensive and unnecessary for most educational videos. A good consumer grade camera will provide a high enough quality video for web streaming. If a media support department is available, another option is to work with them to capture film using higher level equipment without cost to the library.

The digital file from video cameras is revised using video editing software. Popular products include Windows Movie Maker, Final Cut Pro, Adobe Premier, and even Camtasia. Windows Movie Maker is a free download for computers with Windows operating systems and has enough editing features to create well-produced videos appropriate for most educational settings. Both Final Cut Pro and Adobe Premier have a steeper learning curve and higher cost than Windows Movie Maker or Camtasia. However, these products offer expanded video editing features including color correction, professional video effects, and the ability to combine footage from multiple cameras. If having a clean, stylized video tutorial is not essential, YouTube allows for very basic editing prior to upload. The editor is essential to shape the production, whether piecing together segments or incorporating a small clip from another tutorial like a screencast or animation. During her experience of creating a video series for freshman orientation, librarian Sherri Saines (2011) found it takes around 7 or 8 hours to create a video, per minute, to make it “really good” (p. 535).

Animation

Animation appears to be the least used type of video tutorial found in libraries. A 2010 study of 1,300 video tutorials by art and design colleges, universities, and school libraries found that only 2 percent used animated videos (Tewell, 2010). Unfamiliarity, the popularity of screencasting and, until recently, a small number of consumer level tools might explain the infrequent use of animation.

Animation offers libraries some interesting opportunities. Animation allows libraries the ability to have a “face” to their tutorials without relying on the use of actors. Ekart (2012) explains that animation allows creators to lend their “presence and voice” to the tutorial even if they are “camera-shy” or worried about “having a good hair day” (p. 39). Cartoons, or animations, are a “non-threatening form of communication” which allows viewers to be open to new messages (Spitalnik, 2013, p. 4). This openness can be especially helpful for libraries who are trying to convey a difficult concept or promote a service. In her book Design for How People Learn, Julie Dirksen (2012) states, “If you want to get and maintain your learners' attention, you need to talk to the emotional, visceral brain as well as the conscious, verbal brain” (p. 158). With its combination of stimulating imagery and audio, animation can reach both the
visceral and verbal parts of the brain. Animation is an opportunity to show the library’s fun, informal side in order to engage viewers and get the message across.

Some useful web-based animation tools are GoAnimate, PowToon, and Wideo. GoAnimate allows for manipulation of different characters’ voices, facial expressions, props, and movements in a variety of scenes. PowToon is a “minimalist, user friendly and intuitive… software [for] animated presentations” that first appeared in July 2012 (“About,” n.d., para. 3). This software uses 2D drag-and-drop characters, backgrounds, and props placed on slides and then played together with audio for animated shows. Like PowToon, Wideo uses 2D elements on slides to create animated content. Founded in 2012 (“Our team,” n.d.), Wideo offers a variety of quirky and fun characters and props to help make a light-hearted tutorial or promotional video. Both GoAnimate and PowToon offer on-site hosting, exportable videos with some packages, and free and paid versions including special educational discounts. Wideo includes free and paid versions, with educational discounts by email request (J. Esperon, personal communication, November 8, 2013). On the high end, Adobe Flash Professional is an animation and interactive content software used to create anything from tutorials to games. Unlike the other web-based animation products, Flash Professional is time-intensive to learn, but does allow the creator to produce fully customized animation and immersive environments. Adobe offers discounted student and teacher pricing for academic institutions.

Interactivity

Interactivity does not refer to a method of capturing or displaying information. Instead, it refers to a heightened amount of control and interaction the viewer has with the video tutorial and the learning environment. Interactivity takes the learner out of the passive role of watching content and allows them to participate with the material itself. Common interactive elements include simulations, games, guided images and graphics, as well as responsive timelines, diagrams, and charts. The inclusion of interactive elements with video tutorials can help meet a variety of learning styles, preferences, and abilities. Mestre (2012) explained the benefits of adding interactive elements best: “...they have the potential to engage visual, auditory and kinesthetic learners, as well as to accommodate students who learn best through observation, listening, or by engaging in hands-on activities” (p. 258).

Enhanced navigational controls and assessments are important components of interactive video tutorials. Interactivity goes well beyond the typical video controls of start, stop, pause, fast-forward, and rewind. Students want to control the pace of the tutorial (Sachs et al., 2013) and have the ability to skip or revisit content. This allows the student to decide what information is relevant for them personally and appeals to those with varying levels of knowledge or skill. For consistency and ease of use, it is critical that navigation is consistent throughout a singular or modular video tutorial. This includes navigational graphics, text, colors, and links (Mestre, 2012).

Assessments like pre-tests, post-tests, quizzes, surveys, and feedback on progress are present in many interactive tutorials. Typical assessable components include short answer, ranking, multiple choice, true or false, task simulations, and manipulating objects. Assessments can reinforce learning, provide self-checks of knowledge or skill, or create a formal, graded
evaluation. The feedback obtained in the assessment helps reinforce learning by requiring the learner to think critically about the material in the tutorial (Mestre, 2010).

Creators can add interactivity to screencasts, slidecasts, animation, and live action video using specific techniques and software. Existing video tutorials hosted on YouTube can be upgraded using the video description box and overlaid annotations. At Seminole State, we include relevant links, additional instructions, and a linked table of contents in the description field by adding a chapter title and time in a standardized format (e.g., one minute and thirty-one seconds is 1:31). YouTube video annotations greatly expand the interactive features of regular video tutorials. For example, we overlay clickable, hyperlinked boxes on the video itself to send the students to referenced content and corresponding videos. This gives viewers the ability to discover additional information or skip to videos that are more relevant to them. There is software available to create fully interactive tutorials beyond the capabilities of YouTube including Articulate Storyline, Articulate Studio, and Adobe Captivate. Each product has interactive elements, assessments, and navigational controls. Articulate Storyline and Adobe Captivate include tools to make screencasts and create simulations. All three of these products have a higher learning curve and price tag than most video tutorial tools. Still, the advantages and features make them worth the additional time and cost. Again, educational discounts are available for all Adobe and Articulate products.

Best Practices

While the category and combination of tools used can vary, some general design principles and considerations apply to all forms of online video. The type and length of content, compatibility with different devices, accessibility to all viewers, and quality audio are vital to making video tutorials that distance learners will want to watch.

Content

Many tutorials focus on teaching specific resources like the library website, catalog or discovery tool, databases, citation generators, authentication processes, or reservation systems. These resource-based tutorials are important for distance learners and mimic many of the demonstrations librarians would provide to on-campus students. Unfortunately, resource interfaces and websites are subject to frequent changes, so it is crucial to monitor them closely. Outdated videos not only prevent the viewer from easily repeating the lesson, but also hurt the reputation of the library as quality resource for help. If the change is drastic enough, the creator must re-record or edit the video. Other times the change is minimal and does not necessitate any alterations.

Another popular type of video tutorial focuses on information literacy concepts like keywords, search strategies, choosing the right resource, or information sources. Concept training has shown to be effective in combining lower order and higher order critical thinking skills into the same lesson (Mestre, 2012). When tutorials are concept-focused, they can apply to a broader audience of distance learners from different academic areas. Concept-based video tutorials are also not subject to constant updating if they do not rely on a specific interface or website to teach the lesson.
When designing a tutorial, one thing to examine is whether the content can fit into a single video, or if it should appear in multiple parts. Mayer’s segmenting principle states that people are better equipped to absorb information in smaller chunks where they can “digest one bite-sized segment” (Mayer, 2009, p. 177). If the concept cannot be articulated in a reasonably short segment, then a modular approach to the tutorial is worthy of exploration. A series of linked videos that logically present smaller concepts of a larger skill or process can encourage students to advance through the lesson at their own pace without the risk of overload. In a study of student preferences in academic video tutorials, students found videos over three minutes to be too long and largely ignored or skipped introductory material (Bowles-Terry, Hensley, & Hinchliffe, 2010). At Seminole State, we study the analytics for our YouTube videos to determine the number of views and the length of viewing videos receive. In an analysis of viewer retention statistics, Seminole State found that no matter the length and presence or absence of introductory materials, on average, only 35% of viewers completed the full tutorial. The average viewer watched 54% of the video tutorial before quitting. These findings suggest that when possible, the most pertinent information should appear in the first half of the tutorial. An inverted pyramid content structure includes the most vital information at the beginning of the video followed by the supplementary, contextual information at the end. This increases the chances that the viewer will receive the targeted instruction, even if they leave before the video is finished (Bowles-Terry et al., 2010).

Compatibility

Before creating a video tutorial, you must think about where the video will be hosted and the aspect ratio and resolution in which you will create the video. Both the hosting location and the size of the video will determine how compatible your tutorial will be with different computing devices, including desktops, laptops, mobile phones, and tablets. Making sure that distance learners can view your tutorial regardless of device type is essential.

The first decision is where to host it. YouTube or Vimeo are free hosting options that work for most video tutorials. At Seminole State, we chose YouTube as our main hosting site because it is a free video platform and familiar to most students. YouTube also has the advantage of creating a public, searchable database that can extend the reach of our video tutorials outside of the college. Many of the online tutorial software like Jing, Screencast-O-Matic, GoAnimate, and PowToon offer free hosting on their own websites. Others allow exportable content with upgraded packages. Video tutorials with interactive elements, assessments, and custom navigation must be hosted on a web server or in a learning management system (LMS) to perform properly. As mentioned earlier, slidecasts made in PowerPoint can export to AuthorSTREAM or be saved as video files and uploaded to YouTube.

The resolution and aspect ratio of a video tutorial are important. A higher resolution will create a higher quality image, but will also create a larger file size. Not all video tutorial tools will allow for a choice of resolution, but some, including Adobe Captivate, have flexible options. High-definition (HD) web video has a resolution of 1920x1080 or 1280x720 (“Video compression guidelines,” n.d.). The most common aspect ratio – the proportion of width to height – of computer monitors and tablet computers is 16:9 (“Top 10 desktop, tablet & console
screen resolutions from Dec 2012 to Nov 2013.” 2013). This size matches the aspect ratio for HD video. While most smartphones have an aspect ratio of 4:3 (Kafadarova & Stoyanova-Petrova, 2013), many new phones are developed with a 16:9 aspect ratio to accommodate HD video (McMahon, 2012). When the resolution and aspect ratio of the video tutorial do not match the resolution and aspect ratio of the viewer’s display, it can cause videos to appear too small or too big for that screen (Elliot, 2011). When possible, Seminole State designs videos using the 16:9 aspect ratio. For videos hosted on YouTube, we record screencasts and slidecasts in the recommended resolution of 1280x720, a 16:9 aspect ratio (“Advanced encoding settings,” n.d.). This provides an HD, widescreen experience for desktop and laptop viewers. For non-HD screens, YouTube will scale the video to a smaller size and will automatically lower the resolution of videos to standard definition (SD) if the device has a slower internet connection (“Top 10,” 2013). At Seminole State, we test video tutorials on multiple devices and screen sizes to ensure quality of picture and to make sure that tutorial elements are visible and readable on both small and large screens. For quick screencasts not hosted on YouTube, we maintain a 16:9 aspect ratio but typically record using a lower resolution like 854x480 to make it compatible with most screen sizes.

**Accessibility**

A diverse group of distance library users means that accessibility is important when creating video tutorials. The ability to make a tutorial accessible or inaccessible is within the power of the creator. The ideal is to choose the tool, hosting, and instructional method that will make your video born-accessible, rather than trying to retrofit a video to make it accessible later (Wentz, Jaeger, & Lazar, 2011).

Those with difficulty using websites will also experience issues with digital video. Be aware of how viewers with low vision, blindness, color blindness, hearing impairment, physical impairment, and cognitive or learning disabilities will perceive the tutorial (Oud, 2011). Captioning, or subtitling, is an important accessibility feature for video tutorials with narration. This is an essential accessibility feature for those with hearing impairments or who are unable to listen to the audio because they are in a noisy environment or public area. It also is beneficial for distance learners who are non-native speakers of the language used in the video (Mestre, 2012). Some tools allow creators to add open captions that display automatically to correlate with vocal and non-vocal audio elements. Open captioning can cause cognitive overload for viewers that listen to the audio, see the text, and watch the graphical display all at the same time (Oud, 2011). To avoid overload, closed captioning is the preferred method. Closed captioning allows the viewer the choice to view the captions or not. YouTube has an excellent synchronized captioning feature applied to all videos after upload. While YouTube’s machine-generated captions are often inaccurate, creators can easily edit the content or upload their own script. Another accessibility feature of YouTube’s closed captioning is that viewers can control the color, font, and size of the text to suit their visual needs and preferences. As of 2013, Vimeo does not offer closed captioning. When captioning is not possible, provide access to a transcript of the video.

Type of player and location of hosting can either help or hinder video tutorial accessibility. The Flash player was the preferred method for displaying multimedia.
presentations on the web until recently (“Creating accessible Flash content,” 2013). Flash has the advantage of allowing for fully immersive, attractive, and interactive video tutorials. Unfortunately, the Flash player poses many accessibility problems for viewers including incompatibility with screen readers and the requirement to download an additional plugin. Currently, smartphones and tablets like Apple’s iPhone and iPad and many Android devices do not support Flash (“Creating accessible Flash content,” 2013). An alternative to publishing in Flash is to use HTML5. Web video using an HTML5 player does not require viewers to download additional plugins to view content; they only need a compatible web browser. HTML5 is an alternative for devices that do not have Flash compatibility and will become the default method for playing web video in the future (Heffernan, 2012). It also allows videos to resize automatically to fit the viewer’s screen, including mobile devices (Bennett, 2013). Both Vimeo and YouTube support Flash and HTML5 video and can automatically detect which web browser and player the device has so videos can display successfully (Welton, 2013). Videos hosted directly on the GoAnimate, PowToon, Jing, and Wideo sites are Flash-based only. To make them more accessible, the library must upload these videos to Vimeo or YouTube. Screenr and Screencast-O-Matic have HTML5-compatible videos directly from their site. Adobe Captivate, Articulate Studio, and Articulate Storyline provide Flash or HTML5 publishing options.

Proper instructional design achieves accessibility for the largest population of distance learners. Narration, pacing, interactive elements, and navigation are common areas of disruption. Narration should avoid visual references like click the red button or screen location information like look beneath the logo. These cues require sight to fully comprehend, thus excluding students with vision impairments. Any action performed on the screen should have an auditory and/or textual counterpart to reach the greatest number of viewers (Oud, 2011). Narrated speech should never overlap with background sound like music (Goodfellow, Sich, & Torabi, 2013). Ambient noise or musical accompaniment can interfere with a person’s ability to clearly understand or focus on information and hinder learning (Oud, 2011). Self-paced or easily navigable content is necessary for students with cognitive or physical impairments that require extended time to read and use content (Bradbard & Peters, 2008). Enabling a pause option in video and permitting return to segments allows the viewer to customize the environment to meet their specific needs.

Interactivity demands the most attention when considering accessibility. Any task that requires the use of a mouse should also be replicable on the keyboard. Many of the flashiest features of interactive videos including drag and drop elements, mouseovers, and rollovers are inaccessible because they require the learner to have the ability to use fine-motor control over a mouse (Oud, 2011).

**Audio**

In a multimedia tutorial environment, audio will play a large part in creating video tutorials. Narration is common to training videos and is how students are accustomed to viewing general online multimedia like video tutorials. Research has shown that students view multimedia presentations favorably, which correlates with a higher motivation to learn (Yu, Jannasch-Pennell, DiGangi, & Kaprolet, 2009). This in turn makes it more likely that the learner
will retain the information. Mayer’s modality effect states that people are more likely to absorb information from graphics paired with narration than graphics paired with onscreen text only (Mayer, 2009). In multimedia learning, learners viewed auditory cues as better simulating a human-to-human interaction, possibly explaining the interest, retention, and engagement with material (Yu et al., 2009). This is invaluable to tutorial design for distance learners who may never meet a librarian in person, but can appreciate that an actual person is behind the content delivery.

There are several considerations related to the style of speech in the narration. Speaking with a clear voice and enunciating are essential for several purposes. For one, the end user will need to understand the speech in order for it to be effective. Muffled audio hinders comprehension and general interest in viewing the tutorial. Use a loud voice – but not a shout – during the recording process to help the audio stand out from any ambient background noise as well as aiding in clarity for the viewer. The tone of narration should be polite, direct, and even empathetic when appropriate to create a positive perception towards the material (Yu et al., 2009). Audio should also reflect a conversational style over a formal lecture style when possible. Pace of speech is important for comprehension, as well. Speaking in shorter sentences, with pauses between thoughts and frames, gives the viewer time to process the information. This presents a balancing act; too slow and people will see it as drawn-out, and too quick might be difficult to comprehend.

To record audio you need a microphone and audio capture software to create a digital file. Studio-quality microphones are overambitious for tutorial purposes, while entry-level models record poorly and give an amateurish feel to tutorials. Echo, distortion, noise, sibilance, and generally uneven and muddy recording levels are common with lower end microphones and can be difficult to edit or troubleshoot throughout the process. A mid-priced microphone is worth the investment to provide good quality audio. Look for an anti-“pop” filter in a microphone to eliminate harsh syllables and hisses (from p and s sounds) as well as explosive bursts of noise from breath. A decent microphone will also provide more capture range to give the narrator flexibility with microphone positioning. A desktop microphone stand will increase the ease of recording as well as allow the narrator to have free hands for software controls. The stability provided by the stand will keep the microphone steady and improve the quality of recording as well.

Some video tutorial tools like Jing and CamStudio limit audio recording to real time and do not allow for editing or adding audio post-recording. This is not an issue if the goal of the video is to make and share it quickly with a student. Fortunately, most tutorial tools allow import and editing of audio. Audio manipulation is a key part of making a quality video tutorial because it gives the creator the freedom to isolate the audio, by fractions of a second, to remove mistakes or glitches. For recording software, Adobe Audition, FL Studio, and Pro Tools offer a wide range of editing features geared towards musicians and professional audio producers. For tutorial building, these extended features are unnecessary and not cost effective. Audacity is a free sound recorder that is intuitive to the user and perfect for non-experts. Creators can record sound directly into Audacity or manipulate existing recordings. With minimum effort or expertise, creators can cut and rearrange audio, adjust the volume, and add effects to audio with Audacity. Adobe Captivate, Camtasia, and Articulate offer high-quality recording and editing
functions built into the software interface, thus eliminating the need for using an outside editor. In our experience, Captivate has the highest quality recorder and editor among tutorial software.

**Conclusion**

Video tutorials extend the reach of librarians into the ever-expanding virtual world of distance learners. Not every tool or every style is right for every lesson or match every creator’s comfort or skill level. The important thing is that video creators know there are a variety of methods and tools out there, and that sometimes more than one tool is appropriate for the job. Utilizing the vast body of knowledge concerning design and design elements will best inform the structure and approach taken in development. Distance learners want and will continue to seek instruction from librarians. It is imperative that creators know that technological and pedagogical challenges in creating tutorials are inevitable. The tools will change, demands on the level of engagement will grow, and the responsibilities will shift for librarians. The key is to respond to the challenges with an attitude of exploration, experimentation, and determination to make great video tutorials.
References


Instruction on the Go: Reaching Out to Students from the Academic Library

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Abstract
The purpose of this paper is to describe how a series of one-shot or single class library instruction webinars were created for on-campus and distance education students at Virginia Tech, a land grant institution in rural southwestern Virginia. Virginia Tech’s distance learning department on campus trained in Centra 7.6 software and the lead librarian collaborated with peer librarians to offer a wide range of instructional sessions. In this study, interviews were conducted one-on-one with five webinar participants at Virginia Tech. Interviews were digitally audio-taped and transcribed. These interviews were used to gain feedback and information regarding the library-based webinars. Results were organized into thematic codes using NVivo 10 software. Results showed strong interest in the library webinars, especially in the playback or archiving features and interactivity.

Background
Virginia Tech is located in the southwestern portion of the commonwealth, approximately three and a half hours from Richmond. The university library serves over 31,000 full time and nearly 3,000 part time students in 65 bachelor programs and 150 masters and doctoral degree programs. Virginia Tech’s School of Education is a graduate-based program offering teaching certifications, master’s and doctoral degrees to over 900 students at five off-campus locations across the state of Virginia. The School of Education focuses in the programs of Curriculum and Instruction, Counselor Education, Career and Technical Education, Educational Leadership, and Education Research and Evaluation. Librarian liaisons, or department-designated librarians, deliver library and research instruction in a multitude of formats. The most common of these is face-to-face instruction in the classroom, but teaching has also been delivered through a televised system to students in various distance education locations across the state. Liaisons also meet with students and faculty individually or in small groups in a face-to-face environment and talk with them via e-mail, Skype, or over the phone.

Because many students – especially in the area of Education Leadership – are in satellite campuses across the state, it is common to travel at least once a year to each distance education location to visit patrons. It was during one of these visits in 2010 that students introduced the idea of webinars for library instruction. This particular campus was located in northern Virginia, near Washington, DC, where traffic is very heavy and getting to class is always a struggle. The students in the graduate cohort wondered if library instruction could be delivered in a webinar
That way, instruction could be delivered to where they resided and no one would need to travel to the distance campus for a library session. It was admitted at the time that it was an intriguing idea, and the students were told that the possibility would be investigated once back at the main Virginia Tech campus.

Upon returning to campus and speaking with members of Virginia Tech’s Department of Distance Education it was determined that the university’s online course software Centra 7.6 would be an appropriate tool for library webinar delivery. Centra is an online instruction management tool where instructors can teach sessions live (synchronously) or recorded (delivered asynchronously). Centra 7.6 includes teaching tools such as live chat, screensharing, polling, video conferencing and more. After looking at other online tools such as Wimba, Dim Dim, Join Me and many others, it was decided that Centra offered the most capabilities to share library instruction sessions in a live setting. Once the technology was secured, scheduling and advertising could be set up through the library and Distance Education Department and webinar opportunities could be offered.

**Purpose of Study**

The starting point for providing services to distance education students is to know the learners and to be aware of ideas and strategies to successfully deliver instruction (Newton, 2007). The purpose of this study is to provide a description of how a series of one-shot or single class library instruction webinars were created for both on-campus and distance learning students at Virginia Tech. The rationale for this study was that by obtaining a better understanding of the webinars already provided, as well as the expectations and perceptions of the students, librarians from Virginia Tech Libraries would be able to offer better webinars in the future.

**Research Questions**

1. How can one-shot or single class library sessions best be delivered online to students and faculty in higher education?

2. How do students and faculty perceive online education or webinars delivered from the library?

3. When online or distance library sessions are not attached to a credit bearing class, how can they best meet the needs of students and faculty in higher education?

**Literature Review**

The literature on webinars and similar efforts to aid distance education or off-campus students in reference and research instruction is limited and varied. Off-campus students are defined as those who do not live on college campuses, who study at a distance from the main branch of an institution, and who receive most of their research material through electronic means (Newton, 2007). The topic of webinars used for one-shot library instruction, and librarian collaboration to create online instruction through webinars, is not well covered. This paper will
add to the growing body of research in the areas of distance education, instructional
technologies, and librarian collaboration.

Barnhart and Stanfield (2011) discuss how the University of West Georgia created a pilot
program for online instruction using the Wimba web conferencing software. The article takes
readers from the beginning of the pilot program in 2009 with training of the librarians to their
first instruction sessions with students, along with the successes and challenges therein. One of
their first issues occurred when the librarian’s first class resulted in being shown on a full
classroom screen instead of on students’ individual computers. They found some technical
issues as well with time lag between instructor and patron computers. When the librarian was
speaking and teaching during a webinar session there could be a time delay to the receiving
computers. Those who are using webinars to instruct have to take that time impediment into
account and slow down when teaching. Discussion is still ongoing between librarians at the
University of West Georgia as they reflect upon their pilot project, how the initial web
conferencing instruction went, and where they should go for the future. Barnhart and Stanfield
offer advice to other librarians wishing to try web conferencing software, even giving a
comparison chart of free Web 2.0 tools, since software costs can get high (2011).

Nicholson and Eva (2011) write about using Skype to teach distance education students
in their pilot study at the University of Lethbridge. The Web 2.0 video conferencing tool was
used in collaboration with five Writing 1000 classes as well as with a management course. The
authors express the need for librarians to refocus the way they serve patrons so that they are
better able to provide instruction and reference for all students no matter their location, whether
on- or off-campus. The librarians in this study used Skype to teach entire class sessions and also
used screensharing software to deliver further aid to students. Nicholson and Eva (2011) discuss
the successes and challenges of their project. This study opened opportunities for new
instruction as well as introduced new avenues to offer individual research consultations to their
students.

In other literature, Tang (2009) discusses the work being done at Jacksonville State
University in distance education and e-learning. The needs of off-campus students are identified
and met through virtual library tours, screencasts, pathfinders, handouts and other tools. Video
conferencing is mentioned, but this is different from the web conferencing being discussed in
previous articles and in this current project. Bower and Mee (2010) created Meet the Librarian
web pages to connect students and faculty to their subject librarians at the Rochester Institute
of Technology. They used Adobe Connect to offer research tours and demonstrations from
librarians’ desktop computers. They also worked with virtual Web 2.0 tools to create a library
presence in their university’s Second Life space titled RIT Island. Leitzau and Mann (2009)
used the Wimba Web and Adobe Connect conferencing tools to deliver live online instruction
and one-on-one sessions to their students in Taiwan from the University of Maryland University
College.

Most of these studies involve librarians delivering instruction to one credit-bearing class
or tying online instruction with one professor. These projects show strong elements of
embedded librarians who are partnering with their faculty and delivering instruction through
distance and digital formats. What happens when library instruction sessions are not tied
specifically to a class? At Virginia Tech, offered online library sessions included topics such as: methods for dissertation submission; Endnote, Zotero, and other citation tools; websites and applications for teaching and learning; basics in database use; and many more, none of which were specifically tied to a particular class. There is an increase in online and distance learning and this is altering how librarians offer their instruction in information literacy (Rand, 2013). When library sessions are tied to a class or course there tends to be more buy-in, but can there be buy-in when the sessions are for personal use or the intellectual gain of information? This was one of the questions of great interest for those librarians offering these services at Virginia Tech.

Methods

This exploratory study used an individual interview approach to move toward a thematic analysis of the data, exploring such areas as perceptions, instructional techniques, and motivation in and toward the library webinars. Ethics approval was gained from Virginia Tech’s Research Ethics Board.

Sample

Purposeful sampling was used in this study, as only students and faculty who had participated in the library webinars over the past three years could take part; students and their professors who had never taken a library webinar from the Virginia Tech Libraries were excluded. Email invitations were sent to students and faculty who had taken at least one library webinar in the stated time period. Our hope was to have ten interviewees, but we were fortunate enough to have five willing to interview. Saturation of themes was well-reached amongst our five interviewees.

Data Collection

Two separate interviewers conducted the five one-on-one interviews, each taking turns to collect the interview data. Participants signed consent forms, which included permission to share findings in presentations and publications. They then completed interviews lasting 15-20 minutes. The interviews were digitally audio-taped – with participants’ consent – and then transcribed. Three of the interviews took place face-to-face, one via the Skype online communication system, and the last via speaker phone. Interview transcripts were analyzed throughout the data collection process and it was decided that saturation was reached with the participating five interviewees.

Interview Questions

The interviewers did not ask for demographic information but did ensure that interview participants had taken part in the library webinar series at some point in the last three years. Participants were then asked the following questions.

1. How many webinars have you taken outside of the library Webinar series? Can you provide some titles or topics?
2. Can you provide a description of the experience, teaching techniques, overall educational value?

3. Which of the library webinars have you attended?

4. Did you attend them live or did you watch the archived recordings?

5. What were your expectations of the webinars? And were they met?

6. What did you like about the webinars? What didn't you like?

7. Why did you take the library Webinar?

8. How did you find about the library Webinar?

9. Are there topics that you would like to see covered in the future?

10. If more webinars are offered in the future would you take them?

Follow-up questions were asked as needed throughout the interview process. The questions included thoughts on future webinar topics, theories or perspectives in online teaching techniques, and personal use of library webinar information gained from the series.

**Data Analysis**

Data were analyzed using the qualitative data analysis software Nvivo 10. The participants’ narratives were imported into the software and common themes were explored throughout the five interviews. Common themes are included in Figure 1.
Results

Interview respondents were graduate students who had participated in the library webinars over the past three years. Four of the interviewees had participated in the webinars live – synchronously – while one participant had observed an archived webinar after its recording and had taken part asynchronously. Participating respondents took part in webinars that included instruction in Endnote and other citation tools, the dissertation submission process, technology tools for teaching and learning, and library database training. Participants had been informed about the webinars via email, library webpage announcements, or directly from librarians during consultations or face-to-face instruction sessions.

Past Webinar Experience

Study participants had a wide variety of experiences with webinars. Before taking part in the library webinars, interviewees had participated in anywhere between two to sixty webinars depending on the respondent. Previous webinar topics were across the spectrum, as well; some examples that were included in the discussions were personal finance, how to teach webinars,
academic affairs in higher education, NVivo Qualitative and data collection software, and online options integrated with credit-bearing graduate courses. One interviewee stated:

A lot of them have been through student affairs, they do those through the university here, that’s been around 20 (webinars) in my mind, I have gone to maybe a dozen or two dozen webinars that are associated with conference calls so you will be in a meeting and someone will have to show a slide or give a certain presentation and then the meeting resumes after that, several of those have been for the multicultural advisory board talking about diversity and inclusion and things like that, then otherwise more like “academicy” [sic] ones that I have done have been though my online classes. So you know sitting down watching a lecture watching the slides with said lecture usually academic success or based on whatever topic that subject or lecture is, and then following up with notes or a paper or something like that.

Techniques from Past Webinars

When creating webinars and other online tutorials and screencasts, students and faculty need an environment that is user-friendly and intuitive. Live or synchronous webinars need to be a setting where assistance is available and questions are fostered (Kontos and Henkel, 2008). Participants from this research study had multiple techniques of which they were fond from previous webinar or online instruction experience. Quizzes, polling, screenshots, demonstrations, tutorials, live chatting sessions, and archiving for easy future review were some of the preferred teaching or delivery online techniques of participating respondents. One participant had the following to contribute:

So for me the teaching method that kind of works and I don’t even know if really you want to call this a teaching method but the one that I kind of connect with the most is the one when there is something that is demonstrated on a slide but the entire webinar is not just on slides and then the individual is executing or showing by example of what it is that they are talking about. That method works a lot better for me. I have been to many webinars I have taken probably at least ten where it’s just the slides and it’s like there is no reason for me to be on the webinar. I could just listen to a recording of this, print out the slides and boom boom and you know, that is usually a lot easier to access and a little less firm of a location that I have to be in.

Library Webinar Preferences

Study participants took part in webinars that included instruction in Endnote and other citation tools, the dissertation submission process, technology tools for teaching and learning, and library database training. There have been a number of webinars offered in the past three years. The first webinar offered in 2010 was focused on the basics of databases. This particular webinar was advertised solely to the School of Education’s faculty and students. Twenty students and faculty signed up to attend this webinar. After the initial session more followed, and topics included information on databases, citation tools, dissertations, research aid, great websites and applications for teaching and learning, and basics in library research and organization. Webinars were not only taught by the Education Librarian, but also via
collaborations including other librarians at Virginia Tech whose expertise better served to cover the topic of each webinar as it was being offered.

Participating respondents had many preferences both negative and positive toward the webinars. Overall the convenience of the webinars was an important factor of the online library sessions. The fact that students could take part in these sessions from the comfort of their homes or the destination of their choosing was incredibly useful. A distance education student had this to add about the convenience of the library webinar series:

What I like about the webinars in general is that they give me the opportunity to participate where I might not have the opportunity, particularly the ones that you did. I am a part time student who lives in Roanoke and I don’t really feel part of the community or have opportunities to use some of those resources and participating in the webinar gave me the opportunity to do that.

The same student did have perspective to include about the webinars and online instruction in general:

I still think as good people think they (webinars) are, they have limitations. You are still kind of sitting there, and you don’t always get, some of the time that you spend you don’t always get that much back. So I still think they feel a little bit alienated, they’re better than not having anything at all, but I am still not sure they’re as good as live interaction.

The archiving capabilities of Centra 7.6 were a key preference to students as well. Even if the participant had attended the session live, being able to review the session at a later date was incredibly important to them. As one student stated when asked what they liked about the webinars, “Archiving and you could always go back to the recordings, you could use the material and you could always go back if you lost track or if you don’t remember certain things.”

**Expectations**

Interviewees came to the library webinars with some expectations and overwhelmingly they were all met. When asked if they would take a library webinar in the future all five participants responded positively. Expectations included webinar content and what would be gained, as well as technology and general connectivity issues. There were also high expectations for how the webinar content could help them with future classes and graduate-level assignments. One participant responded with this comment:

My expectations were, and this was last year, probably around this same time last year when we were working on our literature review for our big first year class last year and I really wanted to make sure that I had a firm grasp on APA formats and citations and things like that. And so my expectations of the webinar were that it would help with that, help me achieve that goal. Not necessarily learning how to cite but manage and make it less cumbersome. You know versus having this really messy word document full of citations. I was not really familiar with the library webinar format or the program itself but going to the webinar helped me to become more familiar with that. And I still use it,
I just did a point of law paper for one of my second year classes and I had fourteen sources and my professor told me my sources were a little light so my next paper will probably have even more than that and its very nice to know that I have this firm system that I can put all of my citations into. And know that they are there.

**Discussion**

The participants in this study shared many perspectives and insights into their past webinar experiences, effective teaching techniques, as well as ideas for future planning for the library webinar series at Virginia Tech. Whether study participants were taking webinars with the library or other providers, instruction techniques like demonstrations, live chat, polling, screensharing, blogging, video blogging (vlogging) and other interactive practices were the most popular. Other ideas that could be incorporated might be audio podcasts or video vodcasts for asynchronous classes, a menu of courses for library users to choose from like YouTube, Vevo, or Hulu, a librarian embedded into full credit-bearing online courses to aid students with classwork, and library orientation via webinars (Kvenild and Bowles-Terry, 2011). There are many online tools that can enhance instructor’s online courses and new ones are being created and released every month.

Respondents chose to take part in the library webinars for various reasons: curiosity, to gain a better handle on Endnote, dissertations, other subject material, interesting topics, convenience, or the simple fact that they didn’t want to sit in a classroom. The themes identified in this study suggest that while the webinars are convenient and students’ expectations were met with content, there is still much to learn and avenues to explore as library webinars are offered. It is difficult to engage students who are learning at a distance, and it will always be a challenge. Offering online library instruction at the appropriate levels from a distance is a task that takes continuous reflection, training, and effort (Rand, 2013). It is very easy for students sitting at home listening or watching an online session to feel isolated. Online instruction is not the same as being in a classroom face-to-face, but strong distance education instructors and librarians can challenge themselves to make the experience as close to classroom experience as possible. By providing students with interaction, demonstrations, chatting functions and more, library webinars and online instruction in general can be less isolating.

**Future Research and Conclusion**

Providing support and instruction to students both in person and online is the ultimate teaching situation (Nicolson and Eva, 2011). For Virginia Tech’s Newman Library, being able to offer one-shot library instruction in a webinar format was a very logical step in instructional methodologies. One of our brand slogans at Virginia Tech is *Invent the Future*. By providing reference and research instruction to students at their residences and offices, we are, in essence, bringing the future to them. Collaborating with peer librarians was also appealing; not only does it provide a wide selection of informational sessions for the patrons, but it also reduces workload on any one person to provide all the sessions.

One area of future concern is enrollment. Participants in this study were interested in seeing future webinars offered on: APA format; library introductions for international students;
NVivo Qualitative Software; comparisons of multiple citation tools; and more dissertation, great website and application sessions. When webinars are publicized students and faculty are very excited to sign up. However, when it is time for the actual sessions to air online, the percentage of participants who follow through to attend the session is low. This is definitely an area of consideration with the webinars. When one-shot library classes are not connected with a scheduled or required course the drive or necessity to show up might not be there. For this series of webinars, in future practice, we are still thinking on how to solve this issue. Good communication, strong advertising, and offering interesting sessions are all key components but this situation will continue to warrant further study.

The Centra conferencing program is a good software series that allows instructors to show live screen features as well as pre-recorded presentations. But as with many programs in technology, using it comes with some training and practice. Presenters have to take their time, be aware of who they are teaching, and stay on a steady pace to not get ahead of participants. This is really no different than a live class. In any course session, in person or online, continuous assessment is needed for successful instruction. In the future, Virginia Tech also has plans to change the webinar software for the campus. This will alter technology, connectivity, and training, but will hopefully not hinder library webinar selection.

Moving into the spring 2014 semester, Virginia Tech’s libraries will be offering more webinars. New sessions on best websites, best apps, and digital curation will be offered. We will also be presenting another citation management webinar and dissertation session. Webinars will be announced to the entire university and will also be posted on the library webpage. Each session does have a capacity limit which depends on the class being offered. They are growing in popularity, students are requesting them throughout the semester when they are not being taught, and an opportunity to deliver instruction in an alternative medium is always worth exploring. As instructional librarians it is our role to aid our students and faculty in their library research, as well as any other areas of technology where we might be of aid. There are constantly new emerging technologies to explore, and it is very exciting to see how we can use them in instruction.
References


It Takes a Village to Design a Course: Embedding a Librarian in Course Design

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Abstract

Often associated with online learning, instructional design is a process utilized in efficiently designing training and instruction to help ensure effectiveness. Typically, the instructional systems design (ISD) process uses a team-based approach, consisting of an instructor, a facilitator, a designer and a subject matter expert. Although library services and information literacy instruction are an essential component of a quality online learning experience, course designers do not always consider them during the design process. Embedded librarians can be valuable members of the instructional design team, helping to develop the course and including information literacy concepts from the onset. As experts in research and technology, librarians can guide the design process by aligning research projects and assignments with library services and resources, and other available media. In this paper, the authors will present information about embedding librarians in the instructional design process, the ISD process itself, and provide examples illustrating how librarians can collaborate in the design process.

Introduction

Academic libraries and librarians play an important role in the education of students, contributing to their academic success. Current traditional college students have grown up in a digital or multimedia world bombarded with information from a variety of sources. Research has shown that they prefer to figure out things on their own and collaborate or network in groups with friends and other students. As a result, learning often occurs outside of the classroom environment and these do-it-yourself students may not be inclined to ask for assistance. This provides a role for academic libraries as “… one important venue for such learning” (Lippincott, 2005, p. 57). Because of this and a variety of other factors, many of which are external to the library, academic librarians have had to redefine not only the services and resources that they provide to the campus community, but also their role in academic life and study. As a result, academic libraries and librarians are undergoing a transformation. For many librarians this means moving outside of the library and becoming embedded, physically and virtually, in a variety of subject disciplines, departments, and areas on campus. Embedded librarianship can take a variety of formats including involvement in instruction and online courses, co-teaching
courses, having some office hours in areas outside of the library, or ultimately moving to office space outside of the library.

Not only are academic libraries undergoing a transformation, learning in academia is also shifting to an emphasis on lifelong learning, as students will need to continue to learn and develop throughout their lifetimes. To facilitate students becoming lifelong learners, academic institutions are engaging students in critical thinking and research, skills that not only help to contribute to academic success, but also to future professional and personal achievement. Consequently, acquiring information literacy skills is essential to learning and living in an information-rich society. Students need to learn how to recognize when they have an information need, engage with sources to seek out information, critically analyze and evaluate the information that they find, and then repackage and utilize it to meet their information needs (Laverty & Stockley, 2006). However, the campus community does not always view information literacy skills as curricular concerns. As a result, information literacy skills or assistance from a librarian is often an afterthought, coming to mind after the faculty member or instructional designers have designed the course and developed assignments. One way to incorporate information literacy skills into courses across the curriculum is for librarians to become an integral part of instruction and learning on campus. Through active partnering librarians can and should move outside of the library, collaborate with subject faculty and instructional designers, and become embedded in the course design process whether online or face-to-face.

One of the factors that can either facilitate integration of the library and librarian in courses or may hinder it is the use of Learning Management Systems (LMS) on campus. Designed mainly to enable online learning, many universities do not limit the use of their LMS to distant or online learning. Thus, academic institutions and faculty use these systems in hybrid and face-to-face courses. Bell and Shank (2004) see this as one of the factors that are helping to marginalize libraries in the academic community. As they state, “…courseware systems allow faculty to create information silos that serve as gateways to all course-related information…” (Bell & Shank, 2004, p. 372). They advocate for the integration of library services and resources into the teaching and learning process through collaboration with subject faculty and instructional technologists as a blended librarian.

The concept of the blended librarian combines the information and research skills of a librarian with the knowledge and skills of an instructional designer. Combining these help librarians enhance the teaching and learning process. The blended librarian can assist in meeting the educational outcomes of students along with assisting them in obtaining information literacy skills. According to Bell and Shank (2004), the blended librarian is guided by six principles: assuming a leadership role on campus as “innovators and change agents” (p. 374); “developing campus wide information literacy initiatives” to become involved “in the teaching and learning process” (p. 374); designing instruction programs or workshops on library resources and information literacy concepts; engaging in conversations with instructional designers to “facilitate the instructional mission of libraries” (p. 374); developing innovative, proactive and creative library instruction; and fostering collaborative relationships with faculty.
Librarians collaborating with faculty, IT staff and instructional designers is the subject of a variety of articles and research (Boisselle, Fliss, Mestre, & Zinn, 2004; Dewey, 2004; Edwards & Black, 2012; Fabbro, 2013; Hawes, 2011; Pritchard, 2010; Riedel, 2002; Schulte, 2008; Shell, Crawford & Harris, 2013; Shepley, 2009). Pritchard (2010) describes three levels of support that librarians provide for courses: supplemental, integrated, and embedded. Initiated by learners, supplemental support is passive support occurring outside of the course and curriculum and consisting of standalone tutorials and workshops. Integrated support is usually initiated by the instructor, although it may be initiated by the librarian, and involves classroom instruction tailored to a specific course or assignment within the course. Finally, embedded support is defined as the most integrated, with information literacy skills woven into the fabric of the course. This final support level transforms learning through a collaborative partnership between the librarian and the faculty member to design the course (Pritchard, 2010). Unfortunately, collaboration is often limited to fitting library or information literacy instruction into a course that the instructor has already designed. Adding librarians to the design process can be beneficial to faculty members and to the students who take the course.

The best courses are those designed by a team of individuals. Usually these teams include: faculty as the content or subject matter experts; instructional designers as the pedagogical and technological expert; and librarians as the research and information experts. Each member of the team brings their own expertise to the process. Librarians bring value to the course design process through their knowledge of information sources and how to utilize them, their understanding of the research process, their experience in selecting appropriate instructional tools, and ability to create sound research assignments. “Librarians encourage a research-rich environment that may not develop without their direct involvement in the planning and development of online courses” (Laverty & Stockley, 2006, p. 53). Utilizing a team approach to course design is a novel concept for many faculty members that view the development of courses as a highly individualized task. This team approach to course design leads to the production of higher quality courses with sound instructional design.

**Instructional Design Process**

Instructional design is a key concern when developing distance education opportunities. Multiple individuals can be involved in the design process and a variety of technological tools and approaches may be needed to fully develop a lesson that can effectively engage the online learner. All these moving parts necessitate a carefully structured approach to design that can take into account the various factors in play. As Fee (2009) points out, design is “the orchestration of these elements” (p. 99) into a simple and purpose-driven lesson or course that is focused on the learner. The learner should always be central to the design approach, especially when considering the obstacles posed by distance education. Koontz, Li, and Compora (2006) note that good planning and design are vital to distance education since students and instructors are not in the same physical location and may not even be interacting synchronously.

A better understanding of the whole instructional design process can be beneficial to librarians, even if they may not typically be involved from beginning to end. The authors would argue that the whole concept of a collaborative embedded librarian depends on the librarian as a utilitarian force who can provide relevant information at any juncture. Therefore, an attempt to
understand the design process would facilitate that utility and encourage new opportunities for librarians to be involved in that process, increasing their direct impact on student learning in the process. As Nolan (2013) notes, “the embedded librarian is ever present...[and] participates in the distance learning course on a regular basis” (p. 16). Embedded librarians should view instructional design as a natural extension of their responsibilities and make efforts to understand where and how they can fit in.

**Instructional Systems Design (ISD) Models**

The typical broad framework that is used as the basis for many more narrowly defined instructional design models is ADDIE – Analysis, Design, Development, Implementation, and Evaluation – which tends to be applied to organizational training opportunities as opposed to for-credit online university coursework. Still, it is useful to have a working understanding of the framework, as it does provide a broad starting point and is scalable. For example, Bell and Shank (2007) and Booth (2011) have offered instructional design models geared toward academic librarians, respectively known as BLAAM – Blended Librarians Adapted ADDIE Model – and USER – Understand, Structure, Engage, and Reflect. These models are very useful to librarians who are attempting to fit design and instruction into their larger responsibilities, or for those who are intent on finding a way to collaborate. As Booth (2011) asserts, “Creatively integrating into the pedagogical or learning structure of a campus or community can provide a means of redefining and adapting to change...USER is both a means of perceiving how you can contribute useful knowledge to local communities of practice, and a method of structuring your response” (p. 94). Good instructional design enables that synergy with your community through proper planning and evaluation. BLAAM and USER both offer excellent models for managing instructional design with the limited resources of most academic libraries. Still, ADDIE acts as the basis for these other librarian-oriented models and should serve well as a general introduction to instructional design, especially if some of the insights from those more focused models are noted.

The analysis phase essentially “helps you decide both what you want to teach and what you do not want to teach” (Piskurich, 2006, p. 50). Frey (2012) reminds instructional librarians that it is easy to ignore or simply forget to appropriately plan for a lesson or a course. You may have your own internalized goals for the instruction, but have you stopped to ask questions about the learner, the outcomes, and – especially in the case of distance learning – the technology? Where do your students stand in terms of basic skills and knowledge? Have there been goals or outcomes identified by yourself or teaching faculty that will dictate the content and delivery of your instruction? How might technology enhance or diminish your approach and will there be any technological roadblocks that may prevent learning? In many ways, this phase is all about determining the lay of the land. Where are your students starting, where would you like them to end up, and what potential opportunities or obstacles stand between those points? Booth (2011) succinctly suggests that time should be devoted to analyzing the learner, content, context, and educator by asking a series of questions that “characterize and confront”: “characterization establishes basic, objective qualities (e.g., how many participants, topics to be covered), while confrontation imagines any challenges that might occur (e.g., browser incompatibilities, lack of motivation)” (p. 107). This is a simple way to break down the various components of your instruction and begin to identify the basic outline of your approach.
When working with teaching faculty, this phase would present an excellent opportunity for librarians to examine the syllabus or assignments and ask the faculty member about outcomes. Depending on the timing of the collaboration, the librarian may even be able to influence the course structure and assignments by suggesting resources that could influence the potential engagement and learning of the student. Instead of merely reacting to the request of a faculty member, librarians and faculty can collaborate on assignments that truly integrate relevant resources, rather than tacking on instruction in a haphazard and disconnected fashion. These efforts take time and must be attempted early in the process. Perhaps you may be forced to prepare last-minute instruction for a course and feel that the material will be subpar. While that is not ideal, it does provide the opportunity to start a conversation and a means to highlight what does and does not work with a rushed approach.

The design phase allows the instructional design team to take the broad outline developed during the analysis phase and start providing detail. This phase is where you can solidify your objectives and create a real plan of action. Farmer (2011) summarizes this phase with a series of questions: “What strategy will help students meet identified outcomes? How should content be organized? How should ideas be presented to learners?...What types of activities and exercises will best help learners? How should the course measure learners’ accomplishments?” (p. 16). These questions should obviously be asked and answered alongside the collaborating faculty members, but perhaps not as obvious is the fact that these questions should be asked at all. Again, librarians have a great opportunity to play more expanded roles as instructional designers, prompting teaching faculty to approach instruction—collaborative or not—with a sense of purposeful structure. Key to this structure is the development of good objectives, “because they provide the framework for lessons and activities…and suggest the criteria for learner assessment” (Booth, 2011, p. 118). Booth goes on to offer some questions that can guide planning for engaging activities that tie directly to outcomes: Is the instruction teacher- or student-centered? Will there be group work? What types of interactions are desired? How do you plan to support the learners? Essentially, the questions—when asked in the context of each objective or outcome—should shape the activity and promote more active learning opportunities. Booth also suggests “extending the interaction” with faculty and students by planning to “use technology to supplement brief or poorly timed interactions, integrate more effectively into a participant’s productive context and offer assistance when additional learning needs arise” (2011, p. 122).

The development phase is all about making the instructional plan concrete and usable (Frey, 2012). The team will actually begin to create content and prepare the lesson for use by students. How will you design content for maximum engagement and utility? You may decide to use a variety of approaches and tools to deliver your instruction, but should strive to keep things simple, tied to content and objectives and responsive to the needs of the students and the demands of the setting.

Farmer (2011) addresses the range of pedagogical options and factors involved in making decisions about content. Technology provides the opportunity for students to easily construct and organize knowledge individually or collaboratively and allows instructors to scaffold content for support. Opportunities for engagement are ample when using technology, especially when
considering the content creation capabilities offered to both instructors and students. Farmer (2011) notes that “having learners participate in the authoring of their own learning tools adds to the educational concept of constructivism and results in practical applications of information literacy and student-centered curriculum” (p. 99). Supplementing your own content with student-created content potentially allows them to express themselves, demonstrate authentic learning, and can provide for multiple learning styles and needs.

Implementation is the phase where you put the plan into action and deliver the instruction. Booth (2011) recommends utilizing Robert Gagne’s Nine Events of Instruction to develop a quick implementation plan: “the events are themselves scalable and format independent, and…focus on universal delivery elements that create the conditions for lasting learning” (p. 132). The University of Florida Center for Instructional Technology and Training (2013) effectively summarizes the events:

1. **Gain attention**: Functions to obtain the students’ attention so that they will watch and listen, while the instructor presents the learning content.

2. **Inform learners of objectives**: Allows the students to organize their thoughts and around what they are about to see, hear, and/or do.

3. **Stimulate recall of prior learning**: Allows the students to build on their previous knowledge or skills.

4. **Present the content**.

5. **Provide “learning guidance”**: Provides student instructions on how to learn such as in guided activities. With learning guidance, the rate of learning increases because students are less likely to lose time or become frustrated by basing performance on incorrect facts or poorly understood concepts.

6. **Elicit performance (practice)**: Allows students to apply knowledge and skills learned.

7. **Provide feedback**: Allows students to receive feedback on individualized tasks, thereby correcting isolated problems rather than having little idea of where problems and inconsistencies in learning are occurring.

8. **Assess performance**: Allows students to see content areas that they have not mastered.

9. **Enhance retention and transfer to the job**: Allows the student to apply information to personal contexts. Increases retention by personalizing information (University of Florida Center for Instructional Technology and Training, 2013, Application to Regular Enrollment Courses section, para. 2).
When considering the evaluation phase, it is important to remember that it is an ongoing iterative process that should connect with each of the other design phases. Evaluation can help guide and adjust the instruction both on-the-fly and in more formal ways. Formative evaluation, for example, “focuses primarily on determining the strengths and weaknesses of the instruction while the opportunity to improve instruction still exists” (Koontz et al., 2006, p. 143) while summative evaluation attempts to determine if the instruction was successful, effective, or engaging as a whole after the instruction has ended.

Booth (2011) notes that formative assessment is useful in gauging engagement, motivation, and determining whether objectives are being met. It can also be incredibly simple to perform, as well, with informal options often more appropriate than formal, with quick surveys or tests offering students a chance to demonstrate their understanding or need, especially within an asynchronous distance learning environment where assessment tools can be structured to provide immediate reinforcement and feedback. Summative evaluation captures the totality of the instructional experience. Did students meet learning objectives? Were they engaged? How successful was the instructor? How useful were the course materials? How utilitarian was the design? As with formative evaluation, there are many approaches to gathering the data and they depend on what you are attempting to measure, but the real concern with both types of evaluation is the question of how that information fuels response. Vital to Booth is the effort to both reflect on and respond to the results of assessment and evaluation, especially during the formative phase when adjustment can potentially salvage a foundering instructional opportunity, but also in the long-term, as repeated instructional opportunities present themselves (2011). 

Assessment

Discussions surrounding embedded librarianship and instructional design have largely focused on the how-to – understanding a learning management system and its capabilities, understanding communication methods and technologies, ways the librarian can communicate with students, and how to initiate the process with faculty members, (Matthew & Schroeder, 2006) – and often contextualize this in the most typical learning environment for distance students, the learning management system (Jackson, 2007). Many authors have focused on some of the potential activities librarians can include in their efforts; frequently these focus on how to contact librarians, selecting appropriate databases, or interacting with information resources, (Hoffman & Ramin, 2010) as well as strategies regarding levels of participation in a class (York & Vance, 2009). Because of the relative newness of embedded librarianship, embedded librarian activities frequently turn into what appears to be an extension of reference or a new method for bibliographic instruction, with a focus on answering point-of-need questions in the course or providing finding aides and guides for materials. Many of these processes Bell and Shank outline in Academic Librarianship by Design (2007) and discuss many of the issues and obstacles relevant to focusing on technological and collaborative hurdles that need to be overcome in delivering instruction, both by understanding the LMS in useful modeling for design, and in discussing low threshold applications of these models: screencasting, guides, and other documents integrated into the LMS. Discussions have stayed mostly in the domain of the how?, which is useful for initial implementation of an embedded librarian program. The question that must be asked, provided embedded librarianship is feasible for an institution, is to what extent? How does embedded librarianship impact student learning? Through formative
and summative assessment of student learning, embedded librarians can more effectively design and deliver meaningful instruction.

Assessment can be an obstacle to designing effective online information literacy instruction. Online instruction is time-consuming, uses new and emerging delivery systems, and lacks the types of non-verbal interaction typical of face-to-face instruction (Dewald, Scholz-Crane, Booth, & Levine, 2000). Formative and summative assessments are implemented for a variety of reasons, including administrative or statistical purposes, cost-effectiveness, or student performance. Standardized assessment is frequently used in credit-bearing courses, and Emporia State University (ESU) has utilized a number of different assessment tools to measure the impact of library instruction and services, including iSkills testing, Project SAILS, and LibQual+. iSkills and Project SAILS are particularly useful for the instruction done in our credit-bearing courses; however, these assessments are time-consuming and relatively expensive, making them a poor fit for discussions in assessing impact in embedded librarianship. Additionally, embedded librarianship finds itself catering to discipline-specific needs, and a one-size-fits-all approach to assessment is a poor choice when teaching with course-specific content in mind. Systematic design, however, allows us to cater assessment to a course and overcome some of the initial problems with the discussions around embedded librarianship. This is accomplished by aligning course design with the Association of College and Research Libraries (ACRL) Information Literacy Standards in Higher Education to effectively design courses, instruct students, and assess learning (Association of College and Research Libraries [ACRL], 2000).

Alignment and Standards

As modules are created and implementation of a design begins, a few key critical factors remain as we finalize instruction modules for student learning. Anderson (2002) notes the need for curricular alignment: the idea that there should be a measurable relationship between instructional activities and materials with assessment of learning. Anderson describes a variety of factors where alignment helps improve student experience, including preventing the marginalization of learners – that students are solely responsible for failure to meet objectives – and allows us to understand differences in the impact of education on student achievement, match teaching to outcomes and assessments, and provide accountability. While Anderson places the discussion regarding alignment into a taxonomy model developed by Ferguson and Byrd (2002), as distance education grows and specific models or standards emerge, librarians involved with distance students will need to be adaptable to a variety of different styles while still maintaining concrete learning outcomes in any information literacy module or activity that is presented to students. Aldrich (2007) contextualizes this in for-credit library instruction, which provides information to extrapolate from as information literacy is placed into the context of a specific discipline. Of note is Quality Matters, a set of standards used to evaluate instructional design. The general standards, available via qualitymatters.org, include:

1) Course Overview and Introduction

2) Learning Objectives (competencies)
3) Assessment and Measurement

4) Instructional Materials

5) Learner Interaction and Engagement

6) Course Technology

7) Learner Support

8) Accessibility (MarylandOnline, 2013, para. 3).

The full standards include 41 specific items to assess the design of an online course, and were introduced to Emporia State University in Fall 2012 as part of a series of workshops on instructional design. Those completing a specific sequence of courses related to the Quality Matters standards, technologies for distance learning, and library services were awarded a professional development grant to attend one of two conferences, the SLOAN Consortium or EDUCAUSE, in Spring 2013. As faculty took advantage of these workshops, the specific standards outlined in the Quality Matters rubric allowed librarians to promote and deliver services by developing new objects for inclusion in courses, specifically Standard 7.3 which states, “Course instructions articulate or link to an explanation of how the institution’s academic support services and resources can help students succeed in the course and how students can access the services”; this standard specifically lists “a link to the library, including information on how to obtain library access, request materials, access databases, and contact a librarian” and “a link to tutorials or guides on conducting research, writing papers, and citing sources” (MarylandOnline, 2011, p. 16-17).

At Emporia State University, one of the impetuses for the introduction of the Quality Matters rubric is the pending reaccreditation by the Higher Learning Commission scheduled for 2015. One of the core components, as outlined on the Higher Learning Commission’s website (2013), is the need for an institution that “engages students in collecting, analyzing, and communicating information; in mastering modes of inquiry or creative work; and in developing skills adaptable to changing environments” (Higher Learning Commission, 2013, Core Component 3.B.3.). These workshops were particularly helpful in building relationships among instructional designers, librarians, and faculty on campus, as a renewed effort to improve distance education was undertaken. As noted, resources and discussions on specific activities and modules outlined by Bell and Shank (2004; 2007) and others meets these criteria quite nicely. However, by incorporating measurable exercises based on ACRL’s standards for information literacy in higher education (ACRL, 2000), we can incorporate the outcomes presented in the standards as goals in Quality Matters outcomes through collaborative instructional design. A variety of guides and services to enhance information literacy assessment exist, including Radcliff, Jensen, Salem, Burhanna, and Gedeon’s (2007) guide to classroom assessment, the PRIMO database of instructional materials, and other handbooks of curricular materials. The variety can be overwhelming; one added benefit of the Quality Matters rubric is that through alignment, the appropriate assessment technique can be implemented that aligns
Constructivism and Information Literacy

Bell and Shank (2007) observe that faculty can be overwhelmed with their own professional responsibilities: teaching, campus governance, and research. While the authors remind readers that working with libraries is a low priority, Oakleaf (2011) notes correctly that the overall goals of information literacy share many of the outcomes valued across organizations, though they may have a different name – critical thinking, lifelong learning, etc. – and that the outcomes presented in the ACRL Standards have similarities to a number of other learning standards. Librarians well-versed in these other standards can make a case for their own efforts in promoting embedded librarianship and collaborative instructional design. One benefit of this approach is the ability to work with faculty to create more meaningful authentic learning activities as part of the curriculum. For librarians taking a constructivist approach to designing instruction, there is a greater ease to working with faculty as subject matter experts to create learning based on challenging learners to solve problems by presenting new knowledge of a subject, whereas in library instruction this knowledge can be lost as new knowledge is limited to the functions of the library – how to find information using a database, create a search string, evaluate journals, etc. – without an emphasis on how these relate to a specific course, major, or profession.

Tips for Getting Started

So how can librarians begin to form collaborative relationships and become involved in the course design process? Getting out of offices and the library can be a place to begin. When librarians seek out collaborative opportunities, the resulting initiatives and courses will provide richer rewards for all involved, including the students. At the University of Massachusetts Amherst, a librarian and an IT staff member discovered that through regular casual interactions, they were able to learn about the skills and support services that each other offered. This knowledge about each other allowed them to promote the services of the other department when working with faculty in developing and designing courses. Through conversation, they discovered that they both had the same goal of developing better courses to enhance the learning of students (Boisselle et al., 2004).

In order to not become overwhelmed or overextended, librarians can examine the curriculum and course offerings of partnering departments to select courses that have assignments where cooperation to provide library resources, assistance, and instruction would be useful. It is good to keep in mind that, as partnering librarians, attempting to intensely work with every course is not possible. Start small and create a strategy to optimize the utilization of staff and resources. Librarians wishing to become embedded can also select faculty members that might be more open to collaboration on course design and integrating information literacy skills into assignments. By working with a faculty member, the librarian can learn the needs of learners in the specific course and meet them through library guides and instruction. Collaborations with faculty facilitate “…the close integration of library content to the needs of the course” (Edwards & Black, 2012, p. 286).
With knowledge about the course and its outcomes, librarians can create library instruction matched to course content, assignments, and learning outcomes. Integrating library instruction modules and guides into the course can facilitate learning and research for students. This is especially true for online or distant students who do not always contact the library or seek out scholarly resources on their own. Often these students perceive that their distance from campus, and consequently the library, is a barrier. By collaborating with faculty, librarians can bridge that distance by becoming an integral part of the instructional environment through sustained contact and not viewed just as an extra add-on. Faculty support is essential for success. Communication, collaboration, and integration are all important factors in becoming “integral to the fabric of the course” (Edwards, Kumar, & Ochoa, 2010, p. 279). The main steps to take are to be visible, communicate, and pursue opportunities as they arise, even if it means more informal meetings and conversations to begin building relationships.

Becoming embedded in courses and departments require time and resources. To be successful, the support of library administration is also essential. Even if librarians are not fully embedded in a course, they should seek opportunities to create a library presence in the LMS. This can facilitate student research and learning by providing links to resources, tutorials, and library services at the point of need. Making students and faculty aware of what the library can offer will increase the usage of those resources and services. Often faculty members are not aware of the resources and services offered by the library, or they do not want to bother the librarian by asking them to help their students by offering instruction in their course. They may also have the mistaken belief that students are aware of library resources and services and know how to conduct research without assistance. Librarians embedded in all facets of courses, beginning with the development of those courses, can lead to increased student comfort with conducting research and utilizing library resources. Ultimately, this can lead to increased information literacy skills for the students.

Examples of Embedding Librarians in Course Design

In the literature, examples of librarian involvement as part of a course design team exist. Through involvement in course design, library instruction and reference services can be integrated into the course structure. This integration may take a variety of formats including participation in discussion threads, provision of tip sheets or library guides, creation of instructional tutorials, links to services and resources, and direct emails or interactions with students (Kesselman & Watstein, 2009). Hoffman (2011) conducted a mixed methods study to discover the activities and experiences of academic librarians embedded in online courses from the librarians’ point of view. She discovered that embedded librarians perceived that embedding themselves in courses raised the visibility of the library. Librarians also focused on the benefits that the collaboration provided for both faculty and students. Faculty benefitted from collaborations with librarians by spending less time answering research-related questions, discovering scholarly resources, and receiving better quality student work. Students benefitted from individualized instruction at the point of need that then led to increased course success and retention. It was interesting to note that faculty and student responses to the presence of an embedded librarian were positive, even if students and faculty members did not use their knowledge and expertise. In order to become involved in collaborative relationships and
embedded in course design, she found that librarians need to be proactive. As trust builds between the librarian and the faculty member, so does involvement in courses (Hoffman, 2011).

Fabbro (2013) described her experiences at Athabasca University, Canada’s Open University, which offers classes mainly online. The university provides course materials, electronic textbooks, and study guides through the LMS. As a result, the librarians requested access to courses in the LMS through a librarian or library role. Course design at Athabasca is usually a team process involving a variety of individuals, including a librarian. The librarian can ensure that library resources needed for the course are accessible and that faculty and students are aware of relevant resources. They can create course-specific learning objects such as tutorials or guides, provide links to resources, and integrate library and information literacy instruction into the course at the point of need. Integrating the library and librarian when the course is in development is crucial so that students perceive that the library portions are important and critical to success in the course. Her involvement in courses ranged from collaboratively creating a library guide, which the faculty member incorporated into several sections of a course, to embedding information literacy skills into research assignments in another course. Both courses and projects involved collaboration and communication between the librarian and the faculty member designing the course. Finally, librarians at Athabasca created a library block, or set of resources including resource links, tutorials, and library guides, that can be integrated into the LMS and marketed to faculty. The thought is that by deploying this library block in the LMS it “…will enhance the student learning experience and will increase student awareness of library resources” (Fabbro, 2013, p. 70).

Integrating librarians in course development to lend credibility to the information provided by the library was a lesson learned in a collaborative partnership to develop an informatics course (Schulte, 2008). The instructor was interested in adding an information literacy component to the course and the faculty member designed the final project to utilize skills learned in class. During the course design phase, the librarian and faculty member collaborated to create an integrated information literacy module with graded assignments. One of the biggest challenges encountered by the librarian was time, with significant time needed for communication and collaboration during the design phase and while creating instructional modules. Time was also required to interact with the online students to form connections with them. Embedding in courses, especially beginning with the design phase, takes time and raises questions about the evolving responsibilities of academic librarians (Schulte, 2008).

Creating library guides tailored to specific courses and assignments was the approach taken at Regis University (Riedel, 2002). Since this institution consists of a main campus and six regional sites, a challenge faced by the librarians was how to create awareness of library services and resources among students. Typically, librarians gain contact with students through work with the course instructors, who have access to the course and knowledge of its content and assignments. The author discovered that often faculty are unaware of the plethora of resources and services offered by the library, especially if the instructor is an adjunct instructor. In order to be actively involved in the course, the author participated on the design team for several courses. At the outset, he defined several goals for his project: awareness of resources for specific course assignments; the ability to push resources lists at the point of student need; creation of modular learning objects that could be used for multiple courses; and developing library-specific sections or modules for courses in order to teach information literacy skills that could be transferrable by
students to other courses. He discovered that reaching out and participating in course design led to more faculty awareness (Riedel, 2002).

**Embedded Librarians at ESU**

Emporia State University is a mid-size academic university in the eastern half of Kansas with an enrollment of a little over 6,000 students. The main campus is located in Emporia, Kansas, with a satellite campus located in Overland Park, Kansas. The university has several nationally recognized online degree programs, mainly at the graduate level, including Instructional Design and Technology (IDT), Educational Administration, Library and Information Management (SLIM) and Health, Physical Education, Recreation (HPER). In the past five years, library staff members have worked to transform the library into a place for collaboration and discovery along with maintaining some of the traditional library services. Along with transforming the library, changes are taking place in the roles that librarians play and in daily responsibilities. Librarians, and the library administration, are placing more of an emphasis on becoming involved in teaching and learning processes across the university. Conversing with partnering subject areas and reaching out to develop relationships with faculty and students are top priority. The library offers a for-credit information literacy course and several departments have asked library faculty members to teach for their departments outside of the library. Although the offices of librarians remain in the library, librarians make a point to get outside of the library to interact with their partnering departments and student groups, with several setting up office hours outside of the building.

One librarian, who works with the HPER department, communicates with her department on a regular basis in an attempt to build collaborative relationships. In the past few years, her hard work has paid off in the form of personal referrals by faculty members for research assistance, an increase in library instruction sessions, and finally, work in developing courses and particularly assignments for those courses. This librarian has developed a number of guides to specific resources and services, along with the inclusion of information literacy skills such as evaluating sources, using the LibGuides platform. Most library instruction is backed up by a course-specific LibGuide developed by the librarian in collaboration with the faculty member. Currently, the librarian involved in creating these guides is assessing their perceived usefulness and the information contained within them to determine her next steps with the guides. Although she has developed close relationships with many of the faculty members and instructors teaching in the HPER department, at this time only two faculty members have decided to partner on course design with most of the collaboration focused on specific research assignments.

Initially in the Physiology of Exercise course, the librarian approached the faculty member, who at the time was the department chair, to solicit advice on potential partners for collaboration on assignments or as a trial for an embedded librarian program. The faculty member indicated that she would be interested in working as a team for her Physiology of Exercise course. In the course, she has the students do an involved research assignment resulting in a research proposal on a topic, consisting of a literature review and a problem statement and a hypothesis for a future research project. At the beginning of this cooperative arrangement, the librarian and faculty member sat down and discussed the course, the assignments, and the learning outcomes for the students. The librarian shared the resources that are available and the types of instruction that could assist the students in successfully completing their research proposal. Each semester, the librarian has formally met with the class 3 to 4 times to share
information on finding a topic, searching for information and citing sources. Individually, the librarian works with students as they progress through the project by phone, email, online chat, and in person. Throughout the semester, there is continuous communication between the librarian and faculty member about potential modifications to the instruction. At the end of the semester, the two meet to debrief or discuss what went well and what improvements the librarian could make in her LibGuide, presentations, and other instructional materials. Plans are already in the works to modify the instruction for the course the next time the faculty member teaches it. Work with this class resulted in relationships formed between the librarian and students in the course, and the librarian hopes that these will carry through to other courses.

After the success of this course, another faculty member approached the librarian asking for advice on assignments for his course. Because this faculty member is at a distance, meetings took place via email, Skype, and face-to-face when the instructor was on campus. Through this collaboration, the faculty member and librarian designed the assignment to match the desires of the faculty member and meet learning outcomes, but also to correspond with the instruction provided by the librarian and to teach the students valuable information literacy skills. As this is an online graduate course, most of the students are at a distance from the main campus and scattered throughout the United States. The librarian designed a library guide with instructional materials and links to resources embedded in the guide. The faculty member involves the librarian in the course as a course instructor. This allows the librarian full access to the course to monitor discussion lists, create blogs within the course, and to develop a library module within the confines of the LMS. As with the other partnership, communication between the instructor and librarian occurs throughout the semester with a final meeting at the end of the semester to determine next steps. During the course of the semester, several students contacted the librarian for assistance. Thus, it is the experience of the librarian that the information provided contributed to the faculty member and the students in welcoming her presence in the course. At this time, the librarian has plans to include more tutorials and incorporate more information literacy instruction in the guide designed specifically for this course.

Conclusion

Embedding librarians in academic departments take a variety of formats, from providing instruction to active participation in course design as part of an instructional design team. Whether or not a librarian adheres to the six principles of blended librarianship outlined by Bell and Shank (2004), getting out of the library, having conversations with faculty and students and forming collaborative relationships are essential. Embedding librarians in courses can improve student performance in courses by engaging them with library resources and services, leading to less frustration with research-related assignments. Faculty benefit from the knowledge the librarian has of resources not only for the students, but also of instructional sources that may be incorporated into course instruction. Forming these relationships benefits librarians also in that they are able to develop personal relationships with students as they provide assistance and instruction to them (Hawes, 2011). Not only does this involve the librarian more in the teaching and learning processes at the university, embedding librarians in courses and course design offer a more focused and empowered role for librarians. This is especially important as academic libraries and librarians transform and redefine their roles within the academic community, bringing services and resources to library users no matter their location or the device that they are using. In the redefinition of roles, librarians are information experts, educators, curriculum
developers, and a key component in the intellectual life of the university. Through collaboration and communication, librarians can become an integral part of course design and fully assimilate themselves and library instruction into courses, becoming more than a last-minute addition.
References


Massive Open Online Librarianship: Emerging Practices in Response to MOOCs

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Abstract
Massive Open Online Courses, or MOOCs, have recently emerged as a disruptive pedagogy gaining rapid momentum in higher education. In some states, proposed legislations would accredit MOOCs to provide college-credit courses in the name of cost saving, efficiency and access. While debates rage regarding the place of MOOCs in higher education, some librarians are already tasked with supporting student learning within this untried context. Challenges faced by librarians seeking to support MOOCs span all traditional academic librarian roles: instruction, reference and collection development. To successfully serve these new communities of learners, librarians must apply existing best practices established by distance learning librarians as well as develop new skills and approaches. This paper offers a brief introduction to the current state of MOOCs in higher education, explores the needs of MOOC students and discusses possible best practices to be adapted and adopted as librarians prepare to serve this emerging student population.

Introduction

In the last year Massive Open Online Courses, or MOOCs, emerged as a disruptive educational pedagogy that gained rapid momentum. Although initially developed at elite universities, a growing number of state and public colleges are initiating pilot MOOCs and MOOC derivatives. States experiencing critical budget shortfalls, notably California, have proposed legislation that would accredit MOOCs to provide college-credit courses in the name of cost saving, efficiency and access. As the results of these pilots are reported, debates continue regarding the place and efficacy of MOOCs in higher education.

Regardless of individual educators’ opinions of MOOCs, the reality is some librarians are already tasked with supporting student learning within this untried context. According to the professional standards set for distance learning library services by the Association of College and Research Libraries, every "member of an institution of higher education... is entitled to the library services and resources of that institution, including direct communication with the appropriate library personnel, regardless of where enrolled" (Association of College and Research Libraries, 2008, "Executive Summary", para. 1). As academic and distance librarians, we may be considered ethically bound to serve MOOC populations.
Librarians seeking to support MOOCs face challenges spanning traditional academic librarian roles. To be successful in serving these new communities of learners, librarians must apply existing best practices established by distance learning librarians. Librarians must also develop new skills and approaches that address the massive size of MOOC courses. Evolving methodologies should adequately address the needs of a large, diverse student body with varying levels of access to library resources. Some possible implications to academic librarianship include the following.

- Offering information and digital literacy materials that do not address proprietary tools or databases, but rather applications and resources available freely online. These materials must be hosted on a platform accessible to all users.

- Providing virtual reference options that do no overburden individual librarians, who are neither capable of nor should be expected to provide individual reference assistance to non-matriculated students. This may include comprehensive guides for using open access digital libraries and publications, self-service FAQs and developing methods of putting MOOC students in contact with their local public libraries.

- Shifting collection development practices from print and proprietary e-resource acquisitions to focused curation of open education resources and open access publications in OPACs and online bibliographies.

**Background on MOOCs**

In 2008, the University of Manitoba offered a course titled *Connectivism and Connective Knowledge*, in which Professors Stephen Downes and George Siemens explored the process of student learning through shared open resources and networked experiences using a variety of social media tools. Twenty-five students paid to take the course through the university. Two thousand, three hundred students joined the course for free, making the connectivist learning network sought by the instructors possible. It was during this course that such large, open online courses where students engaged in connectivist learning became known as Massive Open Online Courses, or MOOCs (Littlejohn, 2013).

Recent widespread interest in MOOCs is contributable to a unique convergence of factors including advances in educational technology, stretched university budgets, increased college enrollment, and a weak job market that encourages constant professional development (Waldrop, 2013). Three MOOC providers dominate the current landscape: the for-profit Udacity and the not-for-profits Coursera and edX.

Udacity launched with two MOOCs in 2011, mostly under the leadership of Sebastian Thrun, a Stanford professor then experimenting with large enrollment courses. Udacity’s pilot math and statistics MOOCs, offered in partnership with San José State University (SJSU), have had mixed results in both student success and faculty acceptance (Straumsheim, 2013). Those MOOCs will be retooled based on collected data and offered again beginning January 2014. Udacity announced in 2013 that it will also team up with the Georgia Institute of Technology to
develop an entirely online master’s degree in computer science, funded by AT&T (Young, 2013).

Started by Stanford professors Andrew Ng and Daphne Koller, Coursera is the most successful MOOC platform. This non-profit venture has raised tens of millions in capitol and hosts over 30 universities. As of November 2013, Coursera reported 5.5 million registered users (Hepler, 2013). In February 2013, the American Council on Education's College Credit Recommendation Service (ACE CREDIT) recommended five Coursera MOOCs for college credit (Kolowich, 2013a). Although proposed legislation in California to allow such courses to be used toward degrees from state funded institutions failed, continued budget woes in that state and others may spur similar, more successful bills. In May of 2013, Coursera announced 10 state universities had signed up to offer MOOC-based blended courses, the designs of which are still unclear.

EdX is a joint non-profit venture between Harvard and MIT launched in April 2012 out of MITx, a site hosting MIT open courseware. University of California, Berkeley and the University of Texas both partner with edX (Gifford, 2013). SJSU offered the edX MOOC Circuits and Electronics as part of a flipped classroom experiment in 2012 and 2013. The flipped classroom blends online lectures from an MIT professor with in-class problem solving and has been reported as a resounding success according to student grades and completion rates (Kolowich, 2013b).

Some preliminary demographic data on MOOC participation has been made available. Of interest is the large number of students not associated with an institute of higher learning during the course. These students would very likely not have access to academic library services and librarians. For the bulk of MOOCs, which focus heavily on introductory math and basic science courses, this may not represent the most significant hindrance to student completion. As institutions branch into social sciences, humanities, and other more writing intensive disciplines, the impact of these missing services will be more apparent.

In 2012 Kolowich released data collected by edX about their MOOC Circuits and Electronics. Out of 155,000 registered participants, nearly 6,000 completed the survey. Given near the end of the course, survey respondents may be skewed toward those that successfully completed the MOOC. Student demographic data was as follows (Kolowich, 2012):

- 5% were in high school
- 30% did not have a degree (degree in-progress was not released)
- 37% already had a bachelor's degree
- 28% already had a master's degree
- 6% already had a doctorate
- The oldest respondent was 74, the youngest was 14
From these results it is difficult to determine the exact percentage of students lacking access to academic library resources. Nevertheless, it seems unlikely that high school students or graduated individuals not employed by universities would have access to such resources.

Dr. Charles Severance also released demographic and assessment data collected during his 2012 Coursera MOOC, *Internet History, Technology, and Security* (Gore, 2013):

- 2% stated they had some high school experience
- 8% stated they were in high school
- 10% stated they had some college experience
- 36% stated they had a bachelor's degree
- 28.5% stated they had a master's degree
- 4% stated they had a doctorate
- 11% stated they were professors of some rank
- 74% stated that they were not currently at a school or college

It is highly probable that the 74% of students not at a school or college would not have access to academic libraries. Forty-eight percent of Severance’s respondents stated that this was their first online class (Gore, 2013). The lack of online learning experience in these MOOC users suggests computer and digital literacy instruction would prove beneficial.

A survey performed in *Machine Learning*, a MOOC facilitated by Coursera founder Andrew Ng in 2011, found that according to the 14,045 respondents out of 104,000 registered users (Kolowich, 2012):

- 1% were enrolled in a K-12 school
- 11.6% were undergraduates
- 20% were graduate students
- 3.5% were unemployed (no graduate status was disclosed)

According to these demographics, up to 68% of participants in Ng’s MOOC would have no access to academic library resource.
Surveys of students involved in the three pilot MOOCs offered by Udacity and SJSU found that out of the 249 respondents (Research and Planning Group for California Community Colleges [RPGCCC], 2013):

- 54% of those enrolled were not matriculated students
- 89% of non-completing students were not matriculated

The number of non-matriculated students that did not complete the MOOCs appears disproportionate to their numbers within the courses. Sixty students from local high schools were also invited to join the SJSU MOOCs. Twenty percent of total MOOC participants were high school students (therefore not matriculated). However, 44% of non-completing students were from high school, a number again largely disproportionate to their representation in the classes (RPGCCC, 2013). While these statistics certainly do not draw a straight line between lack of library support and withdrawing from a MOOC, it may be part of the difficulty students experience completing the course. Bolstering student support services in the form of library instruction and reference assistance is a positive step toward addressing MOOC students’ struggles.

Adapting the Practices of Distance Librarianship

MOOCing may be a new pedagogical approach, but its benefits are similar to those of most distance learning courses. Instruction takes place where students are, removing geographical limitations. Students are not bound by university schedules and class times. Decreased physical overhead usually equals lower cost, increasing access for those that cannot afford a traditional education (Michalko, 2013). MOOCs’ instructional foundations are firmly rooted in existing online learning methodologies. Multiple content approaches address different learning styles. Instructors encourage peer-to-peer interaction and learning. Unlimited ability to review content can mean better mastery of the subject. Distance librarians have been taking advantage of these benefits and concepts for decades.

Many tactics developed by distance and embedded librarians, such as librarian-professor collaboration, just-in-time online content, links to support resources inside the online course, and foreseeing students' information needs by reviewing course material will serve librarians responsible for supporting MOOCs (Hoffman & Ramin, 2010; York & Vance, 2009). Some MOOC challenges will also seem familiar to distance librarians, scalability being the most obvious. Concerns over the time demands associated with embedded librarianship in the average online course pale in comparison to the idea of supporting tens or hundreds of thousands of students in a MOOC.

Some best practices of distance librarians cannot be applied to MOOCs without careful consideration, largely due to the size of the student enrollment. A librarian assigned solely to the support of a single MOOC could not list their contact information within the course for risk of being overwhelmed with thousands of emails. The same would happen to anyone signed up for discussion board notifications. Adding a library link inside the MOOC platform will only be useful if the library has developed MOOC support pages, as only a small fraction of students
have access to university libraries. Fortunately, there are new and evolving possibilities available for librarians seeking to assist MOOC students.

**Information and Digital Literacies**

Studies of undergraduate students learning online have shown that independent learning, academic level reading and writing skills, and computer literacy are the best indicators of student performance in online courses (Kerr, Rynearson & Kerr, 2006). These skills are grounded in the ability to find, understand, evaluate, and transform information largely using the internet and electronic resources; skills regularly taught in a university by librarians during information and digital literacy instruction. These abilities are even more crucial in an online course designed around the theories of constructivism, which “… puts the responsibility of information gathering, the validation of sources, and the learning process in the hands of the learning” (Kop, Fournier, & Mak, 2011, p. 75). Students are expected to take the information they need from the MOOC, combine that with outside information collected independently and then share a new understanding with peers as part of the learning process. According to Schwartz (2013), instructional support for MOOC students lies in the hands of peers.

In courses appealing to educated, technology sector workers looking for professional development, peer-to-peer learning is likely more successful than in those targeted to community college, high school and/or remedial students. A 2013 study of community college students in Virginia found students preferred to take only easy courses online, desiring instructor support and interaction for anything they couldn’t learn straight from a textbook (Fain, 2013). It is possible that the disappointing student results experienced in SJSU’s Udacity-hosted math and statistics MOOCs were precipitated by the inability of peers within the online environment to provide useful constructivist learning. One solution could be requiring information literacy instruction from the library within the course.

Creating information literacy content for MOOCs is not necessarily difficult or time consuming. Most libraries have already created video tutorials for students and faculty regarding the use of library resources and basic information literacy skills. Suites of video tutorials are then hosted on the library website, a LibGuide, a YouTube channel or a Vimeo site for users to select from as needed. Depending on the design of existing tutorials, these may be appropriate for use as MOOC support.

Unfortunately, existing tutorial suites have the potential to confuse non-matriculated MOOC students. According to the demographic data, MOOCs attract university students but also students from community colleges and high schools, along with participants from the general public; participants that, due to licensing agreements, cannot access the databases and subscription content highlighted in some library tutorials. Mentions of database names, institutional logins, and subscription citation services in these tutorials will only cause additional confusion for the students and more work for the university librarians.

Tutorials for MOOC participants exploring non-proprietary resources are needed. Some existing tutorials – instruction on thesis statements, topic development, and citation styles – can be reused. Alternatives to restricted content in the form of open educational resources (OER)
available from OER Commons, Khan Academy, Digital Public Library of America, or Internet Archive will serve MOOC students well. Tutorials modeling the use of free online citation generators like Zotero and EasyBib will also be useful. Advanced Google searching techniques that include Google Scholar, Google Books, Google Images and the free Google data tool Fusion Tables are appropriate. The library may want to remove excessive university and/or library branding, or provide a notice within the tutorial that additional assistance is only available for matriculated students, in order to manage expectations.

Distance librarians striving for delivery of content where the students learn – usually the Learning Management System, a blog or social media platform – will want to embed the tutorial in the MOOC. However, because libraries and librarians have been given little access to proprietary MOOC platforms like Udacity and Coursera, strong library-professor relationships are necessary to embed content there. Librarians wanting to create robust online information literacy instruction for MOOC students may take advantage of powerful course building tools like the open MOOC platform Blackboard Sites. Other online lesson builders such as Rice University’s Connexions, or flipped lesson functions in TedEd are attractive interactive possibilities. YouTube offers a user-friendly platform that students are familiar with, although uploads can be limited dependent on the type of account available. The video platform Vimeo is much like YouTube, with more education-oriented content. WordPress is another powerful platform for tutorial delivery, especially for librarians already familiar with this blogging site.

Librarians conversant with the library application LibGuides might be tempted to utilize the platform for tutorial delivery; however, LibGuides are virtually always framed with university library branding that encourages students to click on other guides, visit the library’s help page and contact reference librarians. These services are not going to be available or applicable to most MOOC students and most virtual reference chat applications cannot handle 10,000 more student questions.

Scaling Reference Services

The question of reference support for MOOCs is proving to be one of the most difficult for librarians to address. Becker (2013) suggests that libraries supporting MOOCs with LibGuides remove librarian profiles and contact information, unless a dedicated email address can be monitored by multiple librarians assigned to support the MOOC. Clearly indicating on each MOOC-related page what type of student has access to regular services at the university library would also be necessary for those using LibGuides or the library’s website to provide support.

To prevent confusion and improve findability it is preferable to provide some level of reference assistance within the MOOC. Librarians can address specific course needs by compiling an exhaustive list of FAQs housed within the MOOC, based on a periodical review of questions posted to the course discussion boards (Creed-Dikeogu & Clark, 2013). Working with MOOC faculty to arrange this kind of support in advance would be critical. Although the process would be initially time-consuming, such an FAQ could be reused in future MOOC offerings.
The public library represents another largely unexamined partner in the support of MOOC students. In addition to providing the technological access required to bring MOOCs to the masses, MOOC students can use reference and homework help services the public library already offers (Creed-Dikeogu & Clark, 2013). Considering previously mentioned studies on online students’ success, programming that builds reading, writing and computer literacy skills, currently available at many public libraries, will serve some MOOC student needs. According to Creed-Dikeogu & Clark (2013), Los Angeles Public Library is already working on incorporating services for MOOC students into their normal programming. For introductory level courses, the public library should be an adequate solution; the ability of public librarians – unused to more in-depth academic reference questions – to fulfill research expectations in upper level courses needs to be studied.

Students interested in physical connectivism may make the public library a meeting place for local study groups engaged in the same massive online course. University librarians can facilitate public library access by designing and delivering application programming interfaces (APIs) that connect students with their local libraries based on geolocation information. These APIs – or simply instructions on finding your local library using Google Maps – should be included in the MOOC site or the library websites and/or guides that support them. Interlibrary services and consortial borrowing programs available from the public library will be increasingly important in a future in which massive open online courses expand into the social sciences and humanities.

Collection Development for MOOCs

Many authors have addressed the opportunity MOOCs present for librarians to exert copyright, licensing, and fair use expertise with faculty choosing course materials and wishing to retain rights to their own course content (Butler, 2012; Croft, 2013; Fowler & Smith, 2013). Less has been written about how libraries can support MOOC students despite the stringent distribution limitations of most library holdings.

Kendrick and Gashurov (2013) suggest a model in which MOOC students pay a premium service charge as an “opt-in” to the use of the library’s electronic resources, describing a model with both a fixed cost and per item charge. These users would have an authentication schema distinguishing them from matriculated students, allowing librarians to track MOOC student usage separately. An interesting possibility, but one many librarians might see as a slippery slope toward increased student fees and the adoption of a pay-for-use model for matriculated students. An alternative, more open route is being modeled by the professors of MOOCs.

An early 2013 survey of 100 MOOC professors conducted by the Chronicle of Higher Education found that 97% of professors relied on personal videos as core course materials in MOOCs. Seventy-five percent reported assigning open educational resources as course content and readings. Only 14% required either a physical book (9%) or ebook (5%) that needed to be purchased (Kolowich, 2013c). If instructors – many from eminent universities – are so willing to adopt open educational resources as learning materials, so should libraries.
University libraries at institutions offering MOOCs should begin the process of adding OER to their online public access catalog (OPAC), with an eye on quality and sustainability. Librarians will need to work with faculty to find pertinent open content, or search themselves through MOOC course material. Public domain titles from HaithiTrust and Project Guttenberg, periodicals from the Directory of Open Access Journals, along with open access textbooks from Open Library, Open Academics, and Rice University’s OpenStax can be incorporated into the library’s online catalog, accessible to any user. Free online government reports and databases should also be cataloged and offered via the OPAC. As faculty teaching in-person or online adopt open educational content as course material, librarians should review and catalog these resources, especially multi-media content. For resources identified as beneficial to MOOC students but not appropriate for the OPAC, consider bibliographic solutions listing resources and applications based on MOOC name or research and writing need.

Conclusion

Universities are continuing to add MOOC and MOOC-derivatives to their regular offerings. Demographic data indicates that a significant percentage of MOOC students do not belong to an institution of higher education and therefore have no access to university library services and librarians, despite online students’ need for information, digital, and computer literacy skills. According to Kendrick and Gashurov (2013), “As librarians, we are in the best position to confront these challenges, because we work at the intersection of technology and pedagogy, and we are well equipped to understand technology’s broader implications and impact on teaching, learning, and scholarship” (MOOCs and the Future section, para. 5). Academic librarians can address the challenges of supporting MOOC students, who are learning at a new intersection of technology and pedagogy, by adapting distance librarian practices while adopting new practices tailored to diverse MOOC student populations. These include offering specialized information literacy instruction, providing thoughtful, sustainable reference services and adding appropriate open access and open educational resources to electronic collections.
References


Developing Adaptable Online Information Literacy Modules for a Learning Management System

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Abstract
Higher education institutions increasingly utilize learning management systems (LMS) to teach courses and programs in hybrid or online-only formats. Providing information literacy instruction in these emerging digital environments poses challenges to librarians as the delivery of instruction requires familiarity with navigating an LMS and extensive technological skills. Embedded librarianship is one possible solution, but sustaining this approach requires substantial time and effort. During the summer of 2013, a task force of librarians at San José State University (SJSU) met these instructional challenges by developing a suite of online information literacy modules. As a result, all SJSU librarians, in consultation with teaching faculty, can select from a variety of standalone, customizable modules to embed within the campus LMS. This case study showcases the task force’s process and initial outcomes, which can serve as a model for librarians encountering similar challenges and making comparable efforts toward embedded librarianship at their institutions.

Background
San José State University (SJSU) is located approximately 50 miles south of San Francisco, California. It is the fifth-largest campus in the 23-campus California State University system and offers more than 60 majors in seven colleges. The University Library employs 24 academic liaison librarians who provide information literacy instruction and research assistance to the university’s 30,000 students and 1,700 faculty (San José State University Office of Institutional Effectiveness & Analytics [SJSU IE&A], 2012a; 2013b).

SJSU serves a diverse student population, a majority of which are low-income and/or first-generation students. According to SJSU’s Office of Institutional Effectiveness and Analytics, in 2010-2011 57% of newly enrolled SJSU students received some kind of federal or state financial aid (2012b). Additionally, since 2011, over half of the University’s incoming freshman and transfer students self-reported as first-generation college students (San José State
University Student Affairs, 2013). In a 2010 institutional survey, 86% of the undergraduate population of SJSU reported living off campus, exacerbating the likelihood that SJSU students, already largely from traditionally underserved populations, have less access to on-campus academic support (SJSU IE&A, 2013a).

Currently, information literacy instruction and reference assistance are primarily provided via one-shot instruction sessions and online research guides – on the LibGuides platform – as well as in-person and virtual reference consultations. A number of SJSU librarians have developed a presence in online classes taught with the use of SJSU’s learning management system Desire2Learn and its successor, Canvas; however, a consistent and robust library presence has yet to be established within SJSU’s online learning community despite the university’s growing reputation as a pioneer in online learning.

Unbounded learning through harnessing educational technologies such as learning management systems is a key component of both the university’s and the library’s current strategic plans. A continuous increase in the number of online classes and programs offered including several professional development post-graduate certificates, an online Doctor of Nursing Practice (DNP) Program, and the launch of several Massive Open Online Courses (MOOCs) is part of the strategy, as is the development and implementation of library support for these programs. Analytics obtained from SJSU’s LMS show that in the Fall 2013 semester, 2,104 courses were actively conducted in Canvas – some hybrid and some fully online – by 1,054 individual instructors (J. Redd, personal communication, November 14, 2013). That number represents 44% of the 4,753 course sections offered at SJSU for the term; perhaps more, considering the likelihood some instructors combine students from multiple sections into one course shell.

The varied nature of class offerings, when combined with a diverse student body comprised of significant numbers of both first-generation and under-prepared students, poses challenges to programmatic information literacy instruction, regardless of format. When taking additional challenges such as ongoing budget constraints, shrinking staff numbers and growing student enrollment into account, it is safe to assume that for the foreseeable future, not every librarian will be able to find the time necessary to fully embrace and engage in the best practices of embedded librarianship. With this in mind, a small group of librarians interested in working with SJSU’s newly adopted learning management system, Canvas, decided to form an Online Information Literacy Task Force with the immediate goal of creating information literacy content for the LMS. The scope of the content quickly evolved into an extensive set of introductory online information literacy modules designed to meet the needs of students at various skill levels and to be deployed in the LMS either as is or customized to fit the needs of a specific department, class, or assignment. This paper discusses the development and initial implementation of these modules.

**Literature Review**

In 2007, Jackson observed that fewer than 33% of California State University librarians engage in information literacy endeavors within their campus LMS. Cited barriers to greater librarian involvement included “librarian-faculty relationship[s], cost and time to develop
While content, librarian learning curve, technology barriers, and student motivation to use resources” (p. 457). Despite these concerns, 79% of respondents agreed that librarians should provide information literacy support through the campus LMS, but that greater support was necessary. Without direct guidance and training, academic liaison librarians may experience difficulties in incorporating online instruction and content building into their regular workflows (Jackson, 2007). Furthermore, the prevalence of online research guides (e.g., LibGuides) may lull librarians into a false sense of having created “online” content that is suitable for on-campus and online or distance learning students alike. This attitude fails to take into account the benefits of embeddedness, as well as the constructivist, problem-based learning that is facilitated by integrating information literacy instruction into an actual course.

Allen (2008) described the online teaching format as beneficial for students in need of basic library instruction on such elementary skills as online searching and effective use of a library’s website. Static screenshots and short web-based clips on these topics could subsequently provide the basis for advanced lessons in information literacy and critical thinking, directly relating to assignments in specific courses and providing built-in problem-based learning opportunities. In the past five years, multiple studies have found that students increasingly prefer online instruction over traditional lecture-based instruction. Convenience, the ability to meet the needs of varied learning styles, and the students’ desire to review material repeatedly at the time of learning have been cited as contributing factors to this preference (Blake, 2009; Silver & Nickel, 2007).

Silver and Nickel (2007) found that, when given the choice of taking an online or in-person library instruction session for an undergraduate psychology course at the University of South Florida, Tampa, almost 74% of students, or 216 out of 295, chose the online session. When asked which instruction format they preferred, 63.5% reported preferring online instruction, while 28.8% preferred the in-class format. Post-instruction surveys of the same group revealed that students taking online tutorials gained increased confidence in their library knowledge, although there was no statistical difference in their actual ability to correctly answer the library and information literacy questions they had been given. This result coincides with a 2008 citation analysis at Rogers State University, which saw no statistical difference in the ability of students to answer information literacy questions correctly after they had received either face-to-face or online library instruction (Clark & Chinburg, 2010).

After careful examination and evaluation of past studies, the authors of this paper posit that a thoughtful, customized approach to online information literacy instruction, one that relies on self-contained online learning modules tailored by librarian and instructor, is likely to prove very effective. Tooman and Sibthorpe (2012) point out a number of concerns that online instruction can help mitigate:

- Time spent by each library instructor in preparation for customized “one-shots” or lessons;
- Unpredictable time-consuming technical difficulties that may interfere with effective delivery of instruction in a face-to-face environment;
• Learning outcomes that are dependent on the instructor’s experience and style of delivery;

• Large classes that make it impossible for instruction to occur in an optimal learning environment;

• Inability to ensure that all students receive a quality experience, considering the limited contact time;

• Difficulty engaging students in learning skills they may not be able to connect to future class assignments and assessment at the time of instruction (Tooman & Sibthorpe, 2012).

Moreover, relevant and timely assessment of individualized instruction sessions, which institutions of higher learning increasingly require in order to underscore the value of libraries during tight budgetary times, can prove a difficult goal to achieve. Online instruction has the advantage of providing immediate data-capturing possibilities, as well as accurate analytics derived from various activities and quizzes within the LMS, thus easing the burden on librarians to capture and report student achievement in this area.

The 2011 EDUCAUSE Center for Analysis and Research (ECAR) study shows that undergraduate students not only expect to use certain technologies within the classroom but have actually begun to perceive them as an extension of the classroom itself: 32% wished instructors would use the LMS more often, 19% asked for more web-based video content, and 20% would welcome online chat events with instructors (Dahlstrom, 2011). Researchers found that students rated institutions “effective with technology” when they were under the impression that their instructors utilized various instructional and social technologies frequently, seamlessly, and productively (Dahlstrom, 2011). Librarians at SJSU seek to align the library with these qualities in order to provide effective library and information literacy instruction.

**Module Development**

As mentioned previously, SJSU is currently focused on growing and promoting online courses and programs as a way to meet the educational demands of its students. According to its course schedule, SJSU offered 90 undergraduate and 60 graduate courses in a fully online modality in Fall 2013 (San José State University, 2013). Campus conditions such as an unmet demand for classroom space, large class sizes and the casual adoption of the flipped classroom model result in unreported hybrid courses that must also be taken into account.

The 2,104 active courses in the LMS reported by eCampus reveal a wide-spread utilization of the LMS for reportedly “in-person” courses. Per conversation with instructors and eCampus, the most common activities are the dissemination of syllabi and course readings, requiring assignments and quizzes be taken within the LMS, encouraging conversations within discussion boards and, less frequently, the posting of lecture notes and/or recorded lectures. Beginning Summer 2013, the library transitioned delivery of electronic course reserves from the library’s website to the LMS in recognition of a broadening adoption of the platform and the comparative ease of access in-course delivery offered students.
Considering these factors, the Online Information Literacy Task Force concluded that Canvas had already taken on an important role in both content delivery and instructional interaction with students on campus. This conclusion was reinforced in November 2011 when a review of the library’s website analytics revealed Canvas as the number one search term entered into the library’s website search box. The Task Force foresees Canvas as the primary resource for students looking to find instructional content relating to their current courses and assignments.

Based on these initial findings, the integration of library and information literacy instruction into the LMS could be seen as a logical extension of library services and liaison outreach. Online information literacy modules can fulfill a specific need on the SJSU campus, possibly proving to be more beneficial to learners than face-to-face one-shot instruction sessions in some cases. The Task Force subsequently identified the following specific benefits of online information literacy modules:

- Enables embedding of library materials without unreasonable investment of individual librarian time;
- Lessens the burden on librarians to become technologically proficient with the LMS;
- Allows for the inclusion of even the most basic instruction that builds into more complex lessons and thus allows varying skill levels to be addressed without embarrassment to students;
- Enables easy customization of content by librarians or instructors, including, for example, requiring students to complete individual modules for course credit;
- Enables students to revisit the modules and refer to them when the need arises (just-in-time vs. just-in-case learning);
- Allows for the inclusion of multimedia content to accommodate diverse learning styles;
- Facilitates better content comprehension and offers greater opportunity for class participation for English as a Second Language (ESL) students;
- Ensures a consistent and uniform manner of content delivery;
- Improves the ability of students to self-assess their skills and, once established, for a systematic assessment of learning outcomes.

At the time the Task Force was formed, SJSU was preparing for re-accreditation by the Western Association of Schools and Colleges (WASC). The group decided the modules should ideally be based on the Association of American Colleges & Universities (AAC&U) VALUE rubrics (Association of American Colleges and Universities [AAC&U], n.d.), the standards used by WASC to assess information literacy (Western Association of Schools and Colleges, 2013).
As academic librarians, the group also felt it important to adhere to the Association of College and Research Libraries (ACRL) Information Literacy Standards (Association of Colleges and Research Libraries [ACRL], 2000). The similarities between the AAC&U rubric and the ACRL standards encouraged a combination of the two standards.

However, the group soon determined that a clearer, more accessible framework for module development could be devised from existing information literacy learning objectives already employed by SJSU librarians during in-person instruction sessions. These objectives, largely addressing the outcomes required by ACRL and AAC&U, allowed the Task Force to formulate more focused objectives based on those already tailored to SJSU’s student body and curriculum. Subsequently, four teams of two librarians each took responsibility for one of five basic or “introductory” information literacy learning objectives:

- Thesis and Topic Development
- Effective Searching
- Evaluating Sources
- Applying Information to the Assignment
- Citation and Avoiding Plagiarism

Each team was tasked with creating, collecting, and organizing foundational content for their modules. Content was largely derived from existing library tutorials and LibGuides, as well as known high-quality resources such as videos, handouts, and websites, available from other academic libraries or created by the teams with the use of available software. An initial review of the modules resulted in a change of strategy from five large modules based on the overarching objectives to smaller modules addressing more discrete tasks. For example, a module originally titled Understanding the Information Need eventually became two modules: Writing a Thesis Statement and Finding and Developing a Topic. This solution proved visually more appealing within Canvas while at the same time allowing the user to choose from a manageable list of topics utilizing familiar language. Separating the modules into more discrete tasks offered faculty and students options for selecting the appropriate skills for optimal learning and instructional scaffolding.

A second iteration of the modules included simple quizzes built with Canvas’s quiz tool and aimed at encouraging students to self-assess their mastery of the material without pressure or concerns about grading. Furthermore, self-assessment through simple quizzes allowed students to identify content gaps, which could be remedied by engagement with the task-oriented, problem-solving modules. Quizzes were made as visual as possible, such as displaying images of periodical titles with questions about the type and use of the periodical. Graphics were added to make the modules less text-heavy, while printable handouts were developed to allow for student offline use.
Faculty and student feedback. The second iteration of the modules underwent an informal round of student and librarian feedback in an effort to ensure the Task Force was moving in the right direction with both content and layout. The group solicited librarian feedback via email several weeks before the start of Fall 2013. Only a few individuals responded, all of whom provided praise for the modules; however, the responses lacked constructive advice otherwise. It remains unclear if the poor response rate result arose from the timing of the survey, indifference towards the Task Force’s project, or the librarians’ unfamiliarity with the newly introduced Canvas platform. It did suggest that further education or outreach within the library regarding the modules was warranted.

In contrast, the students involved in the ad hoc feedback sessions proved enthusiastic in providing feedback and requesting changes to the modules. Although systematic user testing was not conducted due to time constraints, limited availability of resources, and the early stage of the project, student feedback was collected with the use of two different methods.

First, four students from various disciplines met with a member of the Task Force to review the modules and answer questions such as “How would you use this content?” and “What do you feel is missing from this module?” The responses were recorded by the team member and notes were taken on what links the students clicked first, did not click at all, and how they navigated through the content. The results of these interactions led to a number of recommendations that proved valuable to all of the Task Force’s two-person teams, including: limiting the use of videos with long introductions, as students were observed scrolling through or clicking away from videos that were not immediately engaging; clearer titling of links and section headings; and more tables and charts with concise information in lieu of lengthy passages of text.

Second, a group of four students were asked to spend 15 minutes exploring the modules and reviewing their content after it was explained that the modules were specifically designed to help students complete research and writing assignments using library resources. The behavior of the students while navigating and viewing the content was carefully documented throughout; however, the most revealing feedback was obtained during the open response period following the exploration period.

In a group discussion, the four students requested three features unrelated to the modules’ content but instead addressing usability and accessibility. The students unanimously requested visual highlights such as bold or colored lettering that would aid in differentiating the topics presented; a valuable observation that cannot currently be realized in the Canvas platform, but is certainly of interest for future web content creation. The four students further agreed that a search function and/or anchors at the top of the page would be useful for obtaining at-a-glance information, eliminating excessive scrolling through all of the modules to discover and revisit content of interest. Finally, the students expressed unanimous support for access to the modules’ content outside of Canvas, pointing out the need for this type of information regardless of their instructors’ decision to include it with the course materials. Most importantly, the students wanted to ensure they would have access to the content after the end of their semester-long courses.
Additional feedback included requests for videos to be shorter and to the point, omitting introductory sections that made it difficult to get to the core content of the material. Preference for videos, charts, and graphs was expressed, although videos on finding scholarly articles were deemed unhelpful. When asked about which modules they found most useful, all four students chose the *thesis statement* and the *citation* modules, topics they admitted to having trouble with in their courses. For these topics the students preferred text examples of citations, thesis statements, and even complete example papers over video content. The students further wished for department or discipline-specific information on citation styles and paper formatting, indicating that course-specific module customizations by their professors or liaison librarians would be helpful in limiting and/or refining the information provided. Two of the students asked for the ability to translate the information into other languages, while the sole graduate student included in the group stated that the information provided was too basic for his needs, reaffirming both the modules' “introductory” designation and the fact that they were indeed targeting the intended audience.

Unlike Blake’s findings in 2009, examination of the student group’s feedback suggests that students prefer videos on overarching concepts such as finding keywords and topic development, while for specific mechanical processes such as searching and writing citations, they would like to be able to access information in the form of static text examples. More extensive user testing in this area is likely to reveal useful information on how to improve not only library tutorial creation but instruction in general.

Ultimately, fifteen modules emerged from the original five learning outcomes. The modules are shown in Table 1, aligned with their learning outcomes as well as the AAC&U and ACRL Information Literacy Standards (AAC&U, n.d.; ACRL, 2000). A screenshot depicting an example of the modules embedded in Canvas can be found in the Appendix.
| **Table 1** Modules Aligned with Information Literacy Standards and Learning Outcomes |
|--------------------------------------------------|---------------------------------|-----------------|
| **AAC&U and ACRL standards** | **Learning outcomes** | **Modules** |
| **AAC&U Outcome One:** Determine the extent of information needed | Thesis and topic development | Writing a thesis statement |
| **ACRL Standard One:** The information literate student determines the nature and extent of the information needed. |  | Finding and developing a topic |
| **AAC&U Outcome Two:** Access the needed information | Effective searching | Choose your search terms |
| **ACRL Standard Two:** The information literate student accesses needed information effectively and efficiently. |  | Search better, faster |
|  |  | Find scholarly, peer-reviewed articles |
|  |  | Find trade and professional journal articles |
|  |  | Find newspapers and magazines |
| **AAC&U Outcome Three:** Evaluate information and its sources critically | Evaluating sources | Know your sources - scholarly vs. popular vs. trade/professional |
| **ACRL Standard Three:** The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system. |  | Evaluating information and sources critically |
| **AAC&U Outcome Four:** Use information effectively to accomplish a specific purpose | Applying information to the assignment | Writing an annotated bibliography |
| **ACRL Standard Four:** The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose. |  | Writing a literature review section for your research paper |
|  |  | Writing a literature review |
| **AAC&U Outcome Five:** Access and use information ethically and legally | Citation and avoiding plagiarism | Copyright and fair use |
| **ACRL Standard Five:** The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally. |  | How to cite |
|  |  | How to avoid plagiarism |

Implementation, adoption, and customization. Implementation of the modules began with the creation of a course in Canvas entitled Information Literacy Online, in which all librarians were enrolled as instructors several weeks before the start of the pilot term of Fall 2013. The homepage of this course presented detailed instructions on the use of the LMS, as well as directions for customizing and copying the modules to other courses. Librarians were encouraged to copy the modules to their own Canvas practice courses and seek help from Task Force members whenever needed. It is worth noting that by this time three separate interactive Canvas training opportunities had been made available to all librarians, each presented by experts at either the library or the campus faculty development office.

Once librarians had successfully copied the modules into their own practice courses they would invite the faculty of their liaison areas to view the courses, peruse the modules, and ask librarians to export those they found most relevant to course content and student needs. Module customization occurred at the discretion of the librarian and/or instructor, taking place either after the instructors had been added to a librarian’s practice course and provided feedback, or once the modules were exported to the instructor’s course. Encouraging librarians to export a copy of the original modules into a practice course of their own helped preserve the integrity of the Information Literacy Online course shell, while at the same time allowing librarians to take ownership of the modules and modify them as they saw fit.

The opportunity to request specific modifications during the implementation process sparked conversation between faculty and librarians, created collaborative effort, and resulted in some instructors’ markedly increased interest in becoming early adopters of the modules. During the pilot semester, modules were adopted in five of the seven SJSU colleges: Applied Sciences and Arts, Education, Engineering, Science, and Social Sciences. The Task Force found that module customization requests varied between disciplines. Some departments accepted the modules wholesale in their original form, while in others, customization extended well beyond what was initially anticipated.

Occasionally, faculty requests for extensive customization negated some of the time-saving benefit intended in module development. Participating librarians received requests for discrete modules to be combined into one large library module that could be set apart from regular course content. Other instructors wanted entirely new module iterations and asked librarians to combine individual resources from existing modules in a different way. New tutorials reviewing specific databases were potentially the most time-consuming customizations requested. Rather than address these requests individually, the Task Force collected faculty suggestions on needed resources and tutorials. Future modules will be developed based on these suggestions. Further discussion of the Task Force's approach to tutorial creation is discussed in a later section of this paper.

Quality control and tool imitation. Despite the group’s intention to create a low-maintenance starter set of modules, over the course of the pilot term it became apparent that the Task Force would need to perform ongoing quality control. The use of open educational resources and adoption of other libraries’ materials under current fair use regulations presents the challenge of periodic review for link status, page updates, and continued applicability of materials, as well as unforeseen technical issues arising from the inclusion of outside websites.
The most troublesome of these technical issues emerged from incompatibility issues between Canvas and the ongoing updates to common internet browsers. Within a month of launching the modules, many of the embedded resources coming from external URLs suddenly appeared as a gray screen in the Canvas interface. In order to view the materials, users are now forced to click a small icon located to the right of the resource’s title, which opens the website in a new browser window. Based on the responses received from the LMS administrators, which indicated that no remedy will be forthcoming in the near future, the group developed a strategy to convert most affected websites into static HTML pages in Canvas. While such technical difficulties can be expected when using a platform not under the control of the library, the benefits of providing convenient access to library resources within an established online learning space must be weighed against such issues.

The initial procedure used to embed library modules within Canvas courses unfortunately limited liaison librarians’ ownership over module usage data generated in the LMS. This is in contrast to data generated from the library’s proprietary website or cloud applications such as LibGuides. The Task Force had originally recommended that librarians be added as teaching assistants, roles which would provide administrative privileges like adding modules. Following deployment of the modules, most librarians asked to be removed from the courses. However, the group soon realized that once the librarian lost access to a course, the Task Force had no means of accessing the usage analytics created within Canvas. These analytics could provide essential assessment data such as the number of students clicking into each resource, the time spent interacting with materials, and the scores generated by self-assessment quizzes.

One option to mitigate this challenge is recommending instructors keep librarians enrolled in their courses as teaching assistants so they may retrieve, with permission, the desired data at the end of each term. Alternatively, faculty could be asked to download and share the data with the liaison librarian. Requests for aggregate data on module usage were forwarded to the university’s LMS administrators without forthcoming results. It is likely that a combination of tactics will be employed to retrieve usage data until a programmatic resolution is developed. These data sets could play critical roles in the creation of future library modules, the assessment of online information literacy instruction, and providing evidence of the value of SJSU librarians in student academic success.

Managing expectations and scalability. Several levels of time management had to be coordinated during this project. Once the modules had been introduced to all librarians, the Task Force needed to decide how to most efficiently manage the expectations of librarians who were not part of the group. For example, how much technical training would Task Force members need to offer for librarians to become proficient at embedding the modules in their own Canvas practice courses? Would Task Force members be expected to embed modules for librarians who consistently struggled with the LMS environment? How much time should be devoted to helping librarians customize the modules for specific courses or assignments? In order to keep the Task Force’s individual and collective workload reasonable, the group agreed to set boundaries and subsequently decided on a number of specific services they would provide for other librarians: one-on-one assistance with the migration of content to individual practice courses; guidance on adding customized content, especially videos and LibGuides; and help
troubleshooting high-level technical problems with content, usually the use of iframes for embedding multimedia and Java scripts.

Time management is an important issue an institution must consider when beginning an embedded librarianship program (Hoffman, 2011; Hoffman & Ramin, 2010; York & Vance, 2009). One of the Task Force’s main goals was to develop a variation of embedded librarianship that liaison librarians would find manageable while allowing them to make a substantive contribution to the information literacy skills of SJSU students. Interactive customized modules could serve as virtual library instruction, without the burden of an ongoing investment of librarian time and energy in the LMS. The degree to which librarians wished or were able to be traditionally embedded in the LMS differed greatly among individuals, disciplines, and courses. The majority of librarians chose to end their online engagement with the transfer of the modules into their faculty’s courses, while others considered creating discussion threads in the course shell to enable librarian-student interaction within the LMS environment. Managing the expectations of how deeply librarians should be embedded in individual courses was given extensive consideration during the implementation of the project. The Task Force ultimately decided that no real-time interactive components would be added to the modules and that discussion boards would not be part of the basic training provided for librarians. Librarians interested in more intensive levels of embeddedness could work with Task Force members individually.

Scalability was another concern for the Task Force. While the content of the introductory modules was designed to be widely applicable across all disciplines, the degree of difficulty and specificity required by upper-division and graduate-level courses necessarily limited the modules’ scope. Discipline-specific modules required much higher levels of customization in order to retain relevance to student learning outcomes. Based on experience and feedback received, the Task Force determined that only an introductory suite of modules could be scalable and that intermediate and advanced modules would have to be developed by discipline-specific content experts.

**Reiterations and Future Module Development**

At the conclusion of the modules’ pilot semester, the Task Force met to discuss what changes would need to be made to the existing modules, and also to decide which new modules should be slated for development. While the original set of modules had been geared toward lower-division undergraduate students, the Task Force had also planned on creating intermediate and advanced level modules. The decision on what form these modules should take proved to be more involved than initially anticipated, as the group moved away from its original idea of intermediate and advanced modules for a general audience and towards customizing modules for specific types of students and majors.

To aid with the decision process, the group members collected suggestions from the faculty and librarians involved in the pilot. Most requests involved discipline-specific digital learning objects (DLOs) for upper division students, primarily revolving around the creation of interactive tutorials that would demonstrate the more advanced search features of specific databases. The Task Force ultimately decided that members would work on tutorials featuring
databases widely applicable to multiple discipline areas, such as Academic Search Premier, JSTOR, PubMed, Web of Science, and Google Scholar.

Based on the student feedback received, the Task Force decided against the creation of videos for these database-specific tutorials and instead settled on the University of Arizona’s Guide on the Side, a freely available web application that allows librarians to “quickly and easily create online, interactive tutorials based on the principles of authentic and active learning” (University of Arizona Libraries, 2013, para. 1). Text instructions and screenshots are presented in a column on the left side of the screen while students navigate the database in real time on the right side of the screen, following the instructions provided. Allowing real-time interaction with the database eases the burden of constantly updating video tutorials in response to minute interface changes. This type of interaction also models the desirable outcome of the information literacy lesson: the student becomes an active learner, clicking, scanning, and exploring the database in response to a problem or search request. Guide on the Side has thus far not been extensively used by SJSU librarians as a teaching and learning tool. However, by adopting this active learning tutorial platform the Task Force members hope, in accordance with King (1993), that students’ existing knowledge will help them to understand, retain, and recall the new material presented.

To address student requests for access to the materials outside of the LMS and to assure ongoing administrative rights to the content, a group member was tasked with migrating the module content into a LibGuide, which is now freely accessible via the SJSU library’s research guide page under the title Writing Your Research Papers (San José State University Library, 2013). The content remains cohesively modular, easily adaptable and customizable by other librarians for their own guides. The LibGuide also addresses student concerns regarding perpetual access once their Canvas course has been completed.

**Conclusion**

San José State University is one of many institutions placing an increasing emphasis on online and blended learning. The likelihood is very high that other libraries and librarians will face similar challenges to those encountered by the Online Information Literacy Task Force. By examining this case study, librarians can get an idea of how to scale their efforts in embedded librarianship to what is appropriate for their respective institutions. As in the case of San José State, the development and implementation of reusable, customizable online modules for the campus LMS may be a solution.

Although librarians may hesitate to invest time and energy in yet another technology, it is a fact that the LMS is where students are working and learning. Online students deserve the same level of instruction and librarian engagement as students enrolled in face-to-face classes. As demonstrated by the SJSU Task Force, colleagues can help colleagues in the transition to online instructional support. This Task Force found creative ways to overcome some of their peers’ technological reluctance by offering online content that could be used across a wide array of disciplines on campus. The broad-based approach to building a suite of modules necessitated adopting an equally broad set of learning outcomes for said modules. The members of the Task Force represented liaison areas from many of the university’s colleges, which provided an
inclusive perspective for module development, helped to keep the group focused on the idea of customizability, and ensured that librarians who worked with different departments and classes would be able to embed the modules with ease.

Librarians who would like to build modules for their LMS have many important factors to consider. A cost-benefit analysis is a critical initial step in the process of constructing any type of new digital learning object. While the initial time commitment for planning and creating modules can be significant, as long as there is buy-in from library and campus stakeholders, the reusable and scalable nature of the modules make the investment well worth the time and effort.
References


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Appendix

Information Literacy Online Modules in Canvas Learning Management System

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<th>Course Modules</th>
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<td>Writing a Thesis Statement</td>
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<td>Finding and Developing Your Topic</td>
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<tr>
<td>Choose Your Search Terms</td>
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<tr>
<td>Search Better, Faster</td>
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<tr>
<td>Know Your Sources - Scholarly vs. Popular vs. Trade/Professional</td>
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<tr>
<td>Find Scholarly, Peer-Reviewed Journal Articles</td>
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<tr>
<td>Find Trade and Professional Journal Articles</td>
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<tr>
<td>Find Newspapers and Magazines</td>
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<tr>
<td>Evaluate Information and Its Sources Critically</td>
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<tr>
<td>Writing an Annotated Bibliography</td>
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<td>Writing a Literature Review</td>
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<td>Writing a Literature Review Section for Your Research Paper</td>
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<td>How to Avoid Plagiarism</td>
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<td>How to Cite</td>
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Figure 1. Information Literacy Online Modules (collapsed). This figure illustrates the set of information literacy modules available to faculty in Canvas, the Learning Management System.
Figure 2. Information Literacy Online Modules (expanded examples). This figure offers examples of two modules’ content and how it would appear to a user in Canvas.
Circle the Wagons & Bust out the Big Guns! Tame the “Wild West” of Distance Librarianship using Quality Matters™ Benchmarks

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Abstract
The Quality Matters™ (QM) Program is utilized by over 700 colleges and universities to ensure that online course design meets standards imperative to student success in a web-based classroom. Although a faculty-driven peer-review process, QM provides assessment from a student perspective, thereby identifying opportunities for improvement that may otherwise go undetected. While the benefit to academic librarians who also teach for-credit online or hybrid classes may be obvious, familiarity with QM also benefits academic librarians who create web resources, act as embedded librarians for online classes, or who seek additional opportunities to collaborate with distance education faculty. This paper will provide academic librarians with an overview of the QM Standards and Rubric and will demonstrate how they can be used to facilitate stronger relationships with distance education departments, faculty, and students.

Introduction
While some higher education institutions may be a little late jumping on the gold rush opportunities of distance education, tardiness is not thwarting their enthusiasm. Budget cuts, space constraints, and sheer competitiveness have led many administrators to believe that expanding online offerings is the path to increased enrollment. The Sloan Consortium’s 2011 Survey of Online Learning reported that “65% of higher education institutions said that online learning is a critical part of their long-term strategy” (Allen & Seaman, 2011, p. 4). However, many libraries are finding that those strategies do not include increased training, staffing, or budgets for serving distance education students. Consequently, librarians experienced with face-to-face instruction and reference services are scrambling to create, promote, and sustain distance library services in foreign territory. Although experienced distance librarians offer the newcomers trail maps in the form of primers and best practices, differences in experience, job descriptions, and technology resources can impede progress and stunt confidence. The pressure to provide extended services within as many courses as possible while also maintaining current job duties can be overwhelming and, if not careful, may jeopardize the quality of library instructional materials designed for online use.

“If the first generation of online learning efforts was about coaxing as many people and as many courses as possible onto the Internet, then the next generation is certainly about quality
assurance” (Lorenzetti, 2004, p. 1). By creating and evaluating embedded library resources using the same standards and process as online courses use, novice and experienced distance librarians alike can identify opportunities for improvement that may otherwise go undetected. The Quality Matters™ (QM) Program provides over 700 subscribing colleges and universities with a mechanism for ensuring that online course design meets standards imperative to student success in a web-based classroom. This paper provides an overview of the QM Standards and Rubric and demonstrates how they can be used to facilitate stronger relationships with distance education departments, faculty, and students.

Background to QM

QM is a peer-review process that can be used to ensure quality in online courses. According to the QM website, over 800 colleges, universities, K-12 educational organizations, and businesses have subscribed to the program to access QM tools and trainings (MarylandOnline, 2013). Most subscribers come from the United States though institutions in Australia, Canada, Greece, Ireland, Saudi Arabia, and Singapore are also involved.

QM was developed in 2003 by MarylandOnline, a group of Maryland colleges and universities, with the assistance of a three year grant from the United States Department of Education. At the grant’s conclusion, QM became an independent non-profit organization dedicated to promoting quality and continuous improvement in online education. As part of the grant, recipients studied available research on online pedagogy and effective course design; from these findings, they created a rubric for course analysis and a set of procedures for conducting reviews. The original rubric is now over ten years old; however, it has been updated multiple times to accommodate the growing body of research on online education. Throughout its many revisions, QM has focused on four principles: QM’s designers intended for it to be continuously improved; centered (on research, on student learning, and on quality); collegial (it was created to help improve courses, not to evaluate teachers); and collaborative (when implemented as designed, QM reviews involve a team of reviewers working with the course designer) (MarylandOnline, 2013).

The QM rubric covers eight areas relevant to online course design including the course overview/introduction, learning objectives, assessment/measurement, instructional materials, learner interaction/engagement, course technology, learner support, and accessibility. Forty-one specific standards are spread out across these eight areas. Each standard is worth one to three points. For a course to pass review, all twenty-one of the three point standards must be met – these are all deemed essential – and the course must earn eighty-one of the available ninety-five points overall. Individual reviewers first award points and provide comments on their own to show how each standard is met or to offer suggestions for improvement. Points and comments are then synthesized into a single final report that is shared with the course designer. Across the entire rubric, the focus is on alignment with course objectives. All key components including course activities, materials, and assessments should be directly related to the learning objectives if the course is to pass a QM review.

A team of three certified reviewers conducts each official review; an individual external to the institution and a content specialist must be present on each team. While certified
reviewers must complete an introductory workshop and a peer review course in addition to having taught online within eighteen months of the review, the program does recognize that attending the introductory workshop alone may be sufficient for some stakeholders. Familiarity with the rubric and its application may assist with course design, self-reviews, and internal peer-reviews. Indeed, it seems extremely likely that many institutions use it for these purposes. QM has over 800 subscribers, each of which may host hundreds of courses, and only 768 courses have passed an official QM review this year (MarylandOnline, 2013). This variation on use creates opportunities for librarians who may lack online teaching experience and it allows for applications for profession-specific endeavors.

**Literature Review**

As a quality assurance tool for online education, QM appeared primarily in higher education literature. While a wide range of topics was covered, how librarians might use or become involved with QM was not addressed. The literature did, however, provide a contextual basis for how this program compared with other evaluation tools, how it impacted stakeholders, and how it was implemented in various settings. A review of each of these facets will allow readers to gain an understanding of the current state of QM use so they might identify opportunities for application and collaboration at their own institutions.

In one of the earliest articles published on QM, Wang (2008) reviewed four sets of guidelines used to develop online courses. QM was discussed alongside tools from the Institute for Higher Education Policy (IHEP), the American Distance Education Consortium, and the American Federation of Teachers. Not surprisingly, these four resources shared several common themes including using learning outcomes to drive course development, creating opportunities for interaction and engagement within courses, providing technological support at the institutional level, and ensuring student awareness of the demands of the online learning environment. As described by Wang, only two of the four tools indicated the need for a connection to the library in online courses; IHEPs guidelines suggested users must have access to quality virtual information resources while QM’s standards highlighted the need to link users to learner support services, one of which might be the library (2008).

Other articles presented case studies on how QM affected students and faculty. Bento and White (2010) and Swan, Matthews, Bogle, Boles, and Day (2012) each found that student academic performance improved after their respective courses had been revised to meet QM standards; following the revisions, the class average GPA and the student course ratings rose in the first study while the second study yielded increased project, exam, and final course grades. Instead of revising a course, Dietz-Uhler, Fisher, and Han (2008) developed online courses in both Psychology and Statistics that met QM standards from the outset. They then compared retention rates throughout the course to national norms. By the end of the semester, the retention rates for both courses far exceeded the national average for online education, though the authors acknowledged that further research was needed to draw a causal relationship between these variables.

In contrast to the previous studies, Little (2009) examined the application of QM standards in terms of its use by faculty. When the same nursing course was evaluated against
both QM and the University of South Florida College of Public Health Online Course Standards, the evaluators found that ratings were far more consistent across reviewers with the QM standards. They suggested that QM might be helpful to faculty because it has a strong research-base and can be used to identify professional development needs if the same standards are consistently not met by a division or department.

The final area of QM literature contained articles with recommendations for implementation. Pollacia and McCallister (2009) discussed several Web 2.0 applications and offered specific suggestions for using them to meet QM standards for course introductions, objectives, online materials, engagement, and technology. Frey and King (2011) examined the methods used in QM-approved courses to ensure accessibility for users with disabilities, with the belief that such courses should reflect best current practices. Based on the lessons learned, the authors recommended that all distance education departments develop plans for serving students with disabilities specifically in the online environment and that they train course developers on standards for course design that limit the need for later accommodations. Gibson and Dunning (2012) provided a detailed look at the implementation of QM on a large-scale basis. At the time of publication, over 50% of their university’s departments were using QM to evaluate and improve distance education courses. Based on their experience launching a QM review system, the authors proposed that institutions new to QM consider a gradual phased-in approach to slowly build support with faculty, and that they plan to support course developers with substantial information technology and course design assistance to ensure they can be successful with QM standards from the point of development rather than after multiple revisions (Gibson & Dunning, 2012).

With the exception of Wang (2008), a discussion of libraries was notably absent from each of the QM articles reviewed above. This void may have occurred for several reasons. Faculty often focus on their discipline content and their research reflects this perspective. Academic librarians may not be included in the quality assurance initiatives of their universities or may be unclear on whether this is an appropriate area for collaboration. Both groups may be willing to work together but may lack an understanding of what each can contribute to the course design and continuous improvement process. With all of this in mind, this article seeks to fill the gap in the QM literature to encourage librarians to become involved with institution-wide initiatives and to propose methods for applying QM to library-created learning resources.

While librarians have yet to publish on QM specifically, the development of online tools has been covered in professional literature. From the earliest days of online education, librarians have sought to identify best practices to ensure that distance students received equitable access to instruction and resources. Dewald (1999) suggested that many of the same learning theories that shaped strong in-person pedagogy could and should transfer over to the online environment; she urged librarians to consider learner motivation, the need for clear objectives, and the creation of opportunities for practice, knowledge application, and critical thought whenever they developed an online module. A decade later, Blummer and Kritskaya (2009) reviewed several studies of online library tools and concluded that most library learning objects were developed based on a set of external standards or competencies. The information literacy standards published by the Association of College and Research Libraries were among the most likely to be used, while subject content standards and department curricula were also incorporated from time to time.
Other librarians have published recommendations that focus on design and implementation rather than subject content. In his discussion of providing library support within Blackboard, Lawrence (2006) considered many of the practical details involved with the development of digital library resources; although customized tutorials may be ideal, they can also be time-intensive and require staffing beyond what most academic libraries can provide. Instead, Lawrence proposed the creation of a “global, uniform library presence” that might be embedded in all Blackboard courses to ensure that students became familiar with the layout and would be comfortable finding the resources they needed regardless of the class they were in (2006, p. 257). After a review of multiple online tutorials, Su and Kuo (2010) compiled the following list of best practices: successful library instructional tools should include clear objectives; a variety of teaching strategies (active learning, situation simulation, questioning, etc.) should be deployed; media applications should match the objectives of the tutorial; and tools should include an estimated browsing time so students know what to expect. They also recommended that librarians consider how visible the tutorial is within the library’s website to assess how likely it is to be found by students, and that all design plans include a schedule for periodic review and upgrade because the technology covered in tutorials may change (Su & Kuo, 2010). Mestre (2010) offered a similar set of guidelines that was intended to ensure that online library resources were culturally inclusive and appealed to individuals with different learning styles. Mestre argued that these tools needed to relate tasks to the students’ real world experience, include multiple paths to allow users to explore and stop and start based on their own learning needs, incorporate multimedia elements and provide multiple options for user-interaction (2010).

While all of these recommendations may be helpful as librarians strive to meet the needs of distance learners, they lack cohesion. Unfortunately, a single comprehensive tool to guide the design of library online resources has yet to be created. Despite not being designed with libraries in mind, QM may be a useful starting point.

**Application to Library Resources**

Connecting online students to the institution’s student support services in a way that will maximize usage and enrich the learning process is a challenge confronting many distance education programs (Tripathi & Jeevan, 2009). Distance librarians routinely tackle this challenge by providing faculty with links to resources, creating video tutorials to assist students at their point of need, offering virtual reference and instruction services, and crafting course-specific research pages that typically include a combination of these tools. Ultimately, the goal is for these products to be embedded within the institution’s course management system (CMS) and integrated within the course. As such, the library products cease to be separate, standalone entities; instead they become part of the overall course design, and are therefore subject to the same scrutiny and standards as the course instructor’s content.

Librarians at institutions that subscribe to QM need to be familiar with the QM rubric to ensure that all library-embedded content meets review expectations. Additionally, all distance education stakeholders – regardless of QM affiliation – will benefit from online library resources that are created with standards in mind. In their summary of best practices for creating library
tutorials, Blummer and Kritskaya (2009) recommended the use of “standards or competencies to
direct the tutorial’s development and to ensure the tutorial’s objectives meet the intended
learning outcome” (p. 212). Quite simply, standards may keep librarians on track as they design
to ensure that the resources they create are in alignment with course and assignment learning
objectives. In addition to being “a fundamental tenet of good instructional design” (Kearns,
2012, p. 38), this instructional alignment is a core component of the QM review process (QM
Standard 4.1) (MarylandOnline, 2013).

To achieve this alignment, it is essential that all embedded library content is purposeful
and directly related to helping students achieve course-specified learning outcomes. Frey (2012)
emphasized the importance of analyzing the purpose or desired outcome of online programs
prior to development; this recommendation is applicable to librarians creating instructional
materials for an online class as well. Librarians must stave off the temptation to include all
information and objects deemed "good for students to know" and instead focus on the
information and learning tools students needed to complete the assignment at hand.

It is also crucial to consider instructional materials from the student’s perspective, as that
is the viewpoint that will be taken by QM reviewers. Do all tutorials and guides use clear,
understandable language that is free from library jargon? Anecdotally, some librarians may feel
intimidated by creating content that will stand next to the instructor’s and may inadvertently
begin writing for a professional audience, thereby putting student comprehension at risk. In
addition to language, student information-seeking behavior and technology usage should also be
considered. Although librarians may desire comprehensive video tutorials, Tempelman-Kluit
and Ehrenberg (2003) found that students prefer brevity over depth, while Bowles-Terry,
Hensley, and Hinchliffe (2010) noted that students wanted to skip introductory material and
focus on how to actually use the resource. This may be why Pickens-French and McDonald
(2012) reported that 44% of the students they surveyed indicated that a library video tutorial
would lose their attention after 1-2 minutes, with an additional 32% losing interest if a tutorial
lasted 3-4 minutes. In this type of learner-content interaction, it is critical not to lose the learner
(QM Standard 6.1) (MarylandOnline, 2013).

Librarians inexperienced with web design and development may struggle the most with
QM’s General Standard 8: Accessibility (MarylandOnline, 2013). The importance of applying
Web accessibility standards to online library resources has been – and continues to be –
discussed in library literature (Bickner, 2002; Coonin & Hines, 2012; Fichter, 2013; Fulton,
2011; Providenti & Zai, 2007; Riley-Huff, 2012; Schmetzke & Comeaux, 2009). However,
librarians may be creating content for online courses without the training necessary to understand
how to make instructional materials accessible to all students. For example, are there equivalent
alternatives to auditory and visual content (QM Standard 8.2) (MarylandOnline, 2013)? If so,
then all screenshots include enough alternate text to complete the task described, all video
tutorials include accurate closed captions, and all images include enough descriptive “alt” text to
describe the embedded image, etc. Librarians simply cannot rely on the instructors or
instructional designers to “fix” the content they provide. In fact, Frey and King (2011) learned
that 87% of surveyed QM institutions did not require accessibility training before creating an
online course, which may also be why those respondents who used technology to create content
disclosed that 74% of their online courses did not have closed captioning for videos. By
ensuring that all of the instructional materials generated or suggested by the library meet accessibility standards, librarians can help courses meet QM standards and can ensure that all students may take advantage of the resources provided.

Perhaps one of the easiest standards to meet – as well as the easiest to overlook – is overall readability of the course design (QM Standard 8.3) (MarylandOnline, 2013). While all librarians creating web guides should consider formatting and font – style, color, and size – this particularly impacts those creating library pages for the course directly within the CMS. Essentially, the librarian’s preferences are of lesser consequence than those dominating the course (i.e., the instructor’s). Every effort should be made to maintain a seamless transition from instructor-created content to librarian-created content, even if it means sacrificing one favorite sans-serif font for another. Librarians should be particularly careful when copying and pasting content from other web content and documents to ensure that the formatting is edited to match that used throughout the course. Also, keeping the heading colors and breaks consistent with the rest of the course modules will improve student navigation through the library-supplied resources (QM Standard 6.3) (MarylandOnline, 2013). By viewing these resources from the students’ perspective within the context of the overall course, it becomes easy to identify which elements are not in sync and to make the necessary changes.

Though a simple link to the library’s website may satisfy QM Standard 7.3 for connecting students with academic support services (MarylandOnline, 2013), most librarians prefer to create course-specific library guides using Springshare’s LibGuides or to develop library content areas directly within the CMS (Bowen, 2012; Ghaphery & White, 2012; Judd & Montgomery, 2009; Tumbleson & Burke, 2013). By adapting QM benchmarks into a rubric focused on the library’s role in the course, librarians can ensure that created guides enhance student learning while meeting quality assurance guidelines (see the Appendix for a sample rubric). It is worth noting that LibGuides 2.0 includes the administrative ability to review guides prior to publication, a feature which complements the adoption of a standardized rubric for course guides.

In addition to using QM standards or an adapted rubric when developing library content for inclusion in a course, it is imperative that this content regularly undergoes review. This will ensure that the instructional materials are current (QM Standard 4.4) (MarylandOnline, 2013), while also providing librarians with an opportunity to improve existing guides and tutorials. Links to web resources should be routinely checked, video tutorials and screenshots should be updated when changes are made to database interfaces, and all content should be reviewed for alignment with any changes in the instructor’s assignments or learning objectives.

Librarians well-versed in best practices for web development and instructional design will find QM standards familiar and easy to apply to library resources. It is important to remember that reviewers and student users will evaluate the course quality inclusively; library-generated content is not a separate entity once embedded in the CMS. Products should be usable from a student standpoint, support the instructor’s learning objectives, and match the instructional designer’s content strategy. When seen from all of these sides, Shepley (2009) predicted “a more fine-tuned awareness of the impact of a course” (p. 91). With this awareness
comes the opportunity to develop and refine relationships with online faculty and distance education departments.

**Opportunities for Librarians**

If libraries need to change to be viewed as indispensable by their constituencies (Giesecke, 2011), then it stands to reason that librarians must redefine their roles to be viewed as essential team members for online instructional development. Zabel, Shank and Bell (2011) predicted that in order to “fulfill the evolving educational mission of the academic library, blended librarians must partner with faculty and staff to embed themselves and their instruction, as well as services, in courses and the campus curriculum” (p. 109). Familiarity with QM is one step towards developing these relationships.

When Phelps and Campbell (2012) examined thirteen articles written about faculty-librarian relationships, they found that relationship benefits, shared values, and communication were the highest contributors to commitment and trust. Amante, Extremeño, and da Costa (2013) demonstrated that identifying and understanding the needs of faculty is essential in order to build trust, create favorable perceptions of the librarian’s role, and facilitate faculty collaboration. By demonstrating to faculty how the library’s embedded content meets QM standards, the librarian is also revealing an awareness of the instructor’s needs, providing evidence of potential relationship benefits, and showing a commitment to shared values. As Belzowski, Ladwig, and Miller (2013) succinctly stated, “Our colleagues will learn the value of our professional knowledge and experience when we show them how to value it” (p. 13).

Through establishing credibility, librarians are in a better position to collaborate with faculty and to contribute their own expertise to the knowledge base. Shepley (2009) noted that as collaborators in online course development and learning, “librarians are seen as research experts whose viewpoints and skills are valued” (p. 94). These positive perceptions are crucial for libraries seeking to expand their embedded services, as McMullin and Hutton (2010) theorized that individual personalities and past relationships with librarians may impact an instructor’s willingness to embed a guide. Ideally, collaborating with individual faculty members will expand the library’s reach and create additional opportunities for collaboration. Gonzalez and Westbrock (2010) noticed increased faculty involvement when course/assignment guides were tailored to students’ specific needs. The increased involvement also prompted word of mouth marketing, as faculty recommended the service to their colleagues.

In addition to providing opportunities for collaboration, familiarity with QM may also serve as a catalyst for enriched partnerships with distance education departments that incorporate an informal, internal quality assurance review as part of online course development. The *Applying the QM Rubric* workshop provides an introduction to the QM review process and is a prerequisite for the *Peer Reviewer* course. While the workshop itself presents a professional development opportunity, participation will also enhance the attendee’s understanding of how to use the rubric for developing and evaluating online courses, which will ultimately lead to improved communication with instructional designers and distance education leaders. After completing the workshop, librarians may be eligible to serve as peer-reviewers for internal assessments. Some institutions may require internal reviewers to complete the more intensive
Peer Reviewer course before conducting internal reviews, although only librarians that teach for-credit courses in an online environment will be formally recognized as a QM Certified Peer Reviewer with eligibility to conduct external reviews (MarylandOnline, 2013).

As an internal reviewer, the librarian will have access to the course in the CMS and be expected to follow QM guidelines to conduct a thorough review in order to provide the instructor and/or instructional designer with valuable feedback and suggestions for improvement. Providing faculty with constructive criticism may be awkward for some librarians, however, the review is not meant to challenge the instructor’s subject knowledge or evaluate his or her performance. Rather, QM is intended to be a continuous model for improving the design and delivery of online courses, and the review should focus on rubric compliance and the effective use of course tools and technology.

Showing an interest in QM – and eventually providing service as an internal peer reviewer – opens the door for increased communication and collaboration with distance education personnel. It demonstrates shared values and relationship benefits that are more tangible to administrators and instructional designers than typical library marketing efforts that primarily focus on improving student research outcomes. Although not to be viewed as a simple means to an end, a cooperative relationship with distance education departments can provide embedded library services with a further reach and greater participation than only soliciting teaching faculty on an individual basis.

**Conclusion**

As colleges strive to expand distance education offerings, librarians are finding it necessary to redefine roles and adapt existing service models to reach remote students. While the library community provides ample examples and best practices for how to connect to online students through embedded librarianship, delving deeper into higher education’s best practices for distance learning will provide librarians with the means to create content that contributes to the quality of the overall course. As a quality assurance tool, QM provides educators with a research-based rubric for assessing course design and improving student learning. By becoming familiar with QM and adapting the rubric for reviewing library guides and tutorials that will be embedded in the CMS, librarians can cultivate trust and credibility with other distance education stakeholders. With improved perceptions of the librarian’s role, faculty and instructional designers will be more open to the type of collaborative relationships that are essential for connecting online students to library resources and services.

Interested librarians should visit the Quality Matters™ website at [https://www.qualitymatters.org/](https://www.qualitymatters.org/) to download the 2011-2013 Rubric, to find professional development opportunities, and to peruse the QM Research Resources. A current list of institutional subscribers is also posted on the website.
References


Appendix

Sample Adapted Rubric for Online Course Guides

<table>
<thead>
<tr>
<th>Library Review Standard</th>
<th>Relevance to QM Standard</th>
<th>Pass or Fail</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is clear how to use the guide from the student’s perspective</td>
<td>1.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Navigation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Navigation throughout the guide is logical, consistent, &amp; efficient</td>
<td>6.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Content Design</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The design facilitates readability and minimizes distractions</td>
<td>8.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Language</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Text is concise &amp; free from library jargon</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Instructional Materials</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resources contribute to the achievement of assignment objectives</td>
<td>4.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All links are operational and have appropriate titles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructional materials are current and appropriate for student usage</td>
<td>4.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All resources and materials used are appropriately cited</td>
<td>4.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Technologies</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Videos and tools support assignment objectives</td>
<td>6.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students can readily access the technologies required in the guide. Any necessary plug-in or download links are provided.</td>
<td>6.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Accessibility</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All images have appropriate “alt” tags</td>
<td>8.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video tutorials are closed</td>
<td>8.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screened Text</td>
<td>8.2</td>
<td></td>
<td></td>
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<tr>
<td>----------------</td>
<td>-----</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screenshots include descriptive text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All embedded content (videos, IM) also includes a direct link to the source</td>
<td>6.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Learner Support</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple methods for obtaining library assistance are provided, including a link to the library’s website, phone, email, and chat services</td>
<td>7.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Emerging Roles: Key Insights from Librarians in a Massive Open Online Course

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Kyle M. L. Jones, MLIS
San José State University

Abstract
From the cutting edge of innovations in online education comes the MOOC (Massive Open Online Course), a potentially disruptive and transformational mechanism for large-scale learning. What's the role of librarians in a MOOC? What can librarians learn from participating in a large-scale professional development opportunity delivered in an open environment to illuminate their own practice? This paper explores the experiences and perceptions of librarians and information professionals participating in an LIS-centered MOOC taught by the authors. We will share insights gained from active participants in the course as they encounter this emerging landscape.

Introduction

Massive Open Online Courses (MOOCs) are touted by some as a means to transform teaching and learning for the 21st century, presenting an opportunity for global, open learning. Understanding this new, evolving landscape and its potential to make learning more accessible and affordable should be a priority for librarians, as they are influential actors in teaching and learning environments. Some have urged librarians to participate in MOOCs as a means of orienting themselves within this rapidly evolving learning domain and to better understand how they might serve MOOC students and instructors alike. Professionals would gain firsthand experience by participating in a large-scale online environment, and their practice would be informed because of it.

This paper will explore a MOOC taught as a professional development opportunity for a global cadre of LIS professionals in various stages of their careers, describe what LIS professionals took from the experience, and, based on that data, share how librarians should consider serving students in this emerging learning environment.

Background

In September 2013, the San José State University’s School of Library and Information Science (SJSU SLIS) launched its first massive open online course (MOOC), the Hyperlinked Library MOOC (#hyperlibMOOC). The Hyperlinked Library course centers on key theories and concepts that merge trends in participatory culture with library and information environments. At its core, the Hyperlinked Library encourages transparent, participatory, and user-centered
information services that employ emerging technologies to increase open, collaborative information experiences.

The #hyperlibMOOC was adapted from an existing online graduate course of the same name created by SJSU SLIS Assistant Professor Michael Stephens, an author of this paper. The course had been previously only offered to SJSU students enrolled in the Master of Library and Information Science (MLIS) program. The #hyperlibMOOC was not for credit and was intended to serve as a professional development opportunity for librarians, library staff, and professionals who work in libraries, archives, and other types of information environments.

**Literature Review**

**MOOC Beginnings and Research**

Sweeping technological change continues to impact the landscape of teaching and learning, and librarians are constantly adapting their skill sets and roles to embrace those advances. The latest wave is that of the Massive Open Online Course (MOOC). The term was first used in 2008 by George Siemens and Stephen Downes to describe a free, online course for 2,300 students taught at the University of Manitoba (EDUCAUSE, 2011). Since then, a growing number of educational institutions have been experimenting with MOOCs, and an increasing number of people across the globe are enrolling in MOOCs. Barnes (2013) detailed the dynamic history of MOOCs, from connectivist beginnings to instructivist permutations, originating first in homegrown learning systems to their provision by large-scale learning providers.

Although EDUCAUSE (2011) regarded the concept of *massive* as a fluid dynamic depending on the course, MOOCs generated interest when enrolled students reached significant numbers. An early example that gained press attention was a MOOC taught at Stanford University that included 160,000 students on a global scale (Mahraj, 2012). *The New York Times* reported that in the fall of 2012, edX, the nonprofit startup from Harvard University and the Massachusetts Institute of Technology (MIT), enrolled 370,000 students in its MOOCs, and rival Coursera reached more than 1.7 million students (Pappano, 2012).

These numbers, however, should not be taken at face value. MOOC completion rates are much lower, sometimes as low as 12% (DeJong, 2013). A recent University of Pennsylvania Graduate School of Education (Penn GSE) study of 16 Coursera courses reports that MOOCs have “relatively few active users, that user ‘engagement’ falls off dramatically - especially after the first 1-2 weeks of a course - and that few users persist to the course end” (University of Pennsylvania Graduate School of Education, 2013, para. 1). Course completion rates were between 2% and 6%, depending on the amount of weekly work required. Courses with lower workloads yielded the higher percentage of completion (University of Pennsylvania Graduate School of Education, 2013).

While educators discuss the advantages and downsides of MOOCs via blog posts, higher education publications and conference papers, the published research literature regarding MOOCs is slowly growing. From the UK, the Department for Business, Innovation and Skills research paper “The Maturing of the MOOC” provides citations and synthesis for more than 100
articles in the scholarly and professional literature, as well as web-based media, related to MOOCs on a global scale (Haggard, 2013).

**MOOC Learning Models**

During the brief history of MOOCs, two distinct camps have emerged in relation to pedagogical practice and course design: cMOOCs and xMOOCs. cMOOCs are rooted in connectivist theory and were among the first to appear, notably the Downes and Siemens course mentioned above. Yeager, Hurley-Dasgupta, and Bliss (2013) describe four activities that occur within a cMOOC:

…aggregation (sometimes referred to as curation, accomplished through an initial list of resources on the MOOC website and then added to through a daily newsletter sent to all participants); remixing (where the connections are made and documented through blogging, social bookmarking, or tweeting); repurposing (often referred to as constructivism, in which learners then create their own internal connections); and feeding forward (that is, sharing new connections with others) (p. 134).

xMOOCs, on the other hand, are of different design and delivery, reflecting more traditional teaching and learning approaches:

xMOOCs are online versions of traditional learning formats (lecture, instruction, discussion etc.) on proprietary specialist software platforms owned by private enterprises. They feature contractual and commercial relationships between Universities who create content, and technology providers. These are associated mostly with the three largest platform providers: edX, Udacity, and Coursera (Haggard, 2013, p. 11).

Beyond for-credit and for-profit endeavors, the possibilities for MOOCs to provide professional development and lifelong learning to interested individuals seem boundless. “One of the most appealing promises of MOOCs is that they offer the possibility for continued, advanced learning at zero cost, allowing students, life-long learners, and professionals to acquire new skills and improve their knowledge and employability” (Johnson et al., 2013, p. 4).

**MOOCs and Librarians**

Barnes (2013), writing from an Australian perspective, notes that the discussion related to librarians and MOOCs is mainly found in the blogosphere, and that any research done so far is United States-focused. He does, however, offer a list of functions gleaned from reports and conference presentations. These include:

- copyright clearance;
- content licensing;
- alerting MOOC developers to open content;
• helping to ensure that MOOC content is accessible to all users, including those using assistive technologies;

• providing instruction in information literacy; and

• encouraging the use of open licensing.

The list includes multiple functions related to access and content. New licensing models are key issues for librarians, argued Kendrick and Gashurov (2013), echoing Barnes' (2013) collected list of functions.

But what other roles might librarians play beyond the traditional ones of providing access and information literacy instruction? Stephens (2013a; 2013b), one of the co-authors of this paper, offered these potential roles for LIS professionals in large-scale learning environments.

• **Learner:** active participation as a learner brings more depth of experience than passive reading.

• **Connector:** locating, curating, and sharing information is social and participatory; anyone can be the leader or connector on any topic or number of topics.

• **Collaborator:** working together to solve problems, sharing expertise with technologies, building artifacts, and organizing connected experiences.

• **Creator:** librarians create large-scale learning opportunities for their constituents centered on “life literacies,” and other topics; community experts may also play key roles as more courses are launched.

These active and participatory roles extend beyond dealing with copyright to designing and delivering learning opportunities to the communities served.

**The Hyperlinked Library MOOC**

Up to 400 MOOC students had the opportunity to explore the Hyperlinked Library model through recorded lectures, guest presentations, and mixed-media readings. As will be discussed in detail, each student had the opportunity to create and participate in their own blog throughout the course, using it as a tool to reflect on their learning experience, share their posts with the course community, and comment on each other’s work.

To accommodate different learning modalities and interests, students were encouraged to choose from a mixture of assignments that fit their learning goals and to participate in the course community in ways that aided their learning. Students applied what they learned to their professional situations through practical assignments and could earn a certificate of completion if they finished three of five assignments of their choosing, in addition to blogging and participating in an end-of-course virtual symposium. Badges, a type of graphical recognition of
course achievement, were awarded to students for completing assignments, participating in the course community, and learning how to use the course system. 

Eleven Participatory Learning Guides (PLGs) helped facilitate the course’s administration and instructional goals by working closely with #hyperlibMOOC students and communicating directly with the instructors and other PLGs. The PLGs consisted of SJSU SLIS graduate students and volunteer graduate students from other library and information science schools. PLGs were responsible for their own “homerooms,” into which MOOC students were automatically enrolled when the course began to help them get acquainted with the learning environment and develop a cohort.

Unlike other MOOCs that rely on ready-built learning management systems, the #hyperlibMOOC was a bespoke environment, made specifically for desired teaching and learning effects. Kyle Jones, one of the MOOC’s co-instructors and co-author on this paper, heavily customized WordPress, an open-source content management system, to meet certain instructional design criteria. The instructors sought an environment that would encourage constructivist (i.e., community-centered) and constructionist (i.e., artifact-focused) learning modalities.

To accomplish these goals, Jones built the system so that each student would have their own blog and partake in a social learning experience. WordPress was extended using its Multi Site functionality to allow for multiple blogs, and BuddyPress, a comprehensive WordPress plugin, was installed and customized to enable social network-like affordances. In addition, other WordPress plugins were added to enhance specific administration, content creation, and social features.

Due to the customization of the system, Jones supervised multiple teams of SJSU SLIS students during the summer of 2013. Each team was focused on building, testing, and enhancing certain features of the system. For example, the user experience team developed parts of the site’s information architecture and completed a user experience program; the gamification team developed the badges program and technical installation; and the learner support team identified hurdles to learning the system and produced instructional screencasts.

Methodology

The research component of the #hyperlibMOOC has multiple goals, one of which is to contribute to a better understanding regarding how not-for-credit MOOCs can serve as professional development opportunities. Funded in part by a research grant from San Jose State University, the investigators are evaluating the SLIS MOOC to identify areas where the model is effective, and provide recommendations regarding how to improve the design of professional development MOOCs in the future. In addition, a secondary focus seeks to provide insights from MOOC participants on the nature of community in large-scale online learning, and perceptions of the roles that LIS professionals will play in MOOCs in general. This paper focuses on the latter. After participating in the large-scale course, we asked participants what roles related to MOOCs they foresee LIS professionals playing in the future.
Web Survey Methodology

To address the research goals, the investigators designed two web-based survey instruments. The surveys, offered at the start of the MOOC and at the end, contained multiple areas of focus reflecting a research design that is both quantitative and qualitative. The surveys included demographic queries, Likert scales, and open-ended question types. The combination of quantitative and qualitative data, including multiple open-ended questions, is currently being analyzed by the investigators. The post-MOOC survey question analyzed for this paper was: “Reflecting on your MOOC experience, what roles do you think librarians might play within MOOCs?”

Sample

The target population for the survey was all of the registered students in the #hyperlibMOOC. The Institutional Review Board of San Jose State University verified the survey instruments in the fall of 2013. Links to both surveys were sent via email to 363 registered members of the MOOC. The instructors made announcements on the course site that the survey would be coming, and reminder emails were sent once for each survey. A total of 151 survey responses for the post-survey were collected. Responses deemed incomplete were those in which no answers were given beyond the initial informed consent question. These responses were removed from the initial data set.

Analysis

For question 23 of the post-MOOC survey, “Reflecting on your MOOC experience, what roles do you think librarians might play within MOOCs?”, a total of 105 respondents answered. Responses were analyzed using descriptive content analysis. Both researchers shared preliminary and final coding duties to insure inter-coder agreement for the category responses.

Findings

In the post-MOOC survey, 105 respondents chose to answer the question “What roles do you think librarians might play within MOOCs?,” representing 69.5% of the total survey respondents. The question generated interest and excitement from respondents, and many seemed eager to create a place for themselves in future large-scale offerings or see more professional development opportunities come from MOOCs.

The final codebook included six roles that emerged from the answers, which included Guide/Facilitate, Access/Resources, Create, Instruction, Learner, and Unsure (see Table 1). Roles were often described by respondents in relation to their own experience within #hyperlibMOOC and other MOOC experiences, or they described roles in relationship to their own professional responsibilities and experiences in library environments. Some respondents envisioned creating MOOCs themselves, while others saw overlaps with traditional librarian responsibilities, such as providing content-centric, reserve-like services. For the remainder of this section we will address each role in turn, beginning with the most frequently occurring code and ending with the least.
Table 1

**Emerging Roles: Key Insights from Librarians in a Massive Open Online Course**

<table>
<thead>
<tr>
<th>Role</th>
<th>Role definition</th>
<th>Number of respondents suggesting this role</th>
<th>Percentage of respondents suggesting this role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guide/Facilitate</td>
<td>LIS professionals act as guides in MOOCs: actively mentor/advise, assist in explaining learning concepts, engage students in discussion, support the creation and running of MOOCs.</td>
<td>60</td>
<td>57%</td>
</tr>
<tr>
<td>Access/Resources</td>
<td>LIS professionals provide resources for use in MOOCs in similar fashions as they do for eReserves and special collections.</td>
<td>44</td>
<td>41%</td>
</tr>
<tr>
<td>Create</td>
<td>LIS professionals create the infrastructures of MOOCs.</td>
<td>37</td>
<td>35%</td>
</tr>
<tr>
<td>Instruction</td>
<td>LIS professionals participate in the instructional process of the MOOC to some degree.</td>
<td>18</td>
<td>17%</td>
</tr>
<tr>
<td>Learner</td>
<td>LIS professionals participate in the MOOC as students.</td>
<td>16</td>
<td>15%</td>
</tr>
<tr>
<td>Unsure</td>
<td>It remains to be seen what roles LIS professionals will assume.</td>
<td>4</td>
<td>3%</td>
</tr>
</tbody>
</table>

*Note.* Total respondents =105

**Guide/Facilitate**

Fifty-seven percent of survey respondents imagined scenarios in which librarians act as guides in MOOCs. Guides may act in some type of the following capacities: actively mentor or advise students, assist in explaining learning concepts, and engage students in discussion. A guide may be transient (ad hoc, temporary) or permanent (embedded). Respondents also said that they could see librarians facilitate or support, in various ways, running MOOCs. For example, respondents shared that librarians could offer instructional, resource or content and technical support, in addition to the primary responsibilities of individuals, such as the instructors themselves, instructional designers, and information technologists. As conceptualized, a Guide/Facilitate role for librarians is generic in nature: it can be melded with the needs of the MOOC team members, instructional objectives, and technological context.
For example, one respondent envisioned librarians as “learning mentors” in a MOOC, by acting as real-life educational resources who would help students, through conversation and resource connection, understand the course’s concepts. Another respondent saw librarians supporting MOOCs with “resources, space, and additional materials” to aid student learning. Similarly, another respondent indicated that technological resources could be provided by librarians, for example, “video or live feed” applications. And possibly taking some cues from the Participatory Learning Guide role employed in #hyperlibMOOC by graduate students, a respondent felt that librarians could engage students in discussion and point instructors to “excellent student content.”

Access to Resources

Forty-one percent of survey respondents indicated that they could see librarians providing access to resources for MOOC students and instructors. In many ways, this role reflects a librarian’s traditional stewardship role over a library’s diverse physical and virtual collections along with on-site and online reserves services. Furthermore, this role is responsible for navigating the often challenging legal waters related to issues of copyright and digital rights management (DRM). If un navigable, the role is tasked with either obtaining permission to duplicate and provide access to copyrighted materials or find an open access alternative. And while it may seem that MOOC students – being in essence digitally mediated in an online learning environment – would require only virtual resources, this role may provide both online and offline resources.

For example, one respondent indicated that the role may be the same “we play in supporting all learners – connecting them with materials and support that will help them achieve their educational goals.” Other survey respondents envisioned more nuanced responsibilities related to resource access, such as curating highly specific materials that “spiral out from stated strands or discussion points” in MOOCs. Respondents also explained that access to resources is only possible through good organization of those resources, which may require special tagging schemes, customized systems, or content pathfinders.

Create

Thirty-five percent of respondents saw an active role for librarians to create MOOCs, either for their professional peers or for the communities they serve. In this role, librarians would be the primary developers of the course infrastructure, both from a technical and instructional perspective. This role may use already existing infrastructures, like Coursera or the Canvas Network, to host a librarian-created MOOC; or, in the same fashion as #hyperlibMOOC, this role may build its own MOOC platform. Additionally, MOOC creators would develop the course design in terms of its instructional goals, objectives, learning activities, and materials (e.g., lectures).

For example, one respondent saw libraries as places “of learning [that are] only going to grow,” and creating MOOCs seems like a part of that natural evolution. By running and hosting MOOCs, librarians could create learning environments tailored to the needs of their communities. As one respondent said, “we could make a MOOC [for] our community members
wanting to learn a new technological skill,” or target new user populations such as “reaching out to tweens and teens to enhance literacy.” Other respondents felt that they could create MOOCs to serve the education of other librarians; as one said, “I can easily see us creating and holding our own MOOCs on behalf of our libraries to help share knowledge with others.”

Instruction

Seventeen percent of respondents saw librarians filling an instructional role within MOOCs to some degree. They could teach one-off instruction sessions, be guest lecturers, or act as the primary instructors. Librarians-as-MOOC-instructors may develop information literacy lectures, instructional screencasts, resource highlight videos, or provide the module lectures themselves. In many ways this role is similar to the access/resources role, in that respondents felt that providing instruction, if only on a one-off basis, was a natural extension of traditional librarian roles.

For example, librarians, to one respondent, have a professional inclination to teach, which makes them an asset to MOOCs “as a course leader or as a contributing voice.” A couple of survey respondents felt the MOOC environment would be especially fruitful for librarians to use to host training sessions and staff development. One respondent argued for LIS professionals “being present to help MOOC learners develop the skills and competencies they need to be effective self-directed learners.”

Learner

Fifteen percent of those who answered the question noted that librarians should participate in MOOCs as students. In a learning role, librarians would come to better understand MOOCs as new learning environments, service points, and professional development tools. It matters not that librarians in this role are active learners, but that they make sense of the MOOC movement and its relationship to and opportunity for their profession.

For example, one respondent answered, “librarians would be well-served to participate in MOOCs to gain understanding of that type of learning experience as well as information presented for their own professional growth.” Another respondent echoed that sentiment, saying “MOOCs are vital for librarians to take part in [continuing professional development] … MOOCs make it easy for them to study professionally when it is convenient.” And, if not for professional development, some respondents felt that MOOCs could act as beacons for trend-spotting; that they are “a great influence on keeping up with what is happening,” as one respondent said.

Unsure

Three percent of respondents were unsure what roles librarians would assume in MOOC environments. One respondent reflected on the experience in #hyperlibMOOC and determined that the current roles might not fit:
I previously thought librarians should be involved in MOOCs, mostly to provide assistance with locating resources and by providing information literacy instruction to the online participants, but since little research is required of MOOC participants, I'm not as sure anymore. The professors or subject specialists may have the required capabilities to provide appropriate resources without the help of librarians!

Discussion

The descriptors for the roles of LIS professionals culled from the empirical data align with the roles highlighted in the literature review. Barnes (2013) and Stephens (2013a, 2013b) offered possible roles from a synthesis of literature and environmental scanning. The data – open-ended answers to the question, “What roles do you think librarians might play within MOOCs?” – support these ideas and expand on them.

What do these roles look like as LIS professionals work within MOOCs and the learning environments that come after them? How will our jobs change if large-scale education continues on an upswing, evolving along the way, toward a ubiquitous landscape of “learning everywhere”? We can image a few scenarios based on these roles.

- Guide/Facilitate. The librarian is rarely in the library but works on the go, from home or a third place, or amidst the community served. Connected and aware of what learners want and may need, the librarian serves with an arsenal of technological tools. Here is Stephens' (2013a) concept of collaborator, in which librarians work together to solve problems, share expertise with technology, build artifacts, and organize connected experiences.

- Access/Resources. The second O in MOOC – open – comes to fruition as resources are built, curated, and shared with the intent to help learners wherever they may be. This librarian works with authors, scholars, and other content providers to make resources available as openly as possible. Contracts may include “MOOC clauses” for open access. Some may choose to only publish with those who offer unfettered access.

- Create. Libraries and librarians create large-scale, small-scale, or “just right”-scale opportunities for learning for their constituents across a wide spectrum of topics and varying degrees of focus. The library further enhances its role as a place for discovery and learning, via formalized courses providing experience and enlightenment.

- Instruction. Again, enhancing a role LIS professionals have traditionally embraced, MOOCs can extend how librarians instruct students. The environment will encourage librarians to capture more of their knowledge and package it for anytime, anywhere consumption practices. And instructing in MOOCs will further enhance the perception of the library as a center of learning, offline and online.

- Learner. Finally, librarians never stop learning. From conference sessions to in-service days, from Learning 2.0 to MOOCs exploring library advocacy, the opportunities for librarians to consistently improve and broaden their skill sets continue. The process is
cyclical; each learning experience in turn allows the LIS professional to share new knowledge, new methods, and new technologies with constituents.

While the findings indicate that there are MOOC roles librarians can fill, the data does not provide insight into the problems those roles may face. We should not assume that simply because roles can be imagined that they would ultimately be successful. Each role will experience unique hurdles, both in relationship to its purpose and the context in which it is employed.

The Guide/Facilitate role, for example, occurred the most frequently in the minds of the survey respondents, but it may also have the most difficulties attached with it. Guiding student learning in MOOCs may not be what instructors seek from librarians in their course; this may be a role better filled by teaching assistants with some degree of subject material expertise. If librarians are to fill this particular role in MOOCs, they will have to argue successfully why their presence is advantageous to the design of the course, as aids to instructors, and beneficial to students.

We see fewer concerns related to the access to resources, since it seems to be a natural extension of traditional librarian responsibilities. That being said, librarians in this role will need to pursue paths unpaved and unknown in order to negotiate access to licensed and restricted materials. Some publishers, for instance, may be receptive to providing materials if instructors agree to prominently display that their publications were provided free of charge, or if instructors actively link off to the publisher’s website, but this will have to be a part of negotiation strategies uncommon in traditional licensing procedures.

Creating MOOCs, as one role suggests, also presents its own difficulties, which are at the same time conceptual and technological in nature. Designing an online course is not a simple process of procuring materials and posting them online. To do it successfully, librarians in this role will need an understanding of instructional design principles and to formulate the instructional effect that matches their learning goals and objectives. That is to say that they will need to understand how particular learning theories can aid student learning. Furthermore, there is a tall technological hurdle to pass over when creating a MOOC. From lecture capture to learning system management, librarians will need to not only understand but also be able to seamlessly integrate a host of technologies without distracting from students’ learning experiences.

If librarians fill an instructional role, as some survey respondents believe they could, the primary issue is one of scale. The massive in MOOCs can range, but whether librarians are instructing for 100 or 10,000, the size of the student population will impact particular instructional responsibilities. Even with the size of the course, students may expect detailed feedback from the instructors; librarians-as-instructors must set realistic expectations about communication or provide more innovative ways to involve the student community in learning, assessment, and reflective practices. And if librarians are instructing as part of a team, it is imperative that all instructors are clear about content and community responsibilities, but they should also be able to adapt on the fly as the course community evolves, and students make their needs known.
It may seem straightforward that librarians could be learners in MOOCs, but it may be difficult for professionals to stay on track with the course content and keep up with the conversations in the course community. Librarians-as-learners in MOOCs may struggle to find balance between personal, professional, and academic responsibilities. Librarians will need to set their own learning goals and develop a schedule to engage as a learner in MOOCs. For example, they may decide that course completion is not a worthwhile goal, but berry-picking particular modules of content and discussion to engage in would be most fruitful for their professional development. All that being said, if librarians simply want to experience different MOOC courses and environments to better understand their construction, there are few to no hurdles in doing so.

**Implications for LIS Education**

Reflecting on the responses to the descriptor Create, imagining librarians as primary developers of course infrastructure, both from a technical and instructional perspective, leads us to consider the skill sets of LIS professionals. Should user instruction coursework be expanded to include all the required areas to ensure graduates can design learning platforms and experiences? The areas might include designing online learning objects and information architecture. A deeper understanding of creating a learning space, argues Morville (2012), may lead to educators and LIS professionals becoming influential architects of learning environments.

**Future Research Opportunities**

The scholarly literature devoted to MOOCs is in its infancy. Evaluating the various forms of MOOCs, the experiences of instructors and students within these environments, as well as the roles that LIS professionals are playing and will play, will further illuminate this realm. Further research about librarians as active participants in the development and delivery of MOOCs will help solidify the future roles LIS professionals will play.
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Abstract
Distance librarians often do not have the opportunity to engage face-to-face with users of library services. Without this personal interaction, it can be difficult to evaluate the effectiveness of library services in meeting the needs of the distance learners. Distance librarians may not realize it, but most have a wealth of information at their fingertips. In particular, data can be extracted and behavior use patterns discerned through web analytics, transaction log analysis, and qualitative analysis of virtual reference transcripts. In lieu of interpersonal communication, distance librarians can listen to and observe user behavior through these evaluation methods. This paper offers an introductory perspective of these methods for the purpose of measuring the effectiveness of various service points and planning a course of action for enhancing the user experience in distance library services.

Background
Distance librarians serve a unique purpose in the tradition of academic librarianship, playing a key role in the evolution of library services in higher education. The Association of College & Research Libraries (ACRL) defines distance library services as:

…library services in support of college, university, or other post-secondary courses and programs offered away from a main campus, or in the absence of a traditional campus, and regardless of where credit is given. Courses thus supported may be taught in traditional and nontraditional formats or media, may or may not require physical facilities, and may or may not have live interaction of teachers and students (2008, Definitions section, para. 1).

A distance education class is defined as “…a course taken for credit during the academic year that was not a correspondence course but was primarily delivered using live, interactive audio or videoconferencing, pre-recorded instructional videos, webcasts, CD-ROM or DVD, or computer-based systems delivered over the Internet” (Radford, 2011, p. 4). From 2000-2008, the percentage of undergraduates enrolled in at least one distance education class increased from 8% to 20%. Additionally, the growth in distance education cannot be attributed to an increase in the
proportion of nontraditional students in higher education since the proportion of nontraditional students enrolling in distance education courses has decreased since the academic year 1999-2000. Distance learning has increasingly become a viable and appealing option for both traditional and nontraditional students (Radford, 2011).

As learning is no longer confined to the physicality of the campus (Dasher-Alston & Patton, 1998), academic libraries have a primary responsibility for making its resources and services available to all users, regardless of location. Library services must be designed with the additional consideration of the unique needs of distance learners. In its *Principles of Good Practice for Electronically Offered Academic Degree and Certificate Programs*, the Western Interstate Commission for Higher Education (WICHE) emphasizes that in terms of library and learning resources, the academic institution ensures that distance learners have access to and can effectively use appropriate library resources (Dasher-Alston & Patton, 1998). The ACRL *Standards for Distance Learning Library Services* also emphasize that the library is primarily responsible for making its resources and services available to its users regardless of physical location (Association of College and Research Libraries [ACRL], 2008).

The need for assessment is also heavily emphasized in these standards. The availability, appropriateness, and effectiveness of distance library services must be assessed through both quantitative and qualitative measures to ensure that performance objectives are met. Assessment methods may include surveys, tests, interviews and groups, and it is recommended that surveys are sent to distance learners on a regular basis to monitor and assess the effectiveness of library services in meeting distance learners’ needs (ACRL, 2008). Furthermore, the library must prioritize assessment in distance library services, not only for determining if students are learning effectively, but also to determine if library services are effectively meeting users’ needs (ACRL, 2008). Since the assessment of teaching and learning has traditionally been measured in face-to-face interactions (Dasher-Alston & Patton, 1998), the distance librarian has the challenging role of identifying, developing, coordinating, implementing, and assessing these resources and services.

Library literature presents several studies in which surveys were used to obtain feedback about library services, but very little has been written on observing user behavior and evaluating user experience in distance library services specifically. Although methods of assessment for in-person library services can be applied to other library settings and to all types of users, the practicality of doing so in distance library services is not evident. Distance librarians have few opportunities to interact one-on-one and/or engage face-to-face with users, and without direct observation of user behavior, assessment of library services can be a challenge. Since less is known about how to reach users who mostly use online resources, “the need to evaluate how the library provides service has never been greater and new challenges and opportunities face librarians in determining how to address students’ and faculty members’ needs successfully” (Kelley & Orr, 2003, p. 189).

It is not to say that gathering direct feedback from distance learners is impossible, however. Kelley & Orr (2003) conducted a needs assessment survey via mail to examine trends in the use of distance library services. Results indicated that the use of online resources for conducting research had increased and the use of the physical library facility had decreased,
indicating a need to evaluate the effectiveness of distance library services in understanding and meeting users’ needs. Block (2008) used online questionnaires with open-ended questions to evaluate library services for distance learners. Hill & Patterson (2013) conducted virtual focus groups to obtain feedback on the value of distance library services and realized that while the feedback from the users was informative and valuable, the full process of planning, recruiting distance learners as participants, conducting the focus groups, and analyzing the results was time-consuming and labor-intensive.

Distance librarians may not realize it, but despite the limited opportunities for face-to-face engagement with distance learners, a wealth of data is readily available to use as evidence of user behavior in the online environment. In particular, data can be extracted and behavior use patterns discerned through web analytics and transaction log analysis. In lieu of interpersonal communication, distance librarians can easily listen to users and observe user behavior through these evaluation methods. Based on the evidence presented through these evaluation methods, distance librarians can measure the effectiveness of various service points and plan a course of action for enhancing the user experience in distance library services.

Observe What You Cannot See: Web Analytics

With the increase in the enrollment of distance learning students (Dasher-Alston & Patton, 1998) and the trending increase in the use of libraries’ online resources (Kelley & Orr, 2003), a strong consideration needs to be given to evaluating the level of use and gauging the user experience of a library’s website. Several methods are available for evaluating and measuring library website traffic. A traditional method of assessment to get general feedback on library services, surveys can also be used to obtain feedback on website usability and gather opinions about the library’s website. However, surveys are usually arranged as self-administered questionnaires or as instruments used by interviewers in conducting face-to-face interviews (Fink, 2002). Online surveys are an option, too, but the subjective nature of surveys may limit the accuracy of the results. Surveys are also a time-consuming option, requiring direct input from users, and thus are not a practical option for evaluating distance library services (Fang, 2007).

Other methods for measuring website traffic are page counters and web server log files. Page counters are simply a surface measure and do not provide detailed information about how the website is used by library users. Web server log files can provide additional detailed information about a library’s website usage, but mining log files is not a simple, practical task for distance librarians. The utilities available to analyze web log files are limited in functionality and the accuracy of the results depends on the correct set up of the log files. Additionally, if a library’s website is maintained by the University’s central IT division, it is likely that the library may not have access to web server log files (Fang, 2007).

A practical method for measuring use of a library’s website that is not limited by physicality and does not require direct feedback from distance learners is web analytics (Fang, 2007). As cited by Farney & McHale (2013), “web analytics is the measurement, collection, analysis and reporting of Internet data for the purposes of understanding and optimizing website usage” (p. 3). Through the application of web analytics, distance librarians can directly and
easily observe user behaviors in the online environment without obtaining direct input from library users. By providing an objective and multi-faceted visualization of data, web analytics can help the distance librarian understand the interaction between the library’s website and its users. Additional benefits of using web analytics include overcoming restrictions of physicality and location inherent in paper-based surveys and automatic collection of accurate data (Fang, 2007).

A selection of web analytics tools is available (Farney & McHale, 2013), but one of the more popular web analytics tools used by academic libraries is Google Analytics. Some of the features of Google Analytics include no additional cost, easy installation of tracking code, keyword comparison, visualized summaries, trend reporting, and visitor segmentation, making it an effective and practical tool for evaluating user behavior and for creating user-centric websites (Fang, 2007). It is important for the distance librarian to understand that while Google Analytics provides quantitative data about the use of the library’s website, it does not provide interpretation regarding human-computer interaction or website usability. In other words, reports generated in Google Analytics can serve as evidence for making user-centric improvements to the library’s website (Fang, 2007), but the reports will not explain users’ behavior, emotions, or reasoning in use of the website. For this reason, it is recommended that academic libraries use Google Analytics mostly to measure website traffic and evaluate website usability. The ease and practicality in use of Google Analytics make it a viable option for distance librarians to assess the use of the library’s website to enhance support for distance learners (Memmott & deVries, 2010).

Memmott and deVries (2010) offer a solid example of using Google Analytics to assess how distance learning students use the library’s website and online instructional materials (2010). In this case study, Google Analytics was selected as the assessment tool because distance librarians did not have access to web server log files or detailed website statistics reports. The Advanced Segments feature in Google Analytics – which allows tracking of website traffic from a particular domain – was utilized and the analysis focused on external websites assumed to be relevant for distance learners, as well as websites that brought the highest number of visits to the library’s website. Analysis identified which library website content had an above average proportion of nonlocal use, possibly indicating which content was easiest for distance learners to find, such as databases and research guides placed at point-of-need. Content with a below average proportion of nonlocal use indicated a need for more prominent placement at a point-of-need for distance learners. It was also discovered that a significant source of traffic to the library’s website was through the campus portal, indicating a need to enhance the library’s presence on the campus portal to guide distance learners more easily to appropriate resources and services (Memmott & deVries, 2010).

**Listen to What You Cannot Hear: Transaction Analysis**

Although opportunities for face-to-face interaction between librarians and users are limited – if available at all – in distance library services, there are several ways to “listen to” users. Academic libraries have several forms of service available for distance learners to receive assistance from a librarian, such as virtual reference, text messaging, email, and the old standby,
the telephone. Transaction logs and transcripts from these various service points can provide both qualitative and quantitative data to assess the user experience in distance library services.

In the library literature, the number of studies specific to the assessment or evaluation of telephone reference seems to have decreased since the emergence of mobile technologies. In an analysis of telephone calls received over a two-year period, McCain (2007) found that 62.5% of assistance provided by telephone at the Reference Desk could have been handled by a paraprofessional, staff assistant, or student employee. While not all telephone calls received by the library require traditional reference assistance or need to be handled by a librarian, the telephone as a service point serves as a critical form of triage and continues to serve an important role in distance learning services. A telephone transaction log can provide the distance librarian with the opportunity to hear and listen to users. Since the question asked demonstrates the user’s need and the provision of information is the user experience, distance librarians can easily collect and store data from these telephone interactions in a transaction log. Assessment can be done by analysis of the transaction log, giving the librarian information for planning and implementing evidence-based improvements to enhance distance library services.

The Distance Learning Services unit at Michigan State University (MSU) Libraries provides a 24/7 Support Line and maintains a detailed telephone transaction log to record the types of questions asked, the answer or information provided, name of person handling the call, date and time of call, and a call back phone number. Each call received is assigned a ticket number and placed in one of the following categories: E-Resources-Access-General, E-Resources-Access-How-To, Library-Circulation, Library-General, Library-Holdings, Library-Hours, Library-Reference, Library-WebBridge, Library-Techprobs, or Library-Transfer. A Library Incident report is generated daily and summarized results are sent to appropriate librarians and staff in the Reference Services, Circulation, and Technical Services departments. Through the Library Incident Report, MSU librarians have the opportunity to observe and listen to users in the absence of face-to-face interaction and can assess and improve the user experience in distance library services (A. Blair, personal communication, August 13, 2013).

Transcripts from virtual reference (VR) sessions are also a valuable source for measuring service process and observing user behavior in the distance learning environment. Service process is a quantitative measure from a service perspective and includes the types of questions asked, how often the service is used, and where users are accessing the service. Service process is evaluated by examination of the content of VR transcripts. Commonly studied variables in other case studies include types of questions asked in VR, but other relevant information that can be extracted to evaluate user experience in VR includes access points (where are users accessing the service?), traffic patterns (which days and times are busiest?), and traffic volume (how often is VR used?) (Luo, 2008).

To measure service process, each question received in VR can be coded to represent the type of question asked so that librarians can get a better understanding of users’ information and research needs. For example, Tobias (2013) conducted an evaluation of service process in VR to find out which types of questions were asked and to confirm VR as a valid and valuable research service point. Customized descriptive codes were created in QuestionPoint, a VR software, and up to three codes were assigned to the initial question asked in each VR session. The customized
descriptive codes fell into these categories: Library Resources, Library Services, Technology Help, and Local Resources. From 2011-2013, more than 7,000 customized descriptive codes were assigned to received VR questions and more than half of these questions pertained to finding, accessing, and locating library resources in the research process. This service process evaluation helped librarians to confirm VR as a valid and valuable research service point in distance learning services (Tobias, 2013).

A more granular evaluation of the user experience in distance library services can be done through text analysis of VR transcripts. A qualitative analysis of the content in VR transcripts gives librarians the opportunity to identify users’ pain points, or expressions of frustration, irritation, or confusion, experienced when using the library’s website and online resources in the information-seeking process. Additionally, comments provided by feedback surveys in the VR service can serve as evidence of pain points experienced by the user. For example (Tobias, 2012), some comments extracted from VR transcripts and identified as pain points include:

- I am trying to get to CINAHL and I don’t know how to get there from here.
- How do I search for scholarly articles?? I linked through google scholar to see what materials can be accessed through the library and is sends me to [URL] and I do not know where to go from there.
- I can find the journal issue and the article. But I can’t find any way to actually access the article, or get to the PDF or whatever.
- Is there no way to just search across all journals?

In the absence of interpersonal, face-to-face communication, librarians can “listen” to these comments as evidence to make user-centric improvements and guide the enhancement of the user experience in distance library services.

**Conclusion**

With the steady increase in undergraduate enrollment in distance education, distance library services continue to serve an important role in higher education. Not only are distance librarians required to provide library resources and services to all users regardless of location, but they have a responsibility to regularly assess these services. Given that distance librarians have limited opportunities to engage directly with users, traditional assessment methods of surveys and focus groups to obtain user feedback are difficult and often impractical to implement. In the absence of face-to-face transactions, distance librarians can listen to what they cannot hear and observe what they cannot see using web analytics and transaction log analysis. These evaluation methods presented in this paper provide a unique, introductory perspective for
collecting data to identify behavior use patterns and formulate an evidence-based strategy for enhancing the user experience in distance library services.
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Creating an Information Literacy Badges Program in Blackboard: A Formative Program Evaluation

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Abstract
A formative program evaluation using Stufflebeam’s (2010) Context, Input, Process, Product (CIPP) model was conducted to assess the use of digital badges for tracking basic library instructional skills across academic programs at Nova Southeastern University. Based on the evaluation of pilot library modules and Blackboard Learn’s badges achievement tool conducted in the fall of 2013, recommendations were made for changes to the rollout plans for 2014. This report of the findings discusses how the context, input, process, product, impact, effectiveness, sustainability, and transportability criteria used in making the recommended changes in the library instructional module identified problems in the program and permitted course corrections to the plan before the program was fully implemented.

Introduction
Digital badges are a popular new method for recognizing the success of 21st-century students that uses external motivators (Bell, Shank, & Finkelstein, 2012). Libraries are using this new technique to provide students with a way to document information literacy skills that they have mastered (Pagowsky, 2013). These skills-based digital badges of achievement use internal motivation (Abramovich, Schunn, & Higashi, 2013). The badges provide students with a method of documenting or certifying mastery of skills that may or may not get recognized in the traditional classroom by posting their accomplishments on social networking profiles and personal websites. Libraries have liked this competency-based approach because they can leverage digital badges “to build ongoing relationships with learners, foster deeper engagement, and acknowledge learning that often goes unrewarded or unrecognized” (Bell et al., 2012).

A study of the feasibility of using badges to track library instruction in formal classroom settings took place at Nova Southeastern University (NSU), a not-for-profit university in south Florida. This university has been a pioneer in distance education (Riggs, 1997) and currently offers classes in a wide variety of programs online as well at sites in 13 states and 12 countries.
The problem is that instructional efforts to teach information literacy skills have been decentralized at best (Ramdial & Tunon, 2007; Ramirez & Tunon, 2003; Tunon & Brydges, 2009; Tunon & Ramirez, 2010). Because almost three fourths of all students are in graduate programs, this has presented unique problems for information literacy efforts provided by the NSU Libraries because librarians have not been able to tie library instruction to the general education requirements in core undergraduate classes. The NSU Libraries’ efforts to provide, assess, and document information literacy efforts have been motivated in particular by the University’s preparations for reaffirmation with the Southern Association of Colleges and Schools (SACS) in 2017. The NSU Libraries need to address Comprehensive Standard 3.8.2 (Southern Association of Colleges and Schools, 2012) which states “the institution ensures that users have access to regular and timely instruction in the use of the library and other learning/information resources” (p. 31).

In 2012, NSU instructional librarians on the SACS Instruction Committee became interested in exploring the potential of digital badges to address some kind of formalized library instruction. Interest in digital badges was originally sparked by articles in the Chronicle of Higher Education (Young, 2012) and the EDUCAUSE Learning Initiative (2012). The committee saw badges as visual representations of a skill or achievement that could be used to establish a level of confidence and a method for recognizing learning moments.

In the initial planning stages, the instructional librarians decided on a library badge certifying a basic level of documented library skills rather than using badges to address lower order learning activities described by Hickey (2013). They envisioned library modules (e.g., find a book in the catalog, find scholarly articles in a database, cite a journal article according to APA, etc.) as well as special customized modules that could be used to meet the different library skills needed for specific academic programs. The modules would be designed using active learning and would include assessment of learning outcomes. Each module would be tied to one or more of the Association of College and Research Libraries' (ACRL) Information Literacy Competency Standards (Association of College and Research Libraries, 2000), but the specific content of the modules used could vary from academic program to academic program depending on curriculum needs. Using Blackboard as the platform, library modules would be pulled into core courses where students would be required to complete the modules as part of the course requirements. Students successfully completing these modules would earn a badge, providing proof of their achievement of mastering a basic level of library skills. This also had the advantage of providing proof of learning outcomes for SACS. The librarians hoped for students to also have the ability to post this badge to Mozilla Open Backpack and ultimately to social media sites. By having students earn this badge that documented basic library skills, the badge would serve as proof of these skills for instructors, the NSU Libraries, and the public at large.

The instructional librarians reached out to work with staff in the Innovation Zone (IZone), the department that administered the Blackboard campus learning platform, to explore the possibility of using Blackboard to create badges tied to library modules in Blackboard courses. In these initial discussions, the IZone talked about the possibility of creating student portfolios that could include library and other academic achievements and using digital badges to generate a map for library learning across academic programs. The IZone was open to the idea of using badges as a method for rewarding students for mastering basic library skills and for
providing a tracking mechanism for the library for documentation purposes. Badges had the added value of providing to potential of recognition for students via the Mozilla Open Backpack initiative. Using Blackboard’s digital badges as a credential to systematically track students’ information literacy efforts was important from a library perspective because it provided a systematic method for documenting information literacy learning outcomes across academic programs instead of the piecemeal system of documentation being used at the time.

Review of the Literature

A good deal has been written about libraries using badges for rewarding learning outcomes that are not always recognized in the traditional classroom setting (Ferrari, 2013). Badges can create an environment of friendly competition where it is OK to “show off” achievements in a shared forum and may serve as a way to document continuing educational efforts. However, few scholarly articles have focused on the use of badges in higher education in general or academic libraries in particular. The relative merits of extrinsic versus intrinsic motivational factors have been debated (Abramovich et al., 2013; Hickey, 2013). Abramovich et al. (2013) warned that when students perceive badges as rewards, it may result in lower student motivation to learn or focusing exclusively on earning badges to the detriment of the learning goals. Hickey (2013) pointed to the lower order activities promoted by badges earned by individuals for activities such as checking out a specific number of books or holding a specific number of book club meetings as discouraging intrinsic learning motivations. Hickey and others called for more research on the relative merits of digital badges for formal educational purposes.

The theoretical framework needs to be considered in general (Creswell, 2013) and as it pertains to the Context, Input, Process, Product (CIPP) model (Stufflebeam, 1971; 2010). Terms like theory and model are frequently used interchangeably to describe how a program evaluation should be conducted (Fitzpatrick, Christie, & Mark, 2009). Fitzpatrick, Sanders, and Worthen (2004) defined a program evaluation as “the identification, clarification, and application of defensible criteria to determine an evaluation object’s value (worth or merit) in relation to those criteria” (p. 5). Program evaluations have been used in a variety of disciplines including higher education. A good deal of literature has been written that discusses the merit and worth of formal evaluation programs (Fitzpatrick et al., 2004; Fitzpatrick et al., 2009; Marshall, 2009; Schwandt, 2009; Stufflebeam, 1971; Stufflebeam, 2010). Although “no single school of educational evaluation can claim a monopoly on the field of practice” (Schwandt, 2009, Conclusion, para. 2), Stufflebeam’s CIPP model (Stufflebeam, 1971) is one model frequently used in higher education. More specifically, the approach had also been used at NSU for formally evaluating a library instructional program (Batson-George, 2008).

Stufflebeam (1971; 2010) was an early advocate of formative evaluation as method of assessing a program before the program was formally implemented (Fitzpatrick et al., 2004). He developed the CIPP evaluation model for evaluating programs using a management-oriented approach (Fitzpatrick et al., 2004) using four types of evaluation: context, input, process, and products. This management-oriented approach proposed by Stufflebeam provided a pragmatic approach that appeals to evaluators because it utilizes an organized, systematic approach to evaluation and allows for evaluation of all components of a program. Even though the primary purpose of a program evaluation is to make judgments about merit and worth and improve
program performance, it was also noteworthy that, according to Fitzpatrick et al., (2009), program evaluations as a research technique can contribute to the body of knowledge by evaluating a condition or performance on one hand, or testing a particular theory or intervention on the other hand.

From an educational perspective, the theoretical foundation for the intervention design in this study was based on Bandura’s (1977) social cognitive theory, Piaget’s (1977) cognitive development theory, and Dewey’s (1956) educational theories (Marshall, 2009). Grassian and Kaplowitz (2009) showed how theory and practice could be focused more specifically on the issue of information literacy instruction. In particular, they addressed theories related to learning styles and active learning as these theories pertain to designing library instructional modules.

**Purpose and Evaluation Questions**

The purpose of this formative program evaluation conducted by the NSU Libraries was to (a) test Blackboard’s digital badge tool, (b) assess the NSU Libraries’ trial library modules embedded in academic courses, (c) evaluate the ability of the Blackboard badge tool to track library instructional efforts across NSU’s academic programs, and (d) test the use of Blackboard to collect learning outcomes from the library modules from across the curriculum. The following evaluation questions addressed in this study were framed based on Stufflebeam’s (2010) CIPP program evaluation model:

1. To what degree can the digital badges for library instructional modules offered via Blackboard be used to successfully track student learning outcomes?
2. Can a basic library skills badge in Blackboard be used to serve as a central repository to collecting statistics about completion of basic library skills across academic programs at NSU?
3. To what extent did the library modules implemented in the fall of 2013 successfully promote identified student learning outcomes?
4. What challenges need to be addressed when implementing digital badges in course curricula in 2014?

**Methodology**

An internal formative evaluation was selected for the type of program evaluation being utilized for this paper because the study was conducted by NSU staff. A formative approach was selected because formative evaluations typically evaluate programs being developed. Formative evaluations are also useful because of their ability to identify any needed mid-course corrections in the programs being evaluated (Engle, 2008). Eight out of the 12 criteria in Stufflebeam’s (2010) CIPP checklist were utilized. These included the four key issues in the CIPP model of context, input, process, and product as well as impact, effectiveness, sustainability, and transportability. These criteria will be discussed in depth when the results of the data collection are described.
Because of the management-oriented focus of Stufflebeam’s CIPP model, the major participants were staff from the NSU Libraries and the IZone. On the library side, data was collected from the piloted library modules in BrainSMART – an introductory class in a master's online education program – and the testing of Blackboard’s digital badges tool.

Results

The IZone staff successfully tested the SP13 upgrade for the Blackboard learning management system. This upgrade included the installation of the Building Block Dependency Management component featuring the Achievements tool; the tool which the instructional librarians use to construct library learning modules in the form of multiple-choice quizzes and short-answer assignments. The Achievements tool was designed so that instructors could create quizzes or other gradable modules and, upon completion of a module, the student could earn a certificate or badge. Through the Achievements feature, the student could also take the earned badge and share it through Mozilla Open Backpack. However, the staff learned that this connection between Blackboard and Mozilla was not configured automatically. As a result, system administrators will need to link the component to Mozilla in the rollout in 2014 for this feature to work as planned.

During the same time period, the IZone staff tested the ability of tethering library instructional modules in a library course with the curriculum of identified academic programs using a digital badge, but they ran into problems. The librarians had envisioned that they would be able to run a report which would not only provide feedback on whether or not students were completing the modules, but also where students may be having trouble understanding concepts related to the library. In theory, the reporting component in Blackboard would couple the student's earned achievement and student information from the Banner system, allowing librarians to see which NSU programs are receiving the basic library instruction and allow adjustments in marketing strategies and increase efforts for library instruction. However, as the IZone staff began to integrate the module in the pilot program, it became clear that there would be a problem about where the graded module could and should “live.” If the module were placed in the instructor’s course, students would have easier access to complete the modules and any gradable item would be linked to the instructor’s grade book. However, this alternative would mean that the library staff would not able to run a report compiling all students who took the module. Because the data would have to be captured by running a report for each course and later compiled, the assembling of such data would become unwieldy. Not only did this pose a significant problem for the librarians responsible for gathering the data, but it also created additional work for the IZone staff since they would need to make contact with each instructor to embed the library module in each course every semester.

The other option would be for the library modules to “live” in a separate Blackboard course developed by librarians to host online workshops. Each semester, all NSU students in the relevant academic programs could be automatically enrolled into this not-for-credit course. For this model to work, instructors or the IZone staff would need to create a direct link from academic courses to the library module in the library-hosted course. The problem with this model was that although instructors may require students to participate in the library training,
there was no means for instructors to capture that data. As a result, instructors would need to rely on students’ academic honesty or require students to send proof of completion of the module in the form of the earned badge in order to post a pass/fail grade in the grade book. The advantage of this approach was that librarians would have the ability to run reports on who completed the module and compare that data to the enrollment in each program to determine what percentage of students were receiving basic library instruction.

Based on the IZone findings, the instructional librarians decided to limit efforts to expand the implementation in 2013 and partner with only a few additional courses in targeted programs. They decided that the library modules would be accessed in a library not-for-credit course hosted via Blackboard. This would require students to provide their badges to their instructors as proof of completion of the basic library module, and the librarians would have to rely on instructors to follow up with students to ensure that they are actually completing the library modules.

During the same fall time period, the instructional librarians worked on implementing and rolling out the basic library module. Procedurally, several academic programs had been initially identified in the summer of 2013 for trials, but only a six-step set of library modules was actually developed and ready in August to use. An introductory class in a master’s online education program called BrainSMART was used as the test case. Librarians created instructional videos and accompanying active-learning activities. The basic learning outcomes that the modules addressed included (a) navigating the library website, (b) developing an effective research strategy, (c) searching for articles in the ERIC database, (d) searching for articles in a medical database, (e) locating the full-text of an article, and (f) citing a journal article in APA style. Unfortunately, as it turned out, the introductory BrainSMART course only had one section of 13 students in the fall of 2013 so the initial trial was much smaller than anticipated.

Technologically, there were also problems on the library side of the implementation. Connecting students in the BrainSMART class as well as the instructor and the program directly to the library modules via Blackboard did not go smoothly. The course instructor and program director were supposed to be added to the library’s not-for-credit course as teaching assistants so that they could monitor student progress. However, the instructor was added as a student, and the program director was not added at all. The 13 students were supposed to be added to the library’s not-for-credit course so they could access the basic library modules developed for the BrainSMART program, but two students reported problems with accessing the library modules. The instructor never provided additional details about the access problem, and those two students never accessed or completed the modules. Thus, communication issues with the instructor and the program director proved problematic.

Of the 13 students enrolled, 11 attempted at least one portion of the library module; eight completed the entire series. Each of the six modules was comprised of a short paragraph introducing the topic, a video providing more detail on the concept and an activity. The activities varied per section and were designed to reinforce the concept through application. The first module – a series of five questions – allowed the student to earn one point per correct answer. This series was multiple-choice, and students received immediate feedback on the answers.
In the modules that followed, the activities were basically pass/fail; if the student completed the activity, they were given one point for trying, regardless of whether the activity was done correctly or not. For example, the second activity required students to upload a document providing alternate key words for their topic using a preformatted concept map. Upon grading the assignment, it was obvious that two students were confused as to which words to use as keywords based on their chosen problem statement. The other modules had them actually searching a databases and retrieving citations as proof of performing a search, finding the full-text of an article that required using the OpenURL feature in the NSU database system, and then citing a model article in APA style.

A limitation that was quickly apparent to the librarians was how time-intensive it was to manually grade each activity and to provide feedback. Although doing so would give each student a chance to review how they did and provide a sense of a personal connection with the library, this method would not be scalable once the modules are available to thousands of students. It was decided that the search strategy module would therefore be modified. Using the Blackboard self-assessment tool, students will be given four problem statements to choose from; then, once they submit their activity, a model search strategy will be displayed, giving the student a chance to assess how they did. The same tool will be used for the APA activity. Moreover, a link to the libraries’ Ask-a-Librarian assistance will be provided in each module so that students can contact the library if they need help completing any of the activities.

Despite some set-backs with the project, the NSU librarians were successful on a couple of different fronts. The previous BrainSMART iteration that had been used received a facelift and was able to be moved into Blackboard using the Achievements feature. By working on information literacy modules, the librarians had a concept and sample that could be as a marketing tool when speaking to faculty. Librarians developed a closer working relationship with the IZone department and started work as the first unit on campus to explore badges and how they relate to academics. As IZone continues to explore this new feature, the NSU Libraries will be a consummate partner in expanding how students interact with Blackboard. NSU librarians intend to use the same module during the Winter 2014 semester and offer it to a wider audience. More people interacting with the modules will provide a better sense of what is working and some areas where students continue to have problems. When the winter term closes, a survey will go out to those students enrolled in the pilot modules. During the continued soft rollout, librarians will work with the IZone to determine whether the module can be configured as to the librarians intended use.

Stufflebeam’s (2010) CIPP model provides the management in the NSU Libraries with different ways of using these findings to formatively analyze the library program’s initial trial. Eight of the 12 steps from Stufflebeam’s (2010) CIPP checklist were used to evaluate digital badges as a method for tracking library instruction. These included evaluations based on the following criteria: context, input, process, product, impact, effectiveness, sustainability, and transportability. The framework provided by the CIPP model ensured a formal approach to this evaluation process.
**Context evaluation.** The context evaluation gathered data that addressed planning decisions. Problems between what capabilities digital badges offered and what could be achieved were identified. Problems with the planning process for basic library modules used for the introductory BrainSMART class were also identified. These included problems with communication with BrainSMART personnel, some of the types of activities utilized, and methods for tracking completion of the basic library modules in the BrainSMART introductory class.

**Input evaluation.** In the input evaluation, the librarians considered resources that were available and needed. Either flaws in the ability of Blackboard to seamlessly use digital badges for tracking library learning outcomes or unreasonable expectations on the part of librarians of Blackboard functionality led to the realization that the updates to Blackboard would not provide needed tracking abilities.

**Process evaluation.** The process evaluation focused on the success of the implementation of the library modules and badges. Unfortunately, the answer to that question was less than satisfactory. The rollout of the library modules for BrainSMART had communication problems with the instructor and program administrators, and students had access issues that resulted in not all students completing the modules. Problems were also identified with the assessment of learning outcomes in the library modules.

**Product evaluation.** The product evaluation looked at the results obtained with the trials of the library modules and badges. The actual badges tool in Blackboard worked as promised, but the IZone system administrators will need to link the component to the Mozilla Open Backpack. Examination of student responses for the six modules revealed problems with grading of search strategies. As a result, the instructional librarians decided to rework several questions to simplify grading so that it could be done easily on a larger scale.

**Impact evaluation.** In the impact evaluation, the extent to which the program had reached the target audience was assessed on two fronts. The completion rates for the BrainSMART modules showed that there were problems with the way that the modules were integrated into the course grading requirements, particularly if badges are to be used as an external source of motivation for completing the library modules. On the administrative front, the data collected using Blackboard did not provide librarians with a robust solution for tracking and documenting student learning that could be used as evidence for the university’s reaccreditation in 2017 (Southern Association of Colleges and Schools, 2013).

**Effectiveness evaluation.** The effectiveness evaluation focused on evaluation of (a) the testing and rollout of the Blackboard badges software, (b) creating of the Mozilla Backpack account, (c) the effectiveness, quality, and outcomes of the library’s test modules, and (d) the ability of the Blackboard Learn badges tool to track students’ library learning outcomes across all the academic programs. The failure of Blackboard to provide a robust solution for tracking student learning outcomes was disappointing, but the digital badges tool worked as promised and could be linked to the Mozilla Backpack account. Significant problems on the library side were identified with the effectiveness of (a) students being linked to the not-for-credit course modules, (b) the assessment component of the library modules for the introductory BrainSMART class, (c)
communication with the BrainSMART instructor and program director, and (d) methods for requiring completion of the library modules in the BrainSMART class.

**Sustainability evaluation.** The sustainability evaluation addressed determining what aspects of the library badges initiative should be continued based on the views of program leaders and beneficiaries, as well as the data evaluating the effectiveness of the initial rollout. Because the initial trial with BrainSMART proved to be less than satisfactory, the instructional librarians initially considered scrapping the program. However, after further consideration, they decided that the idea had enough potential to warrant further testing in 2014 before a decision could be made about a broader implementation.

**Transportability evaluation.** In the evaluation of transportability, the researchers considered the question of whether the digital badges program could or should be adapted and applied elsewhere in the institution. Since the initial results of the trial in the fall of 2013 were less than satisfactory, any decisions about a full-scale rollout were put on hold until a further formative evaluation of the 2014 trials could be conducted.

**Discussion**

As a formative evaluation method, Stufflebeam's (2010) eight CIPP evaluation criteria proved effective in identifying and triangulating on key problems. The criteria focused on managerial issues and provided a formal framework for evaluating the program. Even though the initial steps in rolling out the digital badges program proved less than satisfactory, the program evaluation conducted at NSU was useful for the institution, and it also contributes to knowledge in the field of library science. Unlike many library articles on the potential and uses of digital badges (Hickey, 2013) as a possible incentive for students to gain information literacy skills outside the traditional classroom framework, this study was significant because it looked at badges within the context of formal courses offered in higher education. Using a formative evaluation permitted an assessment of the program while it was still being shaped and permitted the librarians to identify and plan for midstream course corrections. In addition, the CIPP model and checklist gave the program evaluation a clear focus. Because Stufflebeam’s CIPP model used a management-oriented evaluation method (Fitzpatrick et al., 2004), using the eight criteria in the CIPP checklist to frame the data being collected ensured that the informational and decision-making needs of the librarians and IZone staff for whom the evaluation was being conducted were clearly addressed.

The NSU Libraries planned to use digital badges as tracking devices for library learning. As a result, the plan is to use badges as an administrative tool for documenting library learning, not an internal motivation tool for spurring library learning as suggested by Abramovich et al. (2013). Additional research is needed, however, to see if badges used in a formal classroom setting will engage students in the same ways that digital badges have been used to motivate personal learning outside of academia.
Conclusion

This formative program evaluation assessed a trial to use badges as evidence of information literacy skills. The eight criteria from Stufflebeam’s CIPP checklist used to evaluate Blackboard Learning badges and a pilot class using library instructional modules identified problems with using Blackboard to track student library learning outcomes across academic programs on one hand, and design and implementation problems with the trial library modules in the introductory BrainSMART pilot class on the other. Based on the identified problems, a midstream course correction was planned for 2014. Although this study did not demonstrate that badges can be effectively and systematically integrated into course curricula as a technique providing for a system of accountability that tracks instruction and learning, the program evaluation did contribute to the body of knowledge as Fitzpatrick et al. (2009) suggested by addressing feasibility issues of using digital badges as tracking devices in formal classroom settings in higher education.
References


Authentic Assessments: Praxis for the Distance Librarian

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Abstract
Distance librarians continually develop information literacy instruction in a variety of formats. Assessment, when it occurs, tends to be of the traditional multiple-choice variety and does not measure more complex skills. Authentic assessments offer the instruction librarian a way to re-think their instruction strategies and assessment of student learning. The characteristics of authentic assessments are presented along with the use of threshold concepts as a theoretical framework for making decisions about when to employ authentic assessments. In addition, a method will be presented for breaking down more abstract information literacy concepts in ways that yield measurable tasks for students to complete along with criteria for assessment.

Introduction
If librarians want to know whether their instructional methods have been effective and their students are in fact learning, they must develop meaningful assessments that will provide a realistic picture of their students' mastery of skills. Unfortunately, the types of assessment mentioned most often in the literature about online information literacy instruction are multiple-choice tests or citation analysis. The principal weakness of these types of assessments is that they only measure lower order cognitive skills in the remember and understand categories of Bloom's taxonomy (Gulikers, Bastiaens, & Kirschner, 2004). Consequently, they fail to measure the complex and process-oriented behaviors required of the information literate student.

Whether students are taking classes face-to-face or online, their success in higher education is dependent upon developing higher order cognitive skills, such as the abilities to apply, analyze and evaluate information. If assessments are not designed specifically to address these higher order skills, there can be no true evaluation of the effectiveness of instruction in teaching these skills. A multiple-choice test cannot measure a student's ability to successfully develop a search strategy, navigate a database, and evaluate and choose an appropriate resource – a common set of learning outcomes for information literacy instruction. Since the number of students taking distance education courses continues to increase (Radford, 2011), instruction librarians are doing their distance students a disservice if they do not make the time and effort to develop meaningful and engaging assessments.

One engaging approach is authentic assessments, or assessments that require students to transfer knowledge through practice with real-life activities. Authentic assessments are process-oriented, complex, employ various modalities of learning, and measure students' ability to apply
higher order skills to problems they will encounter in the academic environment. Utilizing this type of assessment can also help librarians re-think their approaches to information literacy instruction by challenging them to create instructional materials that help to develop these higher order skills. It should be noted that a mix of traditional and authentic assessments are a reasonable strategy and response to the variety of information literacy skills taught (Mueller, 2012), and may be the only practical way for a distance librarian to manage his or her workload.

To determine which skills sets would benefit from an authentic assessment approach and which are adequately served with more traditional approaches, it can be helpful to utilize a framework for identifying problematic areas for students when it comes to information literacy skills and concepts. The framework utilized in this paper is threshold concepts: disciplinary-specific concepts that function as transformative gateways which, when crossed, result in a profound shift in the student’s understanding. This framework will enable the instruction librarian to identify those areas of information literacy instruction that are most likely to cause problems for students and which, because of their complexity, require higher order cognitive skills to master. This makes them ideal targets for the development of authentic assessments. Learning about authentic assessments and threshold concepts offers distance librarians the opportunity to radically reassess their instructional objectives, student learning outcomes, and instructional methods, thereby deepening their instructional praxis.

What are Assessments?

Before beginning a discussion about what makes an assessment authentic, it is worthwhile to review what is meant by the term assessment. Assessment involves the measurement of student learning, acquisition of skills, or other characteristics such as aptitude or drive. Assessment may be informal, such as observing students while they search a database (a level of assessment that is difficult but not impossible for distance librarians to accomplish) or more structured and formal, such as when students are tested, asked to do research, give presentations, and so forth. It must be noted that assessment and evaluation mean different things in the field of education. Evaluation is the measurement of the effectiveness of programs and the products of programs. Often, the same information can be used for both assessment and evaluation, which is why the two terms are sometimes mistakenly used interchangeably. For example, student grades assess the performance of the individual but can also be used to evaluate the effectiveness of a particular lesson or program of study. Instruction librarians need to maintain clarity about what they want to measure in order to develop appropriate assessments.

What makes an Assessment "Authentic"?

The idea of authentic assessments is by no means new. In the late 1980's and early 1990's, advocates for the reform of educational assessment argued that traditional forms of assessment – such as tests with multiple-choice, fill-in-the-blank, and/or short answer question formats – only measured students' ability to recall or recognize information outside of its contextual, "real life" setting. Grant Wiggins, an early advocate of assessment reform, described authentic assessments as "tasks [that] involve 'ill - structured' challenges and roles that help students rehearse for the complex ambiguities of the 'game' of adult and professional life" (Wiggins, 1990, p. 3). Ill-structured challenges differ from assessments like multiple-choice
tests in that they "require disparate, often competing goals that...provide an opportunity to deal with the contingencies that real-world problems represent" (Petraglia, 1998, p. 39). More recently, Judith Gulikers, Theo Bastiaens and Paul Kirschner (2004) have defined an authentic task as one that "resembles the criterion task with respect to the integration of knowledge, skills and attitudes, its complexity, and its ownership" (p. 68). The criterion task that they refer to is a real world task or problem that the student would be expected to encounter in professional practice. The level of authenticity of the assessment therefore "depends on the degree of resemblance between the assessment and students' professional practice." (Gulikers, Bastiaens, Kirschner, & Kester, 2008, p. 402). Ideally, information literacy instruction helps students to develop a complex, interrelated set of skills that are applicable in a wide variety of information settings – from personal to job-related to academic – that will change over time. That means that information literacy assessments should, when possible, be embedded in real tasks that students are expected to perform in the academic environment.

While traditional assessments are generally contrived, merely involve recall or recognition, and provide only indirect evidence of student learning, authentic assessments involve the performance of tasks, application of concepts, and provide direct evidence of student learning. There are differences in the general structural features of authentic assessments as well:

- They are thought-provoking and worth repeating;
- They may require collaboration or peer evaluation;
- They are transparent – students know up-front both the task and the criteria used to assess it;
- There is a varying degree of student choice in how the tasks will be accomplished (adapted from Hart, 1994).

These features require the development of criteria for successfully completing tasks since authentic assessments do not always result in cut-and-dried, right-or-wrong answers. Instead, criteria may include the establishment of standards or benchmarks for performance of tasks, assessment of processes in addition to final products, the encouragement of self-assessment or reflection and/or qualitative rather than quantitative evaluation of participation.

Authentic assessments were originally developed for the purpose of ensuring that students' educations adequately prepared them for vocational or professional work. This can complicate their deployment in the purely academic arena and even more so when trying to assess the less well-defined and complex skill sets that are collectively labeled as information literacy. Critics of authentic assessments point out that what constitutes authenticity is subjective and contextual in nature (Terwilliger, 1997). Given that subjectivity, students and instructors may have very different perceptions of the authenticity of an assessment (Gulikers et al., 2008). In distance education, authenticity can be further complicated by the different ways in which instructors and their students experience the online environment. Differences may be generational, such as those between “born digital” students and their older instructors (Sharkey,
2013); technological (as in quality of computer, speed of connections, or facility in the online environment); or due to variances in the instructor and student interfaces of course management systems.

Despite these reservations, what is shared by both the distance librarian and their students is the online, academic context in which information literacy skills and tasks are practiced and utilized. Authentic assessments, with their focus on practice, transparency, and process provide the structure necessary for students to build the skills they need to succeed academically (Sharkey, 2013). The setting and tools that distance librarians rely on – including course management systems, library online public access catalogs (OPACs) or discovery layers, subscription databases, blogs, wikis, and discussion forums – are ripe territory for librarians to generate authentic assessments that help develop their students' ability to think like academic practitioners.

**When to Employ Authentic Assessments**

Deciding when and how to employ more complex forms of assessment can be challenging. The instruction librarian may have difficulty determining what tasks are appropriate for an authentic assessment since an activity like finding a resource on the shelf seems like a real and authentic task. What is missing from such a straightforward task is the opportunity for the student to engage with complex and “ill-structured” activities that more accurately reflect the uncertainty of real-life situations. Fortunately, recent research into the intersection of information literacy and threshold concepts provides a useful framework for making decisions about when to employ authentic assessments.

The Association of College and Research Libraries (ACRL) task force for the revision of the ACRL Information Literacy Competency Standards for Higher Education has adopted threshold concepts as a guiding theoretical lens for the development of new standards. Threshold concepts were originally presented by Jan Meyer and Ray Land (2003; 2005), who described them as disciplinary-specific conceptual gateways that are necessary to cross in order to acquire mastery and think like a practitioner. These concepts are thought to be transformative in that they result in a change in the way one perceives a subject, irreversible in the sense that once the insight is acquired it cannot be lost again ("like riding a bike"), integrative, or allowing one to understand connections between previous disparate elements, and troublesome, or difficult and frequently counter-intuitive (Meyer & Land, 2005).

The disciplinary-specific context of threshold concepts have led many to believe that there cannot be threshold concepts in information literacy. This is because the skills taught are seen as applicable to all disciplines and so could not be thought of as a discipline in and of itself. However, three academic librarians, Amy Hofer, Lori Townsend, and Korey Brunetti (2012), have posited that librarians can utilize threshold concepts to focus their attention on those areas in information literacy where students most frequently get "stuck" and which prevent them from acquiring true mastery of information literacy skills (Hofer, Townsend, & Brunetti, 2012). They propose four threshold concepts for information literacy, while also acknowledging that additional concepts may be added as more research is done.
The concepts proposed by Hofer, Townsend and Brunetti (2012) will likely seem familiar to most instruction librarians as common problematic concepts for their students:

- **Format as process**: that the method of access has no bearing on the processes that went into construction (example: news articles, blogs, books, scholarly articles) and an understanding of that process is what allows for critical evaluation and selection.

- **Authority is constructed and contextual**: that authority is not given; it is acquired and developed in a context specific manner.

- **Information as a commodity**: an economic view of information allows for responsible use and consumption of information and makes sense of practices such as attributions and copyright.

- **Primary sources and disciplines**: that primary sources are strictly defined by disciplinary criteria and may not be primary when looked at from the standpoint of another discipline or time frame (Hofer et al., 2012).

The idea that information literacy can be thought of as an independent or even "meta" discipline is outside the scope of this paper. Instead, the threshold concepts proposed by Hofer, Townsend and Brunetti (2012) are here utilized as a framework for the practicing instruction librarian. They may be used to identify aspects of information literacy instruction that are suited for the development of authentic assessments because of their "troublesome" and complex nature. They also help the instruction librarian to identify the skills and approaches that students need to think like a practitioner (that is, like a librarian) compared to those times when it is appropriate to simply check in with students to make sure that they are able to recall information (such as reading a call number or locating a book).

**Bringing it all Together**

John Mueller (2008) offers instructors a very practical way to approach the generation of authentic assessments when they are utilized for difficult targets. Here is an example of a common desired information literacy outcome that deals with the threshold concepts of format as process and the idea that authority is constructed: "I want my students to understand that the internet is not 'flat.' I want them to understand that there are a wide variety of formats available to them online and that they have different uses and levels of authority". Mueller (2008) suggests that the instructor asks, "How could the students demonstrate that they understand the concept or process" (p. 18)? For an assessment to be authentic it is not enough for students to agree or acknowledge that the internet is not flat – they must "demonstrate that they have acquired this skill and apply it in relevant contexts" (Mueller, 2008, p. 18). This naturally leads to the question of how students will demonstrate their skill acquisition – what objectively measureable or observable indicators can be formulated and assessed that demonstrate that students can identify and evaluate the wide variety of formats available online. Intimately tied with that demonstration is how the skill acquisition will be assessed; in other words, what observable metrics the instructor can communicate to the student and utilize to assess whether the student has, in fact, demonstrated that they are able to 1), discern different formats in the
online environment and 2), evaluate their understanding of the authority and uses of the different formats.

Here is an example of what an authentic assessment of the above scenario could potentially look like:

1) What the instructor wants the students to learn:
   
   • "I want my students to understand that the internet is not 'flat.' I want them to understand that there are a wide variety of formats available to them online and that they have different uses and levels of authority."

2) How students could demonstrate they understand the concepts:
   
   • By correctly identifying different formats in the online environment.
   
   • By being able to use a set of criteria to evaluate authority.
   
   • By being able to explain why a certain resource is appropriate for an assignment given its format and authority.

3) Development of tasks:
   
   • Give students a number of URLs to a variety of different online formats about the same topic.
   
   • Give students a set of criteria for assessing authority and ask them to apply it.
   
   • Give students a hypothetical assignment (i.e. research paper on topic X) or, better, connect this to a real assignment and ask them to justify their choice of resource for the assignment based on the previous two tasks.

4) Criteria for successfully completing the tasks:
   
   • Students can correctly identify formats in the online environment.
   
   • Students can apply the given criteria for assessing authority.
   
   • Students are able to justify their choice of resource based on the above two tasks.

5) Development of the assessment:
   
   • The first task is straight forward – either the format was correctly identified or not.
For the second task, it can be helpful to limit the criteria to be used in the task so they can be easily checked: currency, identification of author and publisher, purpose of site, etc.

A rubric can be developed to assess the justification for choice of resource and should be tied to the previous two tasks.

Clearly, there are many different ways to develop the tasks for this assessment. For example, instead of the instructor providing URLs, students could be directed to seek out and identify different online formats on a given topic, or one of their choosing. Doing so more closely aligns the tasks to authentic assessment because it potentially makes the assessment more relevant and meaningful to the student if they are able to pursue their own interests. This does involve considerably more work for the instructor when it comes to grading, which is why the example given above was more structured.

Conclusion

Authentic assessments offer instructors a sophisticated and nuanced view of students’ acquisition of skills and their ability to apply them in a variety of contexts. In addition, for students, authentic assessments serve as opportunities for learning experiences and practice that have grown naturally from the curriculum itself. With an emphasis on process, real-life problems, and the engagement of a variety of learning modalities, authentic assessments make it possible to effectively evaluate student’s ability to exercise higher order cognitive skills.

While the benefits to students are clear, the advantages in utilizing authentic assessments – and in particular, using threshold concepts as a framework for evaluating information literacy instruction – are important for the instruction librarian as well. That is because threshold concepts offer librarians a way to look past their own expertise to recall the difficulties and conceptual gateways they had to pass to become practitioners. Reflection upon the ways mastery was acquired in these instances can lead to a deeper understanding of the complexities involved in introducing and teaching information literacy skills. As the authentic assessment example given above shows, information literacy skills today are complex, subtle, multi-faceted, and highly contextual. If the assessments librarians use do not reflect this level of sophistication, librarians cannot hope that their students will achieve mastery of these important life skills.

Authentic assessments, in turn, offer the instruction librarian a way to create a bridge between student-novice and the librarian-expert by breaking down complex cognitive skills into measurable, repeatable, and worthy tasks so students can practice and develop their skills. Doing so offers librarians the chance to deepen their understanding of how and why they teach certain information literacy skills, while also greatly enhancing their students’ ability to become practitioners in their own right.
References


Embedded with the Military: It's all about the Relationships

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Abstract
It’s all about the relationships! How the librarian develops connections is key to the embedded process. This paper describes the path one librarian went through from January, 2010 through December, 2013 at the Joint Forces Staff College in Norfolk, Virginia. With a little help…ok, a lot of help from coworkers, faculty, IT and most of all students, a program morphed into something past traditional or liaison to embedded librarianship.

Joint Forces Staff College/National Defense University

The Joint Forces Staff College (JFSC) is a component of the National Defense University (NDU) and is under the direction of the Chairman, Joint Chiefs of Staff. The University’s main campus is on Fort McNair in Washington, D.C. and the Joint Forces Staff College is located in Norfolk, Virginia. The university is accredited by the Middle States Commission on Higher Education. The mission of JFSC is to educate national security professionals to plan and execute operational-level joint, multinational, and interagency operations to instill a primary commitment to joint, multinational, and interagency teamwork, attitudes, and perspectives. The College is congressionally mandated to educate joint leaders and includes 10 programs and courses. The library provides liaison or embedded services to three programs that award graduate credit: Joint Advanced Warfighting School (JAWS), a Department of Defense war college Master’s program; Joint and Combined Warfighting School (JCWS) offered in-residence and at a satellite site in Tampa, Florida; and Advanced Joint Professional Military Education (AJPME) offered through a blended distance and face-to-face program.

JFSC Library

In 2009 a position was advertised at JFSC for a reference librarian that included specific duties serving their Joint Continuing and Distance Education School. The course, AJPME, was established in 2002 and utilized the Blackboard Learning Management System (LMS). The JFSC Library had been providing reference services to the distance students via email, phone and fax. Group library instruction was provided during Week 12 of the program when students arrived on campus for a week of face-to-face classes. According to the recently retired JFSC library director, Dr. Gail Nicula, their goal was to have equal or better services to distance

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learners, but knew that it would take more work and time to achieve this equal or better goal (G. Nicula, personal communication, November 1, 2013). Dr. Nicula allowed the librarian and author of this paper – initials CW – to explore the best fit for the program and supported what might have been considered unconventional from the stricter military environment.

The liaison librarian model is utilized with the JCWS and JAWS programs. Originally the new position was to take the distance program from a traditional reference to the liaison model. However, over the next several years CW found that an embedded relationship was of greater benefit to the distance users. For ease of use, this author CW will be referred to as the distance librarian (DL) in the article.

**AJPME Course**

Students in the AJPME program are a diverse group of individuals. In each class, all students have a Bachelor’s degree, many have a Master’s degree and several have doctorate degrees. The student might be fluent in library resources and research or it might have been 20 years since being in a classroom. Many AJPME students express feelings of being lost and overwhelmed with all the information in our changing libraries; in particular, students who have not been in school for more than 10-15 years and who are new to electronic resources. The DL had heard comments from some instructors over the years that students should not be struggling with the research requirements because they are coming in to the program with at least a Bachelor’s degree. However, the information world has changed significantly over the years and although the process remains similar, the delivery is different, and can cause anxiety with students.

An article by Jones (2008) discusses how reference via email can take more time, and may involve a number of conversations before the student’s true question is revealed. This is one of the reasons the DL started having online synchronous instruction sessions for groups and individuals throughout the 40-week term. Often it feels that students are expected to know how to use the research databases instinctively by instructors and sometimes other librarians; that the academic resources are there if only they, the students, would look on the library page and use them. The DL found that bringing the students into an interactive online synchronous session gave them the opportunity to better understand how to use the resources. The student(s) would be able to see the presentation in real time through screen sharing and often replicate actions in another open browser.

It is important that the librarian does not lose sight of the student’s WIIFM, or what’s in it for me. It is important to find nuggets of applicability in the broader scope of life when discussing research strategies or databases. According to several studies (Tucci, 2011; Tumbleson & Burke, 2010) librarians who can embed in the course offer the best promotion to students as the services are within the content of the assignment. Since the AJMPME DL is enrolled in the Blackboard (Bb) course and receives timely emails for class assignments, it is easy to send out items that might be of use to students. Being enrolled in the course also gives the librarian an advantage of seeing what the students see and having a better understanding of the whole picture. The librarian becomes part of the team rather than an external entity.
The AJPME program has many differences from a traditional academic class. Students do not have an assigned time for weekly classes but instead participate in synchronous, asynchronous, distance and on-campus instruction during the 40-week period. There are typically four classes per year with four seminars per class and approximately 22 students in each seminar. The 40-week course roadmap is helpful not only to students but the librarian as well, so emails targeted to assignments can be sent to the class. According to Johns and Fabbro in the *Handbook of Distance Education* (15th ed.), “by promoting the library’s online resources and services, librarians help to ensure that distance learners are not disadvantaged in completing assignments and courses” (2013, p. 232). During the first week all students are required to post a biography in the Bb discussion forum, which also includes the instructor.

The DL also posts in the forum, which has opened lines of communication regarding similarities with students and brought the librarian in more as part of the team rather than an external support entity. During this week the DL is also active on Bb and sends out an introductory email to students going over basic library information and dates for the online synchronous library sessions. These sessions are not mandatory but promoted by instructors and heavily attended.

Students in this program have to balance family, civilian and military duties and are located all over the world; it is not unusual to have an online session with students located in Hawaii, Virginia or Afghanistan. Due to the varied time differences the DL found early on to be as flexible as possible with scheduling. In the beginning, the DL was only able to work with students between official duty hours of Monday through Friday, 8:00 a.m. to 5:00 p.m. These hours only worked for half of the students, but after much campaigning from the previous library director Dr. Nicula, the DL was given more flexibility and could meet on evenings and weekends. Eventually the DL gained telework privileges similar to the staff and faculty in the Joint Combined Distance Education School.

This ability has made a tremendous difference as demonstrated in evaluation reports. Students and faculty often remark that one of the key elements that make the embedded program exceptional is flexibility of hours. Currently, the DL provides around 25 sessions during the first four weeks of the program between the hours of 9:00 a.m. and 9:00 p.m., seven days a week. Students are also encouraged to contact the DL for additional times. In many cases students would like to meet during their working day but have technical restrictions with access to Bb Collaborate. These students are able to meet instead via a Department of Defense (DoD) program that is similar, and allows for screen sharing using a system called Defense Connect Online. The DL also sends out periodic emails based on the class roadmap with links to LibGuides or instructional handouts for accessing material useful for their assignment.

The DL creates an online wiki for weeks eight through twelve in Bb for students to sign up for online individual instruction for their research paper. The sessions can be as short as 15 minutes or may last several hours. The students are on campus for their first face-to-face session during Week 13 and are required to have topics and thesis statements prior to arrival. Often students have difficulty deciding on topics and with the wide variety of possibilities – hospital ships in disaster assistance, legal issues with unmanned systems, joint logistics or interagency cooperation – this DL has found it more useful to conduct individual sessions to cover the
resources most relevant to their topic. The librarian can be a useful sounding board and this interaction over possible topics enriches the relationship. During the face-to-face session the over 80 AJPME students have the option to meet individually with a librarian. Unfortunately due to time constraints, the appointments on campus are typically no longer than 25 minutes.

Survey

Two voluntary surveys were distributed in May 2013 to AJPME students and faculty. Response rates were 134 of 278 students and 8 of 14 faculty members. The DL used the Bb survey function; however, many students had difficulty accessing it from their government computer and received a message that the survey was already attempted when then trying from a home computer. Of the students who were able to complete the survey, 117 rated the embedded DL experience very good to excellent; four good; one fair; and 11 marked not applicable. Sixty-eight individuals took the time to write specific comments on the usefulness of having an embedded librarian in their online program. Some of the most common terms found in comments are helpful, accessible, personable, responsive, attentive, customer focused, friendly, enthusiastic, excellent and dedicated. Below are a few of the student survey comments regarding contact with the embedded DL.

- Accessibility, understanding our course and class. Being our advocate.
- Attentiveness and speed of response. Very customer-centric.
- Availability nearly all the time and flexibility in scheduling.
- DL’s ability to understand my intent, formulate it into tangible research and resource questions, then assist in the search. Her patience and foresight is commendable
- Extremely helpful to meet needs. Went above and beyond in providing outstanding customer service. Great friendly attitude and desire to help.
- Friendly approach and willingness to help students
- I felt that they were genuinely concerned with my progress and my research progress.
- Always available and willing to help. She was more than willing to help me do research, offer ideas and resources, and teach me first hand (via BB collaborate) how to use the tools.
- Insight into assignments and enthusiasm to help or foster questions. Also a great ability to shift topics of discussion during sessions.
- The librarians empathy with distance education participants
- Their willingness to help. They never made me feel like I was an inconvenience to them or that my topic was something that didn't interest them. They helped motivate me.
They were really nice and immediately felt like I was talking to a longtime friend.

Very helpful overall. DL really understood what I was asking for even though I did not explain it very well. In other words, she knew what I wanted before I could articulate it!

Ability to grasp the essence of what information I needed and to offer a wide variety of sources from which to choose. This enabled me to quickly determine what else was needed, and pursue follow-on questions to more effectively educate myself on the subject.

Having the 'embedded' person made me much more comfortable contacting them.

Their knowledge of researching tips and tricks. It seems obvious but they are very good at it which 'talked me onto the “target” and I was able to continue my research. It was a big stress reducer!

Their willingness to help and ability to help motivate me when I was not feeling motivated!

Very approachable and eager to help and assist in all course assignments.

expertise, willingness to help, understanding of distance learning challenges

AJPME Faculty

The AJPME instructors also typically meet with the DL either in person or through Bb Collaborate. Military officers typically only spend two to four years assigned to a specific location, so working at JFSC is a bit different than in more traditional academic settings. Some instructors find it useful to have an in-depth brief similar to that given to the students, but also allowing time to discuss questions that may be more specific to the LMS or about the librarian’s perceptions of the students and the program. Six faculty members rated the DL experience as excellent and one marked non applicable. Of the eight who completed the survey, seven felt that the AJPME program should maintain an embedded librarian in their program, and one faculty member selected a liaison librarian option. Below are a few faculty comments regarding contact with the embedded DL.

Do not break the outstanding program JFSC has grown over the past 3 years for DL students. Grow it and package it for others to follow. Standard is set.

Embedded is necessary due to the large amount of time students spend in DL mode vice F2F.

Personal attention given to students--the distance librarian functions as a faculty member specifically focused on the research paper requirement.
• Distance Librarian is really a part of the teaching team—works cooperatively with the instructors to ensure the students are receiving the best possible support.

• Customer service, accessibility and professionalism. DL has supported our AJPME students well beyond expectations and is consistently lauded by students each Class as the most valuable educational asset at JFSC.

• Synchronous session and accessibility are the key.

• Positive, service oriented environment created by the library staff make the library a place that attracts faculty and students to use the resources.

The AJPME faculty is a small group of individuals which allows for easier relationship development. Bb Instant Messaging (IM) has become an invaluable tool, as expected with students; however, the DL also noticed many benefits using the tools with faculty and staff in the AJPME department. For example, due to a security upgrade in the computing environment Java was no longer working on any of the library computers, and it was 10 minutes before a scheduled online synchronous session. The DL quickly IM’d several faculty members to see if they were able to access Bb Collaborate. A quick response of yes was accompanied with “my computer is available if you need it!” The DL headed to another building and ran the session from the instructor’s desk. As seen in this example, the librarian being included as a team member benefits everyone.

Technical Aspects

From a systems administration perspective, co-author of this paper Greg Frederick notes that librarians need to work closely with the Information Technology Department (ITD). The librarians are the subject matter experts when it comes to how the students use research databases, but ITD is responsible for making sure the site is up and working. The librarians work with the students on how to use the systems, yet students often submit tickets to ITD for problems with library databases which should be going straight to the library staff. Having a librarian embedded into the program has helped educate students as well as staff on database issues. It has also increased the response time for fixing issues, rather than having users bounced between departments.

From this author’s experience it is best for librarians to be the second contact for new students after initial instructor introductory sessions. Instructors should contact and get the students into the courses, but librarians should start working with them on research right away. This also often allows the student the ability to ask questions not only about online databases and library systems, but also the online LMS. These may seem to be ITD questions, but are often ones they cannot answer because they are user-specific issues. This is where the librarians fill a void: not if the system is working, but how to use it.

Distance education for a military or government employee can be more difficult than for your average student. Many adult students prefer to do some of their school readings during their lunch hour but this has been increasingly difficult over the past couple of years due to
security restrictions. In a military educational organization, balancing academic freedom and information security can cause roadblocks and stovepipes. Some staff and faculty at JFSC do not understand why the institution must invest so much into security because it is an academic endeavor, but it is the connection to the military networks that requires these restrictions; although JFSC is an academic institution, we are staffed by military and government workers who need access to military and government resources on government computers. Accommodating academic resources and military security is a necessary balancing act. Conflicts do occur which can hinder students, staff, and faculty’s ultimate educational goals. Research can be affected due to security restrictions and constantly changing security regulations in the school’s computing environment.

Conclusions

Shumaker (2012) discusses the fundamental difference between embedded and traditional librarianship. Library reference in the traditional sense operates on the “assumption… that all librarians are interchangeable” (p. 5). Although a relationship may be formed, it is not “actively fostered” between student and librarian (p. 5); at the opposite end is a librarian embedded in a course intentionally creating relationships with faculty and students (Shumaker, 2012). In 2010 the DL transitioned from a civilian academic medical library with experience embedding in a clinical program to the JFSC distance program. Working as an embedded librarian – regardless if on-campus or distance – still comes down to fundamental working relationships with all users. Professional development through listservs and the Distance Library Services Conferences has been extremely beneficial. The DL was also given the opportunity to attend an online certificate program for distance teaching along with AJPME faculty.

Working with distance students can be a wonderful challenge. With flexibility and a positive attitude librarians can make an easier online library experience for their students. Each course, instructor, student and librarian has unique attributes and one size does not fit all. The online teaching environment can be more complex and administrators should be selective when choosing online library representatives. A librarian who is forced rather than able to choose may jeopardize embedded library programs. Often perceptions of what it means to be embedded in the online classroom get in the way of a productive relationship. The thought that the librarian will be sitting in for all synchronous classes that the instructor teaches may give the idea that it would be a waste of time and unnecessary. Instead, the librarian should have the opportunity to observe the class and make suggestions where they would be most useful for students and faculty. Also, it is important to recognize that not every online class needs an embedded librarian. The perception that one size fits all is a disservice to users and librarians. Challenges faced by students, faculty, ITD staff and librarians can be mitigated by developing strong relationships with each other.
References


Poster Sessions
Bridging the Distance: Understanding the Research Needs of Distance Graduate Students

Hilary Bussell
Ohio University

What are the research needs of graduate students in distance programs, and how do they differ from their on-campus counterparts? How can libraries provide effective support for this unique subset of graduate students? This poster presents the results of a comparative study of the research needs of graduate students in distance and on-campus programs at Ohio University. The number of students earning graduate degrees in distance programs has grown tremendously in recent years. Yet providing instruction for graduate students in general can prove challenging for libraries for a variety of reasons. These challenges are intensified by the disconnectedness many distance students feel from what they perceive as services for on-campus students, including the library. Thus, it is imperative for libraries to start a dialogue with distance graduate students, not only in order to design effective services for them, but also to foster a sense of connection and support. With this imperative in mind, librarians from Ohio University conducted interviews with distance graduate students in tandem with focus groups with on-campus graduate students. The librarians sought to determine how the research needs and instructional preferences of distance graduate students are distinct from students in on-campus programs, and to compare how these needs differ between students in academic versus professional programs, regardless of format. This poster discusses the results of this study and offers recommendations for instructional programs and best practices for supporting the research needs of distance graduate students.
Efficient Tools to Simplify Distance Reference Transactions

Heather A. Dalal  
Rider University

This poster will demonstrate the use and technical requirements of two different types of easy-to-use and freely available tools that facilitate the provision of reference assistance via telephone, chat, or email. Instead of going back and forth with email chains the librarian can use any of the following freely available screencasting tools: Jing, Screenr, Screencastomatic, CamStudio and Wink. The screen capture created is not a tutorial; no need to rehearse, edit, or store for future use. It can simply be a just-in-time video prepared for just one user to watch the librarians’ demonstration of library tools with voice commentary. For individual reference appointments scheduled in advance, librarians can use free tools such as Join.me or Zoho for easy synchronous screensharing and collaboration. When a librarian is answering a reference question via telephone or chat, the last thing he or she might want to do is ask the user to create an account and then follow directions on how to log into a web conferencing tool. The solution is Screenleap. A user can see the librarian's screen with just the click of a link. One person can set up an account and the rest of the library can share it to make that URL customizable. Librarians can make the distance reference transaction as effective as face-to-face and save both the patron and the librarian a great deal of time.
Best in Show: Design Effective LibGuides That Showcase Your Library’s Resources and Meet the Needs of Distance Education Students

Allison Embry
Rogers State University

LibGuides are an inexpensive and efficient way to share library resources with off-campus students. Although research on the most effective way to use the LibGuides platform is limited, studies conducted by academic librarians have found that course-specific guides meet the needs of students and faculty better than subject-specific guides. Most departmental liaisons do not have enough time to build original guides for all courses in their area, thus guide templates may be the best way to ensure that off-campus instructional needs for all courses are met. In order for guides to best serve the needs of off-campus students and faculty, templates should be designed in accordance to ACRL Information Literacy Standards for Higher Education, and also be flexible enough to be used across subject areas. This poster presentation showcases the LibGuides template created for Rogers State University, which has been used as an instructional tool for a variety of departments including social sciences, business, arts and humanities, and physical sciences. The template has aided the library in achieving its goal of building guides for core courses for all departments, and allowed liaisons to effectively serve the unique instructional needs of our off-campus students and faculty.
When faced with the challenge of how to modernize an extremely outdated website, a library system with no dedicated IT professionals and little technical expertise figured out how to get the job done by making collaborators out of a wide variety of institutional stakeholders. Leveraging input from students, staff, and faculty members (read: anyone that would listen to them!), the librarians designed a Wordpress site that gave them the flexibility, control, and look that they desired. This poster session will highlight the steps that the library system took, from initial consultations with students, faculty, and staff to determine what they wanted in a website, to identifying employees within the organization who could assist with Wordpress implementation. Library systems staff who are skeptical about updating their websites to more robust platforms, or who may be worried that they don’t have the know-how to manage more complicated systems, will be encouraged by this realistic approach to website development in an environment lacking sustained in-house web support.
The University Libraries turned to distance education techniques to create alternative ways for campus instructors to include library instruction in their classes by creating modular, online library tutorials with automated student certification for course instructors. An academic library committee chose eight tutorial topics based on general library instruction sessions, campus curriculum, and instructional needs. The committee created content and visual direction for the tutorials and hired a graduate student to create an online interface with learning engagement activities. With the Library Dean’s support, the committee gained campus support through a grant awarded from the Provost’s Office and presentations given to campus administrators. With the help of course management system (CMS) specialists on campus the tutorials were integrated into the CMS, making it easy for instructors to assign them to their students and allow for an automatic proof of completion for students who take the tutorials and quizzes. Publicity efforts have included librarians, University news listservs and instructional workshops, library blogs, and more. Assessment data includes a survey of students who have taken one or more of the tutorials, the number of students who have taken the quizzes, quiz scores and number of times the quizzes were taken, informal faculty and librarian comments, and a faculty and TA survey of the library instruction program. In summary, this poster presentation will show the process of identifying tutorial topics, creating the online tutorials with student engagement, gaining instructor and university administration support, integration into a course management system, publicity avenues, and tutorial assessment.
Canvas-ing the LMS: Developing a Library Presence to Engage Online Students

Nia Lam
University of Washington Bothell & Cascadia Community College

Rebecca Bliquez
Seattle University

Heather Gillanders
Tacoma Community College

This poster will describe how the librarians at the University of Washington Bothell & Cascadia Community College Campus Library developed a library presence in Canvas, the new learning management system (LMS) adopted by more than 400 colleges, universities, and school districts. Cascadia Community College’s migration to a new LMS helped us visualize an overall library presence that will allow for more engagement with faculty and students and incorporate the best practices for online instruction that our librarians have been developing over the past two years. We collaborated with eLearning staff to create a default layout for all courses in Canvas that now includes a library website link in the main navigation. The poster will also detail strategies librarians use in order to embed information literacy into Canvas in support of both on-campus and online learners. For example, librarians create online information literacy modules that are tailored to specific assignments, use LMS communication tools to build relationships with students and build assessment into our modules.
Customizable and Scalable Information Literacy Learning Objects for Distance Learners

Dana Longley
SUNY Empire State College

With a staff of four librarians serving a population of 20,000 adult distance and blended learners, providing scalable and accessible information literacy learning opportunities is a challenge for this medium-sized state university. In addition to live online workshops and a self-paced, text-based course, we strive to empower our instructional designers and faculty with easy-to-embed learning objects that can be used to teach or reinforce, through self-paced active learning where appropriate, necessary information, and research skills at the point of need. These learning objects are designed to be modular and customizable to fit within the context of any curriculum, course or assignment. Online scavenger hunts, information skills self-assessments, ask-a-librarian chat boxes, and video tutorials all play a part in this low-cost endeavor. Objects are primarily created with free online tools (the exception is Adobe Captivate for videos). Each is heavily promoted to faculty, student support staff, and instructional designers as a plug-and-play service that can impact student assignment quality and preemptively relieve them from having to repeatedly answer basic, non-course content questions.
Chat Reference: To Schedule or Not to Schedule?

Michael Mungin
James Madison University

Students in distance programs often have no way of visiting the physical reference desk to seek assistance from and engage in a reference interview with a librarian. Lack of access to this crucial research resource presents a major challenge to distance education. Luckily, chat reference services, available through various products and software, are becoming an increasingly common service offered by libraries. This technology allows the students and librarians to work together in real time to achieve the back and forth dialogue required in reference interviews. Unfortunately, the literature on creating and providing a chat reference service does not delve deeply into issues surrounding scheduling of chat coverage. Some libraries create coverage schedules, similar to coverage of a reference desk. Others opt for a more laissez-faire strategy of librarians making themselves available on chat during specified hours and, when chat requests come in, answering them as availability allows. Both of these strategies have benefits and drawbacks that organizations offering or interested in offering chat reference services should consider when establishing a coverage strategy. Using evidence from a mid-sized, regional university's academic library that has recently explored the use of both techniques, this poster will elucidate these benefits and drawbacks, comparing time burden, equity of coverage among librarians and potential impact on chat reference users. Viewers of this poster will be better equipped to consider which strategy best suits the needs of stakeholders at their specific institution.
Will They Press Play? Assessment of Online Video Tutorials

Robin Chin Roemer
University of Washington

Rebecca Bliquez
Seattle University

Nia Lam
University of Washington Bothell & Cascadia Community College

Verletta Kern
University of Washington

Christine Tawatao
University of Washington

Librarians working with distance learners are turning to online tutorials to provide instruction and help in short snippets. Research already shows that students are capable of learning from a video tutorial, but what motivates them to press play in the first place? What compels them to watch until the end? This poster describes a year-long assessment project of online screencast tutorials covering a broad range of topics, from point-of-need interface help to subject-specific research questions and broad orientations to the library. Conducted at the University of Washington, this research was implemented in three phases: 1) the collection of statistics from which to benchmark usage; 2) an assessment of students who looked for online help, and usability testing of how effective embedded tutorials are at point of need; 3) an assessment of the effectiveness of the videos when integrated with students’ coursework. Poster attendees will learn about highlights from the project’s findings, such as lessons about what students want from online tutorials, how successful online tutorials are at providing point-of-need assistance, and how effective tutorials are at enhancing classroom or online instruction.
Accessibility & Online Tutorials: A Comparison of Closed Captioning Tools

Lynda Schoop
Purdue University Calumet

Attendees of this poster session will learn about accessibility requirements and the most effective methods for adding closed captioning to online tutorials created with various tools. Online tutorials are an integral part of services provided to distance students. A large quantity of information is available educating librarians on the various software and tools available to create tutorials. However, many of those resources fail to address issues of accessibility, and specifically how to effectively add closed captions to tutorials before publishing them. This poster session will provide information on methods for adding closed captions so that tutorial content meets accessibility guidelines. The distance learning librarian at Purdue University Calumet was charged with creating the library’s first video tutorials for a recently launched asynchronous online program which includes research as a major component in the curriculum. As a result, it was necessary to create several customized tutorials. Due to the complex nature of the research required, many of these tutorials needed to serve as an equivalent to full-length on-campus instruction sessions. The distance learning librarian experimented with various open source and proprietary software methods offering different tools and methods for closed captioning. The session will provide tips and suggestions based on the distance librarian’s experiences with incorporating accessibility into tutorial creation. Based on an analysis comparing the effectiveness of the various methods, specific recommendations for closed captioning content will be provided.
Library Research Guide Widgets in Online Classes: Are They Effective?

Robin Shapiro
Portland Community College

In the last few years, we have seen several conference presentations and articles about embedding links to library guides into course management systems. In February 2012, several Portland Community College librarians attended a lightning talk by the distance learning librarian at a neighboring institution describing her library’s latest project: automatically embedding links to LibGuides into Desire2Learn course pages. Our immediate response: can we do that too? Our project went live in May 2013, and as of June 2013 links to subject research guides are included in every new course shell. This poster reflects data collected in Fall 2012, before the research guides were embedded, and Fall 2013. It also includes the results of two surveys, one asking librarians about changes in the number of faculty contacts about their research guides, and the other asking instructors about their experience with the new library widget. Our expectation is that usage of research guides will rise, and our hopes are that faculty will provide feedback to help improve guides and that use of library guides will enhance student research. Preliminary results indicate a 25% year-over-year increase in usage of research guides in the first two weeks of Fall Term. If your library has embedded access into a course management system, please stop by and chat! By sharing our assessments and experiences, we'll discover even more about providing equitable library access to distance learning students.
Since many library tutorials are deployed in situations lacking extrinsic motivators such as grades, improving the motivational characteristics of library tutorials is a potential method for increasing student completion of and engagement with the tutorials. The ARCS model (Attention, Relevance, Confidence, and Satisfaction) is a motivational design model widely known in the instructional design field. This poster will explain the four aspects of the model and provide examples of how to incorporate it into the design of library tutorials. These examples will be drawn from studies in the instructional design literature as well as library tutorials.
Digital Badges for Learning: No Sewing Required

Claudia Timmann  
Erika Bennett  
Capella University

Digital badges for learning are emerging technologies that have exciting possibilities for libraries, particularly in the area of information literacy instruction. Badges are collectible icons that recognize knowledge and skills and can only be achieved based on a set of pre-determined learning competencies. Digital badges can be earned both extracurricularly and through learning management systems as part of coursework tied to packets of learning outcomes. The flexibility of digital badges suits library instruction programs that are integrated, stand-alone, and independent to curriculum. The poster will contrast different avenues of development, implementation, and outcomes. It will also compare other learning badge programs at different universities and learning environments. The poster will provide strategies for developing information literacy badges for librarians to implement at their libraries.
Panel Discussions
This panel promises a rousing discussion of embedded librarianship in the learning management system (LMS) from four authors. Based on their recently published monographs, national surveys, research assignment sampling, and work experience, the panelists will pose discussion questions to address key issues of LMS embedded librarianship. This information literacy method enables librarians to join faculty and students in the LMS and contribute to the academic mission of teaching, learning, and research, thereby becoming visible and relevant. Panelists will forego simply sharing the approaches of their own libraries to engage audience participants. They will pose questions, moderate the conversation, and share their perspectives alongside best practices drawn from embedded librarian surveys and the literature. The discussion will be guided by one overarching question: what do LMS embedded librarians do to make the most of their presence in the LMS? The four areas that we will explore together to help answer that question include (1) needs assessment (what is your institution’s greatest need in terms of information literacy?), (2) information literacy instruction (how will your information literacy efforts need to shift?), (3) building connections (how can successful faculty-librarian-student interactions be forged in the LMS?), and (4) technology tools (what are the favorite tools for LMS embedded librarians?). Please come prepared with your questions, success and failure stories, and philosophies about online embedded librarianship. Participants will leave with practical strategies for implementing and growing LMS embedded librarianship and inspiration to collaborate across campus.
Embedded librarianship has been a buzzword for many years, but librarians have struggled with how to make this process scalable. How do you effectively reach the most students, while still providing meaningful information and interactions? This panel will explore three different libraries’ approaches to making embedding in online courses scalable by partnering with faculty early on in the course development process. One library is in the beginning stages of collaborating with the instructional design department, focusing on training opportunities for faculty. A long-term goal is to establish a process that involves the librarian, faculty member, and instructional designer to ensure effective integration of library resources. Another panelist will share her experience partnering with the Faculty Teaching and Learning Commons to develop a three-day, hands-on training for faculty new to teaching online. With this approach faculty immediately recognize the library as a partner and seek out support following the training. The third library successfully implemented a team-based approach over five years ago and will round out the presentation by sharing insights about their formalized course development process, including statistics on the effectiveness of integration. By being embedded in the process when a course is first created or revised, the library is no longer an “add-on” but rather a partner, seamlessly integrating information literacy and research skills from the start. This approach results in more successful outcomes with the librarian viewed as a collaborator. Regardless of your environment, adapt and modify these concepts to work at your institution!
Imagine, Create, Experience: IL Credit Course for Distance Student Learning

Julie Evener
University of St. Augustine for Health Sciences

Sue McFadden
Indiana East University

Jessie Long
Miami University Middletown

Annie Knight
Chapman University

Undergraduate or graduate, traditional or non-traditional: all types of students take online courses. For some, it is a way to fit credit hours into their busy work schedules or home lives. For others, it is their preferred method of learning. For whatever reason students seek out online learning, professors and librarians alike often struggle with the best ways to reach these distance students and teach them how to embrace the research tools and services available to them. Online information literacy courses are one way to help students bridge the gap of their research knowledge. This panel discussion shares ideas relating to preparing, writing, and implementing an online, for-credit information literacy course for distance education students. The panel consists of librarians whose roles include course development, instruction, and administration. Their experiences encompass the creation of undergraduate and graduate courses, discipline-specific courses, one- to three-credit courses, asynchronous and synchronous courses, required and elective courses, courses for online and/or blended environments, and courses adapted from face-to-face. Panelists describe their successes and failures in the steps they took to build their online credit courses, providing information on how they first broached the topic with their administrations, what topics they chose to cover, how they developed their assignments and assessments, and how they have promoted their course to other online faculty and students. Participants are invited to ask questions and view examples of course materials online that they may use when developing their own information literacy courses.
Four Challenges Every New Distance Learning Librarian Should Know About (And How to Meet Them)

Amanda K. Nichols Hess
Oakland University

Ariel Orlov
Dominican University

Neely Tang
Cornell University

Stephanie Weiss
University of North Florida

Distance librarianship: what does this even mean in 21st-century academe? A diverse group of distance librarians will lead a dialogue on understanding their role and what a DL librarian offers to faculty and students, near or far. Panelists are all new distance librarians with diverse backgrounds; this will allow them to begin an encompassing conversation about the wide range of issues encountered in distance librarianship today. Topics will include how the role of distance librarian is defined in a world of MOOCs, blended learning, and increasing numbers of online courses, and how on-campus services can be delivered by an off-campus librarian. They will discuss strategies to meet the unique needs of distance learners, who often have very different expectations – and needs! – than face-to-face learners. They will also delve into how to address inherited faculty and staff attitudes about library services as they relate to distance learning, and how these old attitudes or predispositions can be overcome. Finally, the panel will consider how to identify key stakeholders and build collaborative relationships to secure necessary resources and set any distance learning program up for success. But the discussion only begins with the panelists. For most of this session, the panel will guide participants in a fishbowl-style discussion of these situations and others faced by audience members. This collaborative interchange will help uncover additional strategies to meet the challenges of distance librarianship, and every attendee will walk out with at least one strategy or tool to impact their work.
Workshop
Assess for Success: Evaluating Library Services in Distance Education

Natalie Clewell
Northern Virginia Community College

Hilary Bussell
Ohio University

Chelsea Hanrahan
New England College

Assessment of distance library services is imperative to improve services to students and faculty. Proper assessment can also be used to demonstrate success and value to stakeholders within institutions and accrediting agencies. But how can distance library services overcome the unique barriers of location and population to highlight these achievements? Distance libraries need to think of creative methods to evaluate their programs, and to create a culture of regular assessment to demonstrate innovations and improvements. This workshop will prepare participants to address these challenges through the creation of an assessment plan. The presentation portion of the workshop will highlight best practices in assessment of distance library services, and provide examples of current methods of assessment in three diverse library settings. The hands-on portion of the workshop will guide participants through identifying objectives for their own distance library services program, and help them create a plan to assess their objectives for effectiveness and success. Timely topics such as online instruction, embedded librarian services, and new initiatives will be highlighted as possible elements to be assessed.
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