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Leveraging Online Tutorials and Performance Assessment to Improve Information Literacy Instruction

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Abstract: Leveraging the campus learning management system and rapid e-learning development software such as Articulate Storyline allows educators to develop and deploy interactive tutorials for performance assessment of students' knowledge. This quick hit chronicles the development, deployment, and assessment of a suite of tutorials for information literacy instruction. Opportunities and challenges are highlighted as well as how working with a dashboarding tool such as Power BI can unlock hidden insights in the data and cultivate new collaborations. Visit the project GitHub (<https://marquetterml.github.io/information-literacy-modules/>) to utilize the tutorials at your own institution and add your input to the project.

Keywords: assessment, learning management system (LMS), information literacy, embedded librarianship, learner analytics, Brightspace, Articulate Storyline

The increasingly competitive budgetary climates at higher education institutions have required academic libraries to demonstrate how their information literacy instruction impacts student success (Detmering et al., 2019). Information literacy is defined as:

the ability to think critically and make balanced judgements about any information we find and use. It empowers us as citizens to reach and express informed views and to engage fully with society. (Chartered Institute of Library and Information Professionals Information Literacy Group, 2018, p. 3)

Tardiff (2021) posited that growing up as a digital native is not a guarantee that one has learned the necessary information literacy skills to navigate a choppy digital sea of increasingly polarizing and dubious information. Information literacy skills require students to evaluate and analyze sources, skills higher up in Bloom's taxonomy and not easily assessed by multiple-choice tests. Performance assessment is one method that can be used to assess these higher order skills. This quick hit describes how an academic library developed a suite of online tutorials to better assess and improve its information literacy instruction over the past decade in one of the largest course offerings at Marquette University.

Program Background

The Marquette University Raynor Memorial Libraries have participated in the English department's first-year English (FYE) program since the early 1980s. This program is the libraries' largest instruction partner with over 70 sections and up to 75% of incoming first-year students participating in the program. Although there is a set curriculum, instructors are given wide latitude to determine how to teach the curriculum. Each class is required to have a "research day" where a librarian visits the class for a session, introducing students to the libraries' resources and services that they will utilize for their research during their time at Marquette.

The signature pedagogy of library information literacy instruction is the one-shot session. The librarian is invited by the instructor to one class session lasting either 50 or 75 minutes to cover basic information literacy concepts such as how to find and use library resources. The effectiveness of one-shot instruction has been questioned by librarians since the 1960s because of the lack of time to adequately cover the necessary material and lack of follow-up opportunities with students (Phipps, 1968). A recent qualitative study of academic librarians' experiences with information literacy assessment found the same challenges encountered in the 1960s still prevalent today, including lack of assessment training, lack of campus support, and lack of appropriate assessment tools (Detmering et al., 2019).

Development, Implementation, and Assessment

In 2013 after staff changes in both the libraries and English department there was an opportunity to reimagine the libraries' information literacy instruction. Two outcomes were the establishment of an embedded librarianship model and the development of an online suite of information literacy tutorials to provide greater assessment and instruction flexibility.

Embedded librarians partner with faculty to provide library resources and instruction beyond the one-shot session. This can manifest in multiple ways, such as being enrolled in the learning management system (LMS) course site, codeveloping the research assignment, and providing feedback on annotated bibliographies and topic statements (Franzen & Sharkey, 2021). Prior to implementing the embedded librarian model, librarians signed up for research days, not to work with specific instructors. This created scenarios where an instructor teaching two sections might work with two different librarians. Asking librarians to sign up to work with an instructor, not a section, allowed the librarian to have more communication opportunities with that instructor and to "friend-raise" during those interactions, that is, begin to create a closer relationship; this often resulted in the instructor asking to work with that librarian in future semesters because of the rapport developed between the two. The libraries also collaborated with campus information technology (IT) professionals to create a librarian role in the LMS. Librarians were automatically enrolled in the LMS course site, allowing them to post content and create discussion forums and surveys but not to view or assign grades. Access to the LMS course site provided an additional touch point for librarians to interact with students and allowed the librarian to see what content the instructor was sharing with students about the research assignment and other topics covered in the course.

During the summer of 2013 an instructional designer and a pair of instruction librarians interviewed FYE instructors and instruction librarians to determine the learning outcomes for the tutorials and assess the information literacy competencies students would need and what concepts students had struggled with in prior semesters. The tutorials would utilize performance assessment, which according to Orr and Hollingsworth (2020), shifts from assessing factual knowledge to assessing critical thinking skills through authentic tasks that provide better evidence of competency than multiple-choice assessments. With the learning outcomes and assessment strategy determined, the team spent the summer developing eight stand-alone tutorials with the e-learning authoring tool Articulate Storyline. To allow others to utilize and expand the tutorials, source files and working demos were placed on GitHub (<http://marquetterml.github.io/information-literacy-modules/>).

After a positive pilot in fall 2013, in fall 2014, The Academic Research Introduction tutorial was required to be completed by students before the research day. The tutorial provided students with a video demonstrating how to search an academic database before requiring them to engage in a practice search activity based on what was demonstrated in the video. This practice activity required students to state a topic they were interested in and create a search statement using two keywords and a Boolean command. Students then used this search statement in an academic database and were asked

to input the title, publication, and year of a result that best addressed their topic. Finally, students were asked to write a brief reflection on their experience.

Reviewing student responses in the LMS before the research day allowed librarians to tailor their instruction to address gaps in student information literacy knowledge and skills instead of offering a generic instruction session. With introductory topics such as navigating the library website and searching an academic database already covered in the tutorial, the librarian had more time to engage in higher level discussions such as evaluating resources to determine credibility and bias.

In fall of 2105 the libraries undertook a study with Institutional Review Board approval to review student responses from the Academic Research Introduction tutorial. One hundred and seventy-seven students from 17 sections opted to participate. Analysis of the responses showed that 90% of students chose appropriate Boolean commands, 55% chose good keywords for their topic, and 70% recognized publication titles in the results they chose (Beech & Kowalik, 2018). Without a pretest, the analysis provides only a snapshot of information literacy skills students could demonstrate the day they completed the tutorial. However, it demonstrated how these tutorials could be used to collect and assess data on student information literacy knowledge, and with access to the course LMS, tutorials could be inserted throughout the semester, providing an opportunity to track development of students' information literacy skills over the semester.

Project Evolution

In 2016 the FYE leadership roles in both the English department and libraries changed again and the curriculum transitioned from a topical focus and traditional research papers to multimodal assignments such as short videos, podcasts, and posters. This shift greatly increased the embedded librarianship opportunities and led to a decline in tutorial usage. The pandemic pivot to remote instruction in 2020 revitalized interest in leveraging the tutorials for information literacy instruction in FYE and other courses. This renewed interest necessitated the following changes.

Improved Accessibility

The original tutorials lacked consistent adherence to electronic accessibility standards. The libraries remediated the tutorials to ensure consistent accessibility compliance to provide an inclusive learning environment. One example of accessibility remediation was ensuring that students could make use of the drag and drop functionality without the need for a mouse.

Streamlining Installation

Initially the cumbersome installation process for loading the tutorials into the LMS required an instructional designer to manually load the tutorials into each of the 77 FYE LMS course sites. The pandemic pivot necessitated creating a simple self-service way instructors and librarians could add the tutorials. Collaborating with campus IT, the libraries loaded the tutorials into the master course shell of the LMS, allowing users to load the tutorials with a couple of mouse clicks. Instructions on how to add the tutorials and review the student responses were added to the library website (<https://libguides.marquette.edu/learningobjects/skills-tutorials-d2l>).

Leveraging Learner Analytics

The LMS does not make extracting student tutorial responses intuitive or easy. Campus IT was able to develop a Power BI dashboard (data visualization tool) that collects usage data of the tutorials in

any LMS course site (Kowalik, 2021). This has streamlined the review process and helped the libraries discover courses they were not aware were utilizing the tutorials, providing a friend-raising opportunity to cultivate future collaboration opportunities.

Conclusion

Budget constraints in higher education require staff to document how their work impacts student success to maintain current funding levels and justify requests for funding increases. Utilizing online tutorials for authentic assessments that provide better evidence of competency in higher order thinking skills than multiple-choice assessments is one way to achieve that goal. It also has the added benefit of allowing librarians the flexibility to offer instruction in the modality and time that works best for the instructor, leading to a stronger partnership between the two parties that can lead to future partnership opportunities. Sharing the source code, I invite others to adapt and expand on these tutorials and to consider sharing their own experience in a future quick hit article. Through sharing our successes and failures, we can achieve virtually anything.

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