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Design Matters: How a Course Review Informed Online Teaching Best Practices

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Design Matters: How a Course Review Informed Online Teaching Best Practices

Abstract

This article discusses how an Applying the Quality Matters (QM) Rubric for Higher Education workshop impacted the online teaching practice of three academic librarians. The QM Rubric was used to review and update a credit-bearing information literacy course taught by the authors' department. The authors reflect on how this training influenced their relationship to online teaching during the COVID-19 pandemic (and beyond), using examples from their own experiences to demonstrate how instruction librarians contributed to online education during this period and how they used sustainable teaching practices to lessen the workloads of their teaching colleagues. Future steps include improved documentation, assessment, management, and maintenance of digital learning objects used in online teaching.

Keywords: instructional design, learning management systems, libraries, evaluation of online environments

Introduction

After the pivot to online teaching during March 2020, educators worldwide experienced continued uncertainty about instructional delivery methods in subsequent semesters due to unpredictable pandemic conditions. During this period, instruction librarians at Bowling Green State University (BGSU) prioritized online learning projects during spring and summer 2020 in preparation for continued remote learning during the fall semester.

The result was the creation of a variety of instructional materials available for reuse, most notably, microlearning videos and course modules that could be shared and used by instruction librarians in the Library Teaching and Learning Department at BGSU (hereinafter referred to as "the department").

Reflecting on this experience revealed how the Quality Matters (QM) training the authors attended in March 2019 heavily influenced online instruction practices during the pandemic and continues to influence the changing nature of library instruction moving forward. As Char Booth noted in Reflective Teaching, Effective Learning: "Part of being a reflective practitioner involves thinking about how what you are working on today can save you (or a colleague or student) time tomorrow[1] (p. 20)". During the pandemic shift to online teaching, the authors learned to prioritize sustainable teaching by reusing existing digital learning objects and available materials.

The purpose of this article is to reflect on how QM training influenced the authors' online teaching experiences and examine how academic librarians contributed to online library instruction efforts during the pandemic. The authors will supply examples from their own teaching and discuss how the COVID-19 pandemic changed their relationship to online teaching.

Context

Library Instruction

On college campuses nationwide, library instruction is typically delivered in a one-shot instruction model. Some faculty members invite librarians to their classroom, usually once during the semester, to provide instruction tailored to a specific assignment or project. In other words, academic librarians rely heavily on invitations from subject discipline faculty to provide information literacy instruction. As a result, librarians often lack important context about research assignments and rapport with students, which creates challenges for all involved. In fact, some librarians advocate for an end to the one-shot model[2,3]. Despite these struggles, the one-shot model is still the most common way academic librarians interact with students in the classroom "due to time available, willingness of faculty to collaborate, and other barriers"[4 (p.163)]. Other forms of instruction librarians engage in include teaching credit-bearing courses, conducting workshops for students and faculty, creating online materials (like research guides and videos), and providing one-on-one instruction during student research appointments and interactions at the reference desk.

Library Instruction at BGSU

At the BGSU library, instruction consists mostly of one-shot instruction sessions but also includes the teaching of a 1-hour online credit-bearing course (Introduction to Library and Online Information Research, LIB 2210), Individual Research Appointments (IRAs), and the creation of digital learning objects, such as online Research Guides, videos, and tutorials. Even though librarians in the department feel consistently overloaded by their competing job responsibilities, librarians interact with only a fraction of the students on campus. This is a common problem in academic librarianship: limited staff and increasing demand for more teaching.

In Fall 2019, the department was charged to increase the number of course-related instruction sessions to reach more students and broaden the teaching of information literacy on campus. Additionally, the department was asked to teach seven sections of the library's credit-bearing course (LIB 2210, Introduction to Library and Online Information Research) to a total of 300 incoming first-year students. (Historically, librarians in the department would teach 1-2 sections per semester.)

To reach these goals, the department decided to:

- Develop digital learning objects that could be reused by other department librarians
- Create information literacy modules to embed in the learning management system (LMS)
- Use QM rubrics to review and update the LIB 2210 course template
- Train additional library instructors to teach LIB 2210
- Develop microlearning videos based on frequently asked questions

Typically, BGSU librarians create teaching materials individually with minimal sharing within the department. Creating reusable digital learning objects is a more sustainable way of teaching, minimizing instructional planning time, maximizing time spent with students, decreasing the cases of instructor burnout, and potentially reaching more students with information literacy instruction.

Like other academic librarians, the authors recognize the initial time investment in creating digital learning objects is significant but remain optimistic that these materials will both support current teaching and be reused in the future[5]. In the article, "A STEM e-class in action", Tomaszewski concluded that among the benefits of asynchronous learning materials is the ability to reach students at their point of need "while eliminating the many logistical issues encountered in face-to-face environment such as space, workshop time constraints, scheduling conflicts, computer facilities, and the sheer number of students needing instruction each semester"[6 (p. 9)]. Reusing and sharing teaching resources is a common practice the authors have adopted to align with strategic initiatives and enhance the learning experience in online classrooms. As Dick and Carey advocated in The Systematic Design of Instruction,

> instruction is designed not to be delivered once, but for use on as many occasions as possible with as many learners as possible. Because it is 'reusable,' it is worth the time and effort to evaluate and revise it.[7 (p. 8)]

Quality Matters for Higher Education Rubric

The Quality Matters (QM) for Higher Education rubric evaluates the quality of synchronous and asynchronous online courses. Thousands of higher education institutions have used the rubric to ensure the successful learning experience of online students[8]. The sixth edition of the Review Standards of the QM Higher Education Rubric includes eight standards: Course Overview and Introduction, Learning Objectives, Assessment and Measurement, Instructional Materials, Learning Activities and Learner Interaction, Course Technology, Learner Support, and Accessibility and Usability[9].

Although originally developed for synchronous and asynchronous online courses, the QM rubric can be applied to any course that has an LMS presence, including hybrid and face-to-face courses. Since it combines multiple instructional design and accessibility best practices into one rubric, it can be applied to other instructional materials in addition to the credit-bearing course.

Academic librarians have used the QM Rubric and its standards as a benchmark to review tutorials and improve digital learning objects such as online workshops[10,11]. Goodsett advocated for librarians to apply the QM Rubric when creating digital learning objects such as research guides, tutorials, and webpages[12]. Farmer et al consulted some of the QM standards as they created library instruction modules, and librarians at Grand Valley State University used the QM Rubric during their peer review process of new courses[13,14]. These librarians demonstrate the rubric's flexibility as an instructional design model.

The authors applied alignment, the hallmark of QM, to create asynchronous LMS modules containing reusable content, rather than teaching multiple synchronous online sessions. More specifically, they aligned "critical course components" (identified by QM as learning objectives, assessment, instructional materials, learning activities, and course technology) to "reinforce one another to ensure that learners achieve the desired learning outcomes"[15 (p. 5)]. These are the specific review standards the authors used to achieve alignment when creating digital learning objects:

QM Standard	Specific Review Standard
1. Course Overview and Introduction	The overall design of the [module] is made clear to the learner at the beginning of the [module][16 (p.10)]. The overall design of the [module] is made clear to the learner at the beginning of the [module][17 (p.10)].
2. Learning Objectives	Learning objectives describe what learners will be able to do upon completion of the [module][18 (p. 16)].
3. Assessment and Measurement	Assessments are designed to evaluate learner progress in achieving the stated learning objectives[19 (p. 20)].
4. Instructional Materials	Instructional materials enable learners to achieve stated learning objectives[20 (p. 24)].
5. Learning Activities	Learning activities facilitate and support learner interaction and engagement[21 (p. 28)].
6. Course Technology	Course technologies support learners' achievement of [module] objectives[22 (p. 32)].

QM Review of LIB 2210

When two of the authors were hired as Reference & Instruction Librarians at BGSU in Spring 2019, the department chair asked them to attend the Applying the QM Rubric for Higher Education Workshop to prepare for revising, updating, and evaluating the library's credit-bearing course LIB 2210 under the QM rubric.

Previous LIB 2210 instructors articulated concerns about students' struggles to navigate the course content within the LMS and successfully complete assignments. Attending the QM training was essential because it provided the authors with a framework to review the course, revise the learning objectives, and increase student success. It utilized the instructional design skills of the recently hired librarians in designing and delivering online library instruction.

After reviewing the course, the following major recommendations made were:

1. Update the course learning objectives to align with the Association for College & Research Libraries Framework for Information Literacy.

2. Create module-level learning objectives that connect to the course learning objectives.

3. Create module overviews including module learning objectives, readings, quizzes, and assignments for the week.

These recommendations improved the student usability and navigation of the course, meeting Standard 8: Accessibility and Usability and created module-level learning objectives consistent with the course-level objectives, meeting Standard 2: Learning Objectives.

In particular, the revised course helped librarians better manage teaching LIB 2210 in addition to their regular departmental job duties. Half of the instructors teaching LIB 2210 in the Fall of 2019 were new to asynchronous teaching pedagogies and/or the LIB 2210 course. To support these new instructors, the authors created an Instructor Toolkit. This toolkit includes weekly instructor task lists, examples of excellent student work, and quiz answers that require mediation. The LIB 2210 Instructor Toolkit continues to be updated and shared with instructors as a means of engaging in sustainable instruction.

Teaching Examples
In this section, the authors use examples of their online teaching and creation of digital learning objects during (and beyond) the pandemic to demonstrate how they applied the QM Rubric for Higher Education outside of the review of LIB 2210.

Microlearning Videos
The microlearning video project began with a departmental discussion of how Generation Z learns. Generation Z students (born during the mid-1990s to the early 2010s) especially benefit from microlearning. Immersed in visual media (TikTok, YouTube, etc.), 45% of Gen Z students prefer study materials with online videos and 64% prefer websites with study materials[23]. According to a study by The Harris Poll, Gen Z prefers videos, learning apps, and interactive games more than Millennials, who preferred printed materials, like books[24].

Requests for videos demonstrating library resources and services were frequent, both from faculty, who wanted to use them for instructional purposes, and students, who may prefer to watch how to do something rather than read instructions. In fact, librarians received requests for videos from students in post-instruction surveys. When asked "Is there anything else the library can do to help your success in your classes?", their responses included the following:

> "Provide aid [sic] videos that show step-by-step how to use the databases in case we forget specific things."

> "If students cannot [attend class] in person, to maybe have a voice over video to watch."

To respond to these requests and student needs, a task force including four librarians from three UL departments scripted and created the microlearning videos. Topics were selected from a list prioritized by public service staff who frequently interact with patrons. The first round of creation focused on frequently asked questions about library tasks or processes specific to the BGSU library, such as requesting articles via interlibrary loan, finding physical materials in the library stacks, and searching online collections. The goal of this project was to create a reusable repository of short videos to share with students seeking research assistance through the library's virtual reference chat services and for point-of-need instruction when library staff were not available for assistance.

The task force followed best practices for creating instructional videos, including scripting, concise and casual writing, and simple design[25]. Learning objectives were written for all videos, meeting QM Standard 2. Since the videos were designed to be short (less than five minutes), a maximum of one learning objective per video was encouraged. Videos were recorded and edited using Camtasia software and uploaded to the Jerome Library public YouTube channel. All videos included a Creative Commons Attribution Noncommercial ShareAlike 4.0 International Selected License. Accessibility Standards from QM were also followed:

QM Standard	Specific Review Standard
8. Accessibility and Usability	Provide alternative means of access to multimedia content in formats that meet the needs of diverse learners[26] (p. 40).
	Multimedia facilitate[s] ease of use[27] (p. 40).

Four videos were completed by Summer 2020. By the end of 2021, 12 videos were included on the library YouTube channel. Because of the online shift during the pandemic, these videos were frequently used in asynchronous online instruction. As of December 2021, the 12 videos have been viewed more than 1800 times. Members of the department continue to work on new videos focused on broad research and information literacy skills and update existing videos as needed.

Although the project began with a focus on Generation Z, microlearning videos have been used by all levels and populations of students. They make library resources more accessible to distance learners and are valuable and inclusive teaching tools. They allow students to learn at their own pace and contextualize concepts and ideas in different modalities. In addition, closed captioning (and/or transcripts) allows students with learning disorders or non-native English speakers to read along as they watch. The creation of the videos has made library services and instruction more accessible and inclusive for students and more sustainable for librarians.

Learning Management System Modules

Digital learning objects embedded in the LMS have proven to be successful instruction tools at other academic libraries. Despite the initial investment of time and effort, Mune et al. concluded that "…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"[28] (p. 115). Similarly, librarians at University of Arizona reported that students used library research guides embedded in the LMS "more frequently and more consistently throughout the semester than they do from the guides they have to locate from the library's main webpage"[29] (p. 265).

Some of the heaviest users of library instruction at the authors' institution are instructors or teaching assistants who teach in the University Writing Program (WRIT 1110 and WRIT 1120) and Introduction to Public Speaking (COMM 1020). The University Writing Program and the School of Media & Communication offered 81 sections of WRIT 1120 (some of which were taught at area high schools for college credit) and 40 sections of COMM 1020, respectively, during academic year 2020-2021. As such, these courses were the high priorities to be converted into asynchronous LMS modules during the shift to online-only learning. Notably, the modules provided flexibility for dual-

credit high school students to also receive library instruction as full-time undergraduate students during (and beyond) the pandemic and for instructors to integrate them in their courses and use them as point-of-need instruction throughout the semester.

All LMS Library Modules included an introduction with an overview of what would be covered in the module, how the module was structured, and module learning objectives. These were included to align the modules with QM Standard 1: Course Overview and Introduction and Standard 8: Course Accessibility and Usability.

Modules were uploaded to Canvas Commons, a learning object repository in Canvas, and made available for BGSU instructors to import into their courses. For sustainability purposes, using Canvas Commons allows librarians to achieve a consistent design of information literacy modules as well as the ability to reuse and update the modules easily. Currently, Canvas Commons provides statistics for the number of times the module has been downloaded and/or favorited by users. Once a module has been downloaded the first time, users can copy a module into multiple courses or sections of a course without being counted as a download. BGSU librarians would like to see further analytics in Canvas Commons to have a better representation of the usage of the library's LMS modules and its impact on teaching information literacy across campus.

University Writing Program Modules
Traditionally, the department offered two types of in-person sessions for the University Writing Program courses: a pre-search session and a research session. The pre-search session focused on gathering background information and context about the students' chosen topics, along with generating keywords and related search terms. During the research session, instruction librarians highlighted search strategies such as Boolean operators, forced phrase searching, and truncation while they demonstrated how to search online library collections. After the brief demonstration, the librarian circulated the room as students searched for sources on their own. Librarians attempted to speak to each student individually to troubleshoot problems or make search strategy or keyword recommendations.

When it became necessary to adapt in-person sessions to an online environment, the First Year Experience (FYE) Coordinator developed and offered a single synchronous session which covered most of the pre-search workshop content and brief coverage of forced phrase searching and truncation. For those instructors who preferred asynchronous library instruction, the FYE Coordinator recorded microlearning videos using Camtasia to meet the same learning objectives covered in the classroom sessions, including generating keywords and time-saving search strategies.

The FYE Coordinator also created pre-search and research LMS modules, which included newly created and previously recorded microlearning videos, information literacy videos from ProQuest Research Companion (described below), worksheets created in-house and, added most recently, an assessment survey. When asked what students liked most about the module, one student mentioned the videos:

"I appreciate the videos that are attached in the module to go[sic] step by step the process of utilizing the different platforms and key features of them." As of March 2022, the WRIT 1120 Pre-Search Module and the WRIT 1120 Research Module have been downloaded 20 times and 11 times, respectively.

Introduction to Public Speaking Module

Since 2019, two department librarians have collaborated with the School of Media and Communication to offer library instruction for Introduction to Public Speaking (COMM 1020), working from a common lesson plan including learning objectives, instructional materials, and activities. During the class session, the librarians would select a sample topic to demonstrate how to develop a topic for their informational speech. The librarians modified the existing COMM 1020 Research Guide to support the in-class instruction session, including the library sources discussed, related microlearning videos, visual aid resources, and links to government websites for finding data and statistics.

To adapt the in-class session to an asynchronous LMS module, librarians provided existing videos and content from Mike Caulfield's "Check, Please!" online course about the SIFT Method[30] as well as library microlearning videos discussing author expertise, the peer review process, and finding library sources. (SIFT stands for Stop, Investigate the Source, Find Better Coverage, and Trace Claims.) Potential classroom discussions and activities were included from "Check, Please!" for the instructors to use at their discretion. The authors included an "Information for Instructors" page including instructions on how to use and adapt the module for their needs and contact information for the subject librarians.

As of March 2022, the COMM 1020 Library Resources Module has been downloaded 23 times.

ProQuest Research Companion Modules

The library subscribes to the ProQuest Research Companion (PQRC) suite of videos. The PQRC videos support information literacy instruction by guiding novice researchers through the research process. Previously, they had been used in LIB 2210 but not incorporated into other library instruction. Although the content is not specific to BGSU library resources, the topics are general and can be applied to most undergraduate research assignments. The videos were designed at a level that could not be achieved locally because of lack of time, skill, technology, and adequate staffing. All videos include closed captioning, transcripts, learning objectives, and assessments, which align with QM Standards 2: Learning Objectives, Standard 3: Assessment and Measurement, and Standard 8: Accessibility and Usability. Users can also include their library's unique links, while videos and customized video playlists can be embedded to research guides, the LMS, and other websites.

Five modules were made available for faculty to import into their course via Canvas Commons:

- Getting Started with Research
- Choosing a Topic
- Where Do I Find Information?
- How Do I Evaluate Sources?
- Avoiding Plagiarism and Understanding Citation Basics

Modules included learning objectives, a curated collection of videos, and a quiz. Because of the nature of PQRC, the work in creating the modules was minimal. The existing learning objectives included in PQRC were used in the modules. Only the quizzes and Canvas Commons modules were created by one of the authors. To date, usage of these modules has been low, but the department hopes to increase use by promoting the modules to targeted faculty and/or departments, especially to graduate teaching assistants.

Future Steps

As teaching librarians continue to question the effectiveness of the one-shot instruction model, the creation of digital learning objects expands the traditional librarian instructional menu organically. Although the initial project propelled forward by the COVID-19 pandemic was a success at BGSU, the authors hope this work will be a permanent form of instruction in their department and see steps that need to be taken for future growth and success:

- More robust assessment and data collection for digital learning objects
- Tracking and curriculum mapping of digital learning objects
- Digital learning object maintenance and succession plans

These steps will make future online instruction even more sustainable. Gathering and analyzing feedback and assessment data from students will provide insight into how librarians' teaching can be improved, how the library benefits its users, and evidence to demonstrate the library's impact on students.

Conclusion

As the world reflects on how much has changed since March 2020, it is also important to mention how teaching practices and priorities have shifted. The pandemic provided an opportunity to help educators adapt to new teaching modalities more readily, specifically online and hybrid teaching. The QM training attended by the authors in 2019 provided a smoother transition to online instruction during the COVID-19 pandemic because of their prior experience with designing quality online instruction. Although traditionally applied to credit-bearing online courses, the authors recommend using the QM Rubric for Higher Education as a general instructional design framework for any online learning environment or materials, especially for those new to instructional design principles.

The authors' experiences creating microlearning videos and LMS modules have given them confidence working within the LMS and increased their teaching flexibility. No longer must they rely on the traditional one-shot model when it comes to library instruction. There are multiple

models for embedding asynchronous information literacy instruction, engaging with students, and collaborating with faculty.

Even if it is not an explicit part of their job duties, the authors encourage all educators to seek out instructional design training to enhance their (and their students') experience in all types of classrooms. The pandemic exposed weak links in online education which instructional design principles can strengthen. The Quality Matters Rubric for Higher Education provides a solid foundation in instructional design for anyone teaching online courses or creating digital learning objects.

Looking ahead, the authors see a transformation of library instruction into a multi-tiered learning experience. Asynchronous instruction and independent learning materials, like digital learning objects, support the traditional one-shot model in a sustainable way, expanding library instruction programs without increasing workloads for instruction librarians. To increase the success of asynchronous instruction, they hope to develop consistent ways of collecting data, assessing module learning objectives, and maintaining digital learning objects as an opportunity to make stronger connections with students and faculty and integrate information literacy into online courses.

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