

# Keep it Streamlined for Students: Designing Library Instruction for the Online Learner

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## Introduction

The term “distance education” is often associated with online learning, but it was first coined in the early days of correspondence courses. According to Toporski and Foley, distance education in the 1900’s strove to replicate the traditional classroom lecture through the use of either live or recorded material transmitted via satellite, television, film, or radio.<sup>1</sup> These were asynchronous technologies that kept in place one of the most stultifying aspects of the traditional classroom: instructors lecturing and students listening, passively learning by memorizing and taking notes. Fortunately, numerous classroom instructors are eschewing this mode of teaching for more active learning exercises, and in some cases “flipping” their classrooms, so that students learn by teaching one another in small groups engaged in active, practical exercises under the guidance rather than the tutelage of an instructor.

Web-based technologies offer a similar opportunity to revolutionize online learning. At the University of Maryland University College (UMUC), which has a long history of distance education (including correspondence courses initially), the library has embraced Web 2.0 technologies to offer information literacy instruction that engages students in active learning exercises. Streamlined content that utilizes multiple modes of online media reduces cognitive load for busy adult learners and simultaneously makes customizing and loading instruction material into online classrooms quicker and easier for librarians.

## Online Library Instruction: An Evolving Model

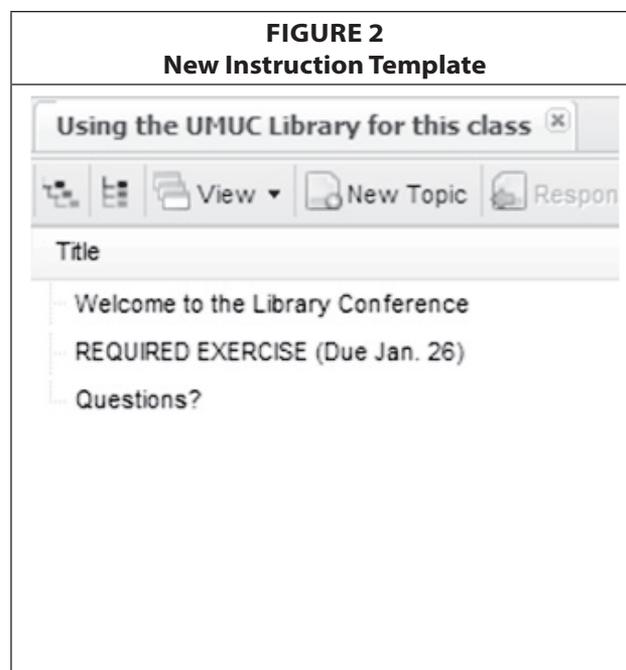
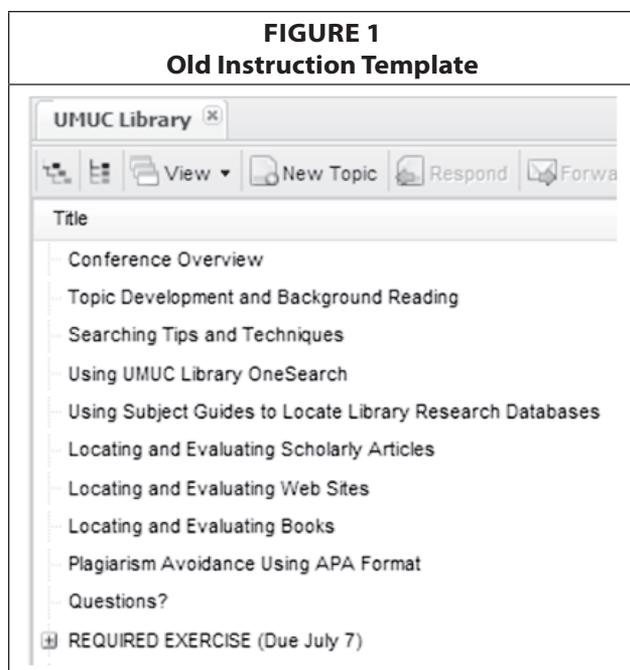
Our library’s previous template of instruction content had many virtues. It was based on solid learning outcomes that we mapped to UMUC’s overall vision for student academic success. The learning outcomes covered the entire research process: topic development, database selection, and searching for, evaluating, and citing sources. The previous instruction template engaged students in an active-learning exercise; when students completed the exercise, they received feedback from the librarian visiting their online class. Furthermore, the template made instruction scalable for our team of librarians by providing a foundation of uniform instructional content which could be tailored to the needs of different classes.

However, our instruction template needed to evolve. This can most readily be understood by comparing a screenshot of the previous template’s contents (Fig. 1) with a screenshot of the new template (Fig. 2).

The old template was simply too long and needed to be streamlined. It required students to review more than ten instructional modules before they arrived at the active learning exercise, whereas the new template greatly streamlines the instructional model by distributing content throughout the active learning exercise. A student who opens our new template reads a brief welcome message and explanation of the exercise and then delves into the active-learning exercise, without reading a mass of content first. What was preliminary content has been “chunked” and distributed through-

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out the exercise, in the form of hyperlinks, at points of need, i.e., each step of the research process. A student having trouble formulating a research topic for Question #1 could simply click the hyperlink “Choosing a Research Topic” above that question, and so on for each step in the research process. We streamlined our instruction while retaining its most important aspects: established learning outcomes, active learning, and individualized feedback to each student from a librarian.

In effect, the previous template replicated early models of distance education (for instance correspondence courses) in which students read through a large amount of course material before being tested on it. Our new instructional template makes instructional materials available (as will be shown below) by embedding the materials at points of need throughout the active-learning exercise. We have taken advantage of the online learning environment—incorporating hyperlinks, dynamic transcripts, and digital video—to streamline our instruction, making it substantive without being overwhelming. Approximately 71% of UMUC undergraduate students enrolled in our state-side programs work full-time; 47% of stateside students are working parents.<sup>2</sup> Given the enormous demands on our students’ time and attention, it would be a disservice to them not to streamline our instruction as much as possible; in fact, not streamlining our instruction would be counterproductive to the learning goals

we are setting for our students. According to cognitive load theory, effective instruction allows students to focus on activities that are “directly relevant to learning rather than to processes that are adjunct to learning.”<sup>3</sup> As much as possible, our instruction focuses exclusively on the processes and skills students need to find, evaluate, analyze, and synthesize the information they need. Furthermore, students can apply those processes and skills in any number of research contexts.

Our updated, streamlined instruction model aims not only to reduce students’ cognitive load—librarians’ workload is reduced as well. Instead of uploading ten or more separate instruction modules to an online classroom that he or she is visiting, the librarian only has to tailor material within the one active learning exercise and upload it to the classroom.

### Learning Objectives

Our library instruction helps students meet the following learning objectives, which we present at the top of the active learning exercise:

- Develop and revise a research topic
- Identify effective search terms
- Find sources in library databases
- Evaluate sources
- Cite sources
- Integrate information into a research project

These learning objectives follow the logical sequence of the research process and the exercise itself.

The learning objectives and the entire structure of the exercise emphasize the sequential nature of the research process and properly contextualize each step in the process. For novice researchers, we are offering a mental map of what they are about to learn and then reinforcing that lesson by presenting material in the same sequence. However, this serves a wholly different function for students who are experienced researchers or may have even completed this exercise previously in another class. For these students, the learning objectives allow them to review the steps of the research process and figure out for which of these steps, if any, they need to refresh their memory by visiting the appropriate link to instruction materials. It is entirely possible that they do not need to review any links at all. Nonetheless, the learning objectives serve as a mental checklist that allows students to determine this fact before they engage in the exercise.

### Text

It is important to note that the text of the active-learning exercise is not formatted as if it were a textbook published on paper. Screenshots, hyperlinks, digital video and dynamic transcript formats are heavily used to compress text and make it as easy as possible for students to digest and immediately utilize the instruction for their particular purposes, their own unique research need.

We use bold text, italicized text, and various font sizes to emphasize important points, denote important distinctions, and, ultimately, keep students' attention from lagging while reading a screen. In addition, we rely on declarative sentences, copious examples, and screenshots to avoid large blocks of paragraphed text.

### URL Links to Digital Tools

Our exercise contains links that bring students directly to the tools they will need to complete tasks. For instance, direct links are provided to the advanced search page of the library's discovery service within the question that requires the use of the discovery service. The same is true for links to subject guides and background reading materials. Crisp argues that this allows teachers to test higher order skills, develops self-analysis skills in students, and reduces dependence on teachers for affirmation and guidance, making the student more self-reliant.<sup>4</sup>

### Learning Styles

We have designed our online library instruction for various learning styles. For instance, students have the opportunity to review instructional text by reading it or, if they prefer, by viewing brief multimedia presentations that our librarians created using Adobe Captivate software. Visual learners might prefer to read the text, including dynamic transcripts that rely heavily on screen shots. Auditory learners are likely to prefer short videos in which librarians narrate the task at hand, with a visual backdrop. Throughout the exercise, kinesthetic learners have the opportunity to learn by following the sequential tasks and practicing/executing these steps with direct links to the necessary digital tools.

### Online Discussion

According to Hoskins, engaged learning in online education "results in higher achievement of student learning outcomes and increases retention rates."<sup>5</sup> A key component of engaged learning is quality interaction in online environments, in particular online discussions. This is why, within our instruction template, we load a module that specifically encourages students to post questions and begin discussion threads regarding issues they encounter while completing this exercise or during any research activities. Librarians also post questions and issues relayed to them by students through email or IM.

In addition, students post responses to the exercise in the online classroom, where students can view each other's work, the librarian's responses, and even comment on the work of others. Often students will comment on their own work or revise it once they have seen the librarian's feedback. The online discussion forum gives students "the opportunity for social interaction to collaboratively build knowledge" in a manner similar to traditional, face-to-face classrooms.<sup>6</sup> Student-to-student, instructor-to-student, and student-to-content interactions extend learning beyond the exercise as posted.

### Overview of the Active Learning Exercise

Below is a sampling of the questions that make up our active learning exercise together with an explanation of each question.

*Question 1: What is your research question or topic focus? Choose a topic directly related to this class.*

This question links out to a Web page entitled

“Choosing a Research Topic,” which is typical of the linked instructional content that we embed within the exercise. If a student needs to review skills related to choosing a research topic, our instructional content shows the student how to locate background readings to become more familiar with a topic, including subject encyclopedias; what to do if the student cannot find enough information on the topic; and what to do if the topic is too broad or too narrow.

Our instructional material is never one-size-fits-all: we tailor content to fit the needs of the online class we are visiting. As part of question 1, the librarian gives an example of how to narrow a broad topic down to a well-focused research question relevant to the particular course.

*Question 2: What are the main keywords from your research question, as well as any synonyms or related words? Connect these terms with Boolean Operators (AND, OR, NOT) to create a search statement. What is your search statement?*

Question 2 links out to a Web page entitled “Creating a Database Search” which features short videos on using Boolean Operators as well as how to use truncation, subject terms and a database thesaurus. Again, the librarian provides search examples relevant to the class.

Questions 3, 4, and 5 ask students to conduct a search using our library’s discovery service as well as a subject-specific database; we also have the student compare the results of the two searches. That leads to the next step in the research process and the next question in our exercise, which emphasizes critical thinking, as the students evaluate an article:

*Question 6: Choose one article from your search results and use it to answer each of the following questions:*

- A. *How can you tell whether the article that you found is scholarly and/or authoritative?*
- B. *Based on the article’s abstract, is the article relevant to your research question/topic? Explain.*
- C. *Is the article current enough for your assignment? Explain.*
- D. *Is this article in-depth enough to be useful for your assignment? Explain.*
- E. *Is this article available in full text? Explain.*
- F. *Are there any subject terms listed in the article record that you could use to run another round of searches with greater focus on your topic? How would you incorporate them into a new search statement?*

Question 6 links out to various Web pages that help students identify and locate scholarly articles; obtain the full-text of an article; identify useful subject terms within a database, and other information literacy skills.

Question 7 gives students practice in creating a citation for the article they have chosen, using the citation style required by the class instructor. Question 8 asks students what they have learned from the article they have chosen and how they plan to use the article in their class research project: the aim of this question is to help students integrate a source into their research and writing while further developing students’ critical thinking skills.

Those questions lead to the final step of the exercise, in which we have students engage in a bit of metacognition as they reflect on how they conduct research:

*Question 9: Please write a few sentences comparing the way you do research now with the way you conducted research in the past, before becoming familiar with online library skills.*

Again, once students have completed the active learning exercise described above, the librarian responds to each student individually with encouraging and helpful feedback. The librarian might suggest an adjustment to an overly broad research topic; alternative keywords or subject terms to further a student’s database search; formatting corrections to a citation; or any number of other comments to assist the student as he or she begins the research project for that class.

### Assessment

To assess the effectiveness of our library instruction, we ask students to fill out a brief, anonymous online survey after they have completed the library instruction session. Survey questions include asking students to rate the usefulness of the instructional content (the text and multi-media guides we link to) and the usefulness of the active learning exercise itself. Students rate how much the instruction session helped with the completion of their class research and the reinforcement of general information literacy skills. In addition, we ask students to rate the clarity of the instructional material and to say whether the material presented was the appropriate length. Student response to these assessment questions tends to be quite positive and remained so as we transitioned from our previous instruction template to the new model.

Students are also invited to write comments. One pattern that appears in the comments reflects some students' attitudes regarding our library instruction sessions in the online classroom vis-à-vis LIBS 150: Introduction to Research. LIBS 150 is the online, for-credit, library-research class that UMUC requires all undergraduates to take. Some students comment that our in-class library instruction session unnecessarily repeats the same content and concepts that the students already learned in LIBS 150. (Other students note that, though there is some repetition and overlap, they benefited from the review of LIBS 150 content that our instruction session presents.)

In fact, we believe our instruction sessions reinforce what students learn in LIBS 150, while also filling another, distinct purpose. Whereas LIBS 150 offers an excellent introduction to library research skills for undergraduates, it does so in a general sense, outside the context of a specific academic discipline. Our instruction sessions, on the other hand, focus on research skills relevant to the class we are visiting. We endeavor, in other words, not only to contextualize our instruction within an academic discipline, but we also focus on helping students to complete particular assignments and tasks. Our instruction sessions offer a structured way for students to begin their research for a project in the class we are visiting and receive feedback and guidance from a librarian. It must also be remembered that our library exercise allows students to structure their learning and/or re-learning of the research process. If a student who has completed LIBS 150 remembers all the steps of the research process and can competently complete each step, then the student can simply complete the exercise, which essentially replicates the steps needed to complete the class research project. Students who have not taken any previous courses or have forgotten what they learned can review instruction content by clicking the hyperlinks to the information they need. In fact, this format allows students to personalize and customize their own instruction.

One student offered a salient comment that coincides with our vision for further developing our instruction program. The student wrote: "These types of instructions/courses should be offered and mandatory in the early stages of a degree program and not towards the end." Indeed, we envision offering tiered instruction targeted to entry-level researchers through advanced researchers (upper-level students

with more academic experience). However, in a university that serves adult learners, many of whom matriculate with a good number of transfer credits, we can never be sure in a given class—whether it is 100- or 400-level—if all the students are at the same level of competence and experience with regard to their information literacy skills. It is the same problem faced by any instructor in a classroom filled with students of differing abilities: pitching instruction at a basic or at an advanced level becomes problematic. The design of our present instruction template attempts to span the spectrum of students' research needs, from the basic to the more complex, by offering the basic tools and skills necessary and providing links to more advanced material where appropriate.

## Conclusion

When offering library instruction in an asynchronous, online classroom, it is essential to weave encouragement, guidance, context, assessment, and the tools students need directly into the design of learning materials. Despite the availability of discussion groups, email, and instant messaging as forms of communication with both peers and instructors, students are likely to be alone when actually completing their work, without the immediate support of peers or a classroom teacher. It is easy for an online learner to lose their way in a poorly designed task and, if this occurs often enough, the student's sense of disorientation grows exponentially, culminating in students giving up on a task, an assignment, a class, and, perhaps ultimately, their degree. Thus it is critical to put great care and forethought into the design of online instructional materials. Library instructors, just like all educators, must engage students in active learning exercises that are contextualized, streamlined, customized, and, as much as possible, personalized.

## Notes

1. Neal Toporski, and Tim Foley, "Design Principles for Online Instruction: A New Kind of Classroom," *Turkish Online Journal of Distance Education* 5, no. 1 (2004). <http://tojde.anadolu.edu.tr/tojde13/index.htm>.
2. "UMUC at a Glance," University of Maryland University College, accessed January 30, 2013, <http://www.umuc.edu/visitors/about/ipra/glance.cfm>.
3. Toporski and Foley, "Design Principles for Online Instruction," 4.
4. Geoffrey Crisp, "Interactive E-Assessment: Practical Ap-

proaches to Constructing More Sophisticated Online Tasks,”  
*Journal of Learning Design* 3, no. 3 (2010): 1-10.

5. Barbara J. Hoskins, “Connections, Engagement, and Presence,” *The Journal of Continuing Higher Education* 60, no. 1 (2012): 52, doi:10.1080/07377363.2012.650573.
6. Ibid.