**Embedding librarians in the online classroom:**

**The value of information literacy instruction**

**Abstract:** The proliferation of online courses has led librarians to look for adequate methods to provide services and resources to online learners. This paper seeks to explore the embedded librarian approach in a LMS for online courses to teach critical information literacy skills. Information literacy skills are imperative for student success and retention in higher education. The literature review revealed positive benefits of faculty partnering with librarians to design meaningful instruction and affix relevant resources within course assignments to increase effectiveness. The instructional design models examined in this study included ADDIE and IDEA. The author also described best practices for embedded librarians. The proposed research design will use a mixed methods approach to measure the impact and perceptions of an embedded librarian service in online courses.

**Introduction**

Academic librarians have traditionally provided students with instruction in information literacy skills. As technology advancements have made it possible to extend the classroom beyond the walls, online courses have become prevalent in higher education institutions. The proliferation of online courses has led librarians to adapt their instructional techniques to support online students for a quality learning experience that prepares students to navigate through a plethora of available information and tools to develop lifelong digital literacy skills. Librarians can partner with faculty to embed resources and services directly into the learning management system (LMS) based on the needs of the students to increase effectiveness, success, and retention. When designing instruction to embed in an LMS, there are several practices that can positively impact the outcome including designing instruction based on theoretical frameworks, models, and approaches. This paper aims to explore embedding librarians in online courses effectiveness using different design approaches.

**Background**

The availability of information in different formats and technology advancements have led to several attempts to define information literacy. The Association of College and Research Libraries (ACRL) (2016b) defined information literacy as “the set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning.” Basically, an information literate person is someone equipped for lifelong learning and recognizes the need to find, evaluate, and use information. Spector (2015) discussed the importance of information literacy skills since learners will have to encounter and navigate through a plethora of information in all formats. The author identified a strong need for learners to understand how information itself is organized, represented, and presented so they can spot biased, misleading, inaccurate, and false information (Spector, 2015, p. 359). Najmabadi (2017)confirmed this need in *The Chronicle of Higher Education’s* latest trends reportreferencing a study at Stanford University that revealed students lack the ability to spot fake news and evaluate sources. Librarians play a critical role in helping students develop information literacy skills.

As the number of online learners steadily increases each year, academic support is a vital part of student retention, course completion, and satisfaction in an online program (Kumar, Ochoa, & Edwards, 2012). The ACRL (2008) created standards to help ensure delivery of adequate library and services to students, faculty, and personnel in remote settings. Online students have various educational experiences and background knowledge when it comes to using digital tools and library resources. Providing students information literacy instruction to gain foundational skills at the beginning of their coursework has shown to have a significant impact on academic success and retention (ACRL, 2016a). Students are often overwhelmed by the transition to using academic databases to locate information, so this connection with a librarian early on in courses helps build relationships and provides opportunities for modeling and feedback on the search process (Burke & Tumbleson, 2016). Chilton (2009) noted that millennial students seek information and support from those they trust; therefore, a librarian’s direct involvement in courses greatly impacts student success.

**Course Integration**

Librarians have provided instruction in several ways using different approaches. Traditionally, librarians offer “one-shot” instruction integrated in a course to cover research methods and resources for specific projects. Librarians sometimes provide instructional “stand-alone” workshops covering specific topics or databases. Some implement information literacy instruction using a hybrid approach. As online learning environments are on the rise, librarians look for ways to provide online learners with resources and services. Online courses are delivered using a LMS and gives librarians the perfect opportunity to embed their services in the contained learning environment. This type of embedded role allows librarians to collaborate with faculty to discover learning outcomes, design meaningful learning experiences, and provide active support in a course.

Embedded librarianship requires more planning, involvement, and financial commitment than providing similar resources for on-campus students; consequently, it is important to understand faculty perceptions and needs of integrating literacy instruction into online courses (Hoffman, 2011). Research has shown significant interest from faculty in the idea of embedding a librarian in their courses. Figa, Bone, and O’Toole (2009) conducted a three-year-long embedded librarian project at the University of North Texas. They found the instructors benefited because they spent less time answering student questions, discovered useful library resources and databases, and reported higher quality student work. Summey and Kane (2017) indicated faculty perceptions of Emporia State University’s embedded librarian program as increasing overall student learning effectiveness because of working with an embedded librarian. Faculty also rated students’ skill development revealing students could evaluate information critically, access and use information ethically to accomplish a specific purpose. The findings pinpointed hands on practice with searching databases, locating full text articles, and availability of a librarian for individual assistance as the most effective aspects of the embedded librarian program.

Meredith and Mussell (2014) developed a model for embedding librarians to provide research support in online courses, investigated its impact on student learning outcomes, and described student and faculty perceptions of embedded librarians in online courses. Academic librarians at Royal Roads piloted an embedded librarian program in online courses which included a link to the library’s homepage in the LMS and monitoring and posting to discussion forums during the literature search portion of research methods courses. The authors conducted a quantitative analysis to investigate the efficacy of the service. The survey administered had a low participation rate of 47 out of 382 students. The results were not statistically significant, but the data provided insight into students’ perceptions of the service. Respondents agreed that having a librarian in their course improved their ability to research effectively by providing help with search strategies and evaluating sources. Negative comments indicated the “ask a librarian” forum was not effective for some students because of time constraints. Some students were behind schedule on performing their literature review. Faculty responses (100%) indicated they were completely satisfied with the participation of the librarian in their course. They commented positively regarding the librarians’ role in increasing student involvement, posting helpful information, being approachable in all communications, and providing individual coaching. The negative feedback also indicated that timing was an issue as librarians are embedded for no more than five days in order to keep requests sustainable for the library staff.

Paganelli and Paganelli (2017) described an approach of combining embedded librarian and personal librarian models to reach patrons at the point of need and to provide more library services for students and faculty. The authors noted the limitations with the embedded librarian model for courses that are heavily research-based, general education, and instructor approved. The personal librarian approach implies complete services directing the interaction solely toward the student increasing the interaction between the librarian and student. This can help reduce the anxiety of using online resources and tools. By combining the two approaches, students are assigned a personal librarian, and librarians are directly embedded in the student’s courses based on subject. The collaboration between the librarian and instructor optimizes student learning by designing a more student experience-based learning environment. The authors noted courses with an embedded librarian enhance the students’ ability to complete the course assignments and increase their library skills. Literature indicated that students and faculty deem the concept of providing library services online as an important aspect of the course.

**Instructional Design for Information Literacy**

When faculty add librarians to their course(s) in the LMS, they have full access to assignments, course materials, and discussion forums to affix certain resources within the context of the course. Integrating resources with a specific focus to help students complete course assignments usually corresponds to information literacy concepts (Kumar, Ochoa, & Edwards, 2012). Librarians use the ACRL *Framework for Information Literacy for Higher Education* to address six concepts central to information literacy: authority is constructed and contextual, information creation as a process, information has value, research as inquiry, scholarship as conversation, and searching as strategic exploration. Furthermore, the planning, design, and development of online instruction is grounded in the field of instructional design.

**ADDIE Model**

Hess and Greer (2016) examined an online, four-credit information literacy course using the instructional design model, ADDIE (analysis, design, development, implementation, and evaluation). The authors implemented the American Association of Colleges and Universities’ (2008) high-impact practices into instruction including writing intensive courses for producing and revising different forms of writing for different audiences and disciplines, especially with real-world applicability; integrating collaborative tasks and assignments; and enrolling in a series of courses in a sequence to involve students in exploring a common topic through different lenses. The course design used Clark and Mayer’s e-learning best practices: segmenting information into manageable and cohesive parts; sequencing information so learners have background knowledge before progressing to advanced topics; words and graphics should be used together instead of using words alone; words that correspond to graphics should align to visible connections; words should be presented as audio narration rather than text when possible; visuals should be explained through audio or text, but not both; extraneous or unnecessary information should be avoided or eliminated; and conversational language and virtual coaches should be used as appropriate. The authors piloted the course and received positive feedback. Participants praised the detailed expectations, extensive rubrics, final project, presentation of content with illustrations, set up of small learning communities, and collaborative assignments. Some small changes were made to address bug fixes and text heavy pages. After the pilot, the authors taught the new course design to a group of 24 students. Hess and Greer (2016) formatively assessed course engagement throughout the course. The authors were able to target specific ideas or difficult concepts through regular communication to provide intervention and better meet the learner’s needs. Students completed a mid-course evaluation was sent out to identify ways to improve engagement with content, each other, and instructors. The small community group assignments were well received while some tasks were singled out as being more effective than others. The final projects were evaluated and provided insight into the overall engagement with course concepts and assignments.

**IDEA Model**

Mullins (2016) described a case study application of information literacy content integrated into three doctoral courses using the IDEA (interview, design, embed, and assess) model. This model supports the proposed *ACRL Framework for Information Literacy in Higher Education* through collaborative efforts between librarians and faculty to create a cohesive curriculum for information literacy. The IDEA model is based upon behavioral and cognitive learning theories with an emphasis on Sweller’s (1988) Cognitive Load Theory. There are four steps in the model including the following:

1. Interview: collect information about the student including background, learning constraints, course, and information literacy content by syllabus analysis and instructor interview.
2. Design: identify information literacy goals, objectives, assessment, and content using a backward-design approach.
3. Embed: embed the information literacy content using effective strategies that minimize learning disruption.
4. Assess: assess the course effectiveness and modify the course content.

The librarian used formative and summative assessment methods at the end of the course including informal interview with the instructor to rate the learning outcomes, frequency count of research concepts (questions and discussions via email and forums). The information was used to make improvements in the course design to add specific activities and resources such as pathfinders for research topics, playlist of recommended streaming videos available through YouTube, and video screencast tutorials of identifying databases. The overall learning outcomes did not see any change. Student satisfaction increased with the librarian’s support, but there was a decreased rating of resources possibly due to the lack of reinforcement from the instructor to utilize the library’s resources and services.

**Practices of Embedded Librarians**

Librarians can provide access to specific resources in the library’s collection after analyzing the needs of the students. An important feature that librarians provide is a web-scale discovery platform that links print, electronic, and open educational resources into one search tool. Embedded librarians can create content specific course and subject guides, presentations, interactive tutorials, and screencasts to provide guidance and teach information literacy skills. Creating a virtual presence requires embedded librarians to communicate and collaborate with faculty to design relevant strategies and instruction for specific courses and assignments.

York and Vance (2009) performed a literature review and surveyed librarians to examine best practices for embedded librarians in online courses. Several best practices were suggested for embedded librarians including knowing the campus LMS and its administrators, providing a library link in the LMS, extending beyond the library link, avoid becoming overextended, be strategic with course selection and time, be an active participant in the class, and market the embedded librarian service. The authors noted that best practices are ever-changing and evolving. Collaboration among librarians, faculty, LMS administrations, and instructional designers will continue to be a vital strategy for embedded librarianship to adequately support online learners.

**Research Methods**

As a pilot study, librarians at a private university will design course content and embed library services in select online courses in the Canvas learning management system using a mixed methods research design. A combination of online surveys, usage statistics, and virtual interviews will be used to answer the following research questions:

RQ1: To what degree do students perceive an embedded librarian as a value-added service?

RQ2: How do the professor and librarian perceive an embedded service and its impact?

RQ3: How does the role of a librarian as an instructional partner in online courses impact the use of library services?

The results will be used to determine further implications for planning and implementing an embedded librarian service in all online courses.

**Conclusion**

Embedding librarians in online courses ensures distance students have direct access to library services and resources. When librarians partner with faculty to provide information literacy instruction built within the courses in a LMS, there are many benefits including students’ development of information literacy skills and academic performance in courses. The development of the student-librarian relationship is another benefit that has significant impact on students’ willingness to seek help in future courses. There are several embedded models and instructional design practices that can be implemented, but the most important factor in determining what will be the most effective requires analysis of the overall needs of the faculty and students.

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