Scaffolding a Librarian into Your Course: An Assessment of a Research-Based Model for Online Instruction

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A course model featuring scaffolded information literacy instruction and connection with a librarian improves online students’ attitudes about library sources and the value of research in the writing process.

Integrating research skills into an online course can be challenging for both students and professors who design courses. Many college students are not prepared in high school to adequately complete their research assignments. Although we hope students will learn to use academic sources and journalism for their papers, in reality their information-seeking strategies often begin and end with Google and YouTube. Online students, faced with the extra challenges of navigating the learning management system (LMS), keeping track of due dates, and completing the writing required in fully online courses, may see research as an afterthought, rather than an essential component of their writing.

It is not uncommon for first-year students to think that research should mirror their personally held beliefs or to have other misconceptions about scholarship. The insertion of a librarian’s targeted research lessons and activities into the course and its writing assignments can be instrumental in developing students’ essential research skills and understanding of the research/writing process. Knowing this, the authors, professors from the English and library departments of a large, urban community college, partnered to integrate research instruction into an online Introduction to Literature course from fall 2012 to spring 2018. In this article, we give an overview of the course structure. Further details of how we designed the course have been published in our book chapter, “Making Library Research Real in the Digital Classroom: A Professor–Librarian Partnership” in Distributed Learning: Pedagogy and Technology in Online Information Literacy Instruction (Glisson and Secovnie 177–203). To assess the efficacy of our interventions, we used identical pre- and post-course surveys to discover our students’ attitudes and reported behaviors about research (see Appendix A for the survey questions). Our data, taken from their responses, suggests that the increased connections created by scaffolded interactions with a librarian improved student awareness and reported use of library-based re-

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search sources. These changes in the ways students view research, measured by the differences between their attitudes at the start of the course and those at the end of the course, confirmed that our scaffolded and connected approach to teaching research skills online was beneficial to students.

Scaffolded research lessons are preferable to the traditional library instruction lesson that attempts to cover library research strategies in a single hour. Rather than expecting students to retain and use the skills presented in a single library instruction class, we guided students to repeatedly access library resources and instructional videos that were tailored specifically to their needs in the course. Throughout the semester, we introduced a variety of research skills, through videos, online activities, and the librarian’s posts. We reinforced those skills in subsequent assignments. We also established a personal connection between the librarian and the students by giving her a space alongside the instructor on the course LMS (including a picture, office hours, and a personal note). She connected with students through introductory and research-based discussion boards and via email and in-person appointments with students. By emphasizing a scaffolded approach bolstered by personal connections, our complete course is well suited to the challenges community college students typically encounter as they balance multiple priorities.

The Complete Course

English 201: Introduction to Literature is a required course for every student at our college. Following English 101: Composition, it asks students to improve their composition and research skills through reading and writing about literature in various genres. We began integrating library instruction into an online version of the course in fall 2012 and gradually built the modules for what we’ve called the “complete” course by fall 2014. The modules introduced distinct genres of literature (short stories, plays, creative nonfiction, and a novel). Each module included an assigned essay that developed different skill sets. Students revised and improved three of their four essays in the preparation of a final portfolio, which included a reflective essay on their writing process.

Module One: Establishing Connections

Our task in Module One was to establish strong personal connections with each online student. The course professor created an announcement in Blackboard that introduced the librarian and defined the ways that students could reach out for help. A “contact” tab in Blackboard provided the professor’s and the librarian’s contact information. A discussion board gave the professor, the librarian, and all the students...
Scaffolding a Librarian into Your Course

an opportunity to introduce themselves by sharing an interesting personal fact. Because we designed the course to be student centered, we created opportunities to connect with the librarian early in the semester and stressed her role in supporting student research activities. This encouraged students to reach out to her later for advice. Early in Module One, students were also asked to take our pre-course survey on their attitudes toward research.

**Module Two: Introduction to Research**

About three weeks into the class, when the course activities had become a routine, we began to work with students to integrate research into their writing by using scaffolded lessons. Several small tasks, developed by the professor and the librarian, introduced students to basic-level sources. The librarian prepared a short video tutorial on the elements of library research and academic honesty. The professor tested students after the video to assess what they had learned. They were able to watch the video multiple times and retake the test, to better retain the librarian’s instructions. For Essay 2, students were asked to use encyclopedia and newspaper databases to research a historical conflict of their choice and compare it to a conflict portrayed in Sophocles’s *Antigone*. The librarian posted an interactive online lesson on how to use the databases, with an assessment at the end, as well as video tutorials on how to log in and how to cite using MLA style. The students submitted an initial proposal with a tentative thesis and a list of chosen sources. The professor offered each student brief feedback targeted at the quality of sources used. After that, the librarian moderated a week-long discussion board, in which students could ask a variety of questions related to the following topics:

- Focusing a topic to get better research
- Keywords and subject terms related to their topics
- Recommendations of specific articles or books
- Navigating the library databases
- Integrating research into their writing
- Logging in to library sources from off-campus
- Citing references using MLA style

Thus, students were able to build their personal connection with the librarian and their research skills simultaneously.

**Module Three: Rest and Reset**

In Module Three, students wrote essays based on the genre of creative nonfiction. This functioned as a “research rest period,” when students could work creatively
on their writing skills and utilize the rhetorical styles of writing that they had learned. Though the assignment didn’t call for research tasks, we found that some students did use the research skills they had acquired in Module Two to bolster their essays. During Module Three, the librarian contributed a post in the weekly folder that demonstrated how creative nonfiction can deepen one’s appreciation and understanding of a topic. She suggested an essay by the author John McPhee on how he structures his writing. The intention was to encourage students to use works of creative nonfiction as models for their own writing.

Module Four: Intensive Research

In Module Four, students worked on their final research essay, which required them to write critically about Chinua Achebe’s novel *Things Fall Apart*, using themes that they had studied throughout the semester. Students had already learned to use simple newspaper and encyclopedia articles for Essay 2. Now we asked students to search for works of literary criticism about Achebe’s novel from academic journals, books, or ebooks. The professor had already provided several literary criticism articles related to *Things Fall Apart* as students finished the novel. After reading the articles, students were assigned a worksheet that required them to break down each article into its thesis, key ideas, and evidence, and then to analyze their own ideas about the article. As students developed their topics, they searched for literary criticism, supported by the librarian’s three-minute video that focused exclusively on how to find works of criticism related to *Things Fall Apart*. She also offered research consultations, a list of suggested sources, and a week-long discussion board that encouraged students to integrate the critics’ ideas with their own analyses of the novel. Moderating the discussion board, the librarian noticed that her answers benefited other students who posed similar questions, since she could suggest that they read her answer to their peers in addition to her answer to their question. Occasionally, students would chime in with their own answers in the discussion boards, which showed the librarian that they were engaged in research strategies. Because the librarian handled research questions, the professor had more time to concentrate on supporting students’ writing process: giving feedback on proposals and annotated bibliographies, discussing their essay drafts in conferences, and helping them focus on revising essays for the portfolio.

Final Portfolio: Revise and Reflect

Each final portfolio began with an introduction that asked students to reflect on both their writing process and the products of their work. Students were expected to use the feedback they received to improve their writing for the final portfolio. The librarian posted announcements detailing her availability for support and helped students choose better or additional research for the revisions of Essays 2 and 4. When they turned in their portfolios, we asked students to take the same survey that they had completed in Module One, to help us gauge changes in their attitudes about research after our interventions.
Methodology
Having received IRB approval, we administered identical pre- and post-course surveys in our courses from fall 2015 until spring 2018 that furnished the data reported in this study. We wanted to utilize the tools offered by the scholarship of teaching and learning (SoTL) to help us better understand our students’ attitudes about research and to thus improve our teaching. We sought to discover if our methods made a difference. Our experimental model falls under the quasi-experiment mode, which uses “intact groups of subjects, for example, students in one classroom,” to better understand more general trends for community college students who are learning to write in online courses (Goubil-Gambrell 585). According to Mary M. Juzwik et al., experimental and quasi-experimental methods are rarely used in research on writing, and longitudinal studies are even more rare (467). We think, then, that our work offers an important contribution to the existing literature. We collaborated on the survey’s creation, which was integrated into Blackboard’s “Tests, Surveys, and Pools” tool. Statistical data was compiled in Blackboard, which aggregated the results by section. Results were anonymized; no student response could be matched to any individual student. Then we analyzed data across all the sections, grouping similar sections together into three types (explained below). Across ten sections, 160 students completed the pre-course survey, and 107 students completed the post-course survey. We offered students a minimal amount of extra credit for completing both pre- and post- surveys.

Our study contains data from three distinct course models. The “complete” course model utilized survey data from students across five sections that ran from fall 2015 through spring 2017. The “control” course model utilized survey data from three sections of students who were taught without any interventions by the librarian in fall 2017. The “modified” course model utilized survey data from students who completed the course in spring 2018, when the librarian’s participation was less intensive. Our attached chart, detailed in Appendix B, describes the distinctions among these three course models. In our assessment data, we refer to these three groups using the terms complete, control, and modified.

Although the statistical data from the surveys by no means represents a complete picture of how all students perceived their research experiences, we noticed trends in students’ attitudes and understanding of the role of research in our course. By conducting our research over the course of many semesters, we were able to...
reduce variability that might result from any given cohort of students. With the addition of the control and modified course models, we noted that our complete course model worked best to improve students’ attitudes about library sources and the value of research. Because our study was a long-term collaboration, we gathered ample data. In contrast, most comparable studies were limited in scope to only one semester. One study took place over two semesters (Fleming-May et al.). Only three studies included assessments of five semesters (Fain; Paterson and Gamtso; Pickard). What follows is a description of three similar studies, to demonstrate how our work augments the existing research.

Academic librarian Margaret Fain confirms that few studies examine the data for more than one year. She asserts the importance of such longer-term assessments in gathering information about student attitudes and behaviors (111, 118). Her study used the assessments of pre- and post-tests given over five fall semesters to first-year college students enrolled in in-person English 101 courses. However, there were two main differences between her study and our study: Fain changed certain test questions over the course of the five years to “more accurately reflect the concepts and resources covered in the library instruction sessions.” She also sometimes changed questions midsemester to reflect “changes to library policies or terminology” (Fain 117). We chose to use the same survey questions, with identical language, in order to preserve consistency across semesters. Also, control course models were never used in Fain’s study. It was important that we include control and modified course models to understand which of the librarian’s interventions were most effective.

Susanne F. Paterson and Carolyn White Gamtso’s study used a pre- and post-course test that required both multiple choice and written answers. However, they limited the test to only the 18 students who were enrolled in the course for their capstone experience projects over five years (Paterson and Gamtso 146). This possibly skewed the data to the strongest students in the course who elected to enroll in a capstone project. Paterson and Gamtso conclude that they “need to determine if what they saw in this small population is typical of graduating seniors in the college as a whole” (150). In contrast, our sample size of 160 pre-surveys and 107 post-surveys across ten sections provides a broader sample. Paterson and Gamtso’s survey, similar to ours, employed questions that asked students to describe the research methods that they used and included at least one question that asked students to describe in more detail their research process or strategies. However, Paterson and Gamtso’s reflective question changed in the post-course test: They asked students to reflect on how their skills “as a researcher have developed or been enhanced” during the course (153). While this likely provided valuable information on student perceptions of their growth, it does not conform to the pre- and post-survey methodology that we chose to maintain.

Elizabeth Pickard’s five-semester project, like ours, served students in an asynchronous, online-only course. She partnered with anthropology professor Sarah Sterling to scaffold library instruction into Sterling’s already existing assignments in her 300-level sections. As a way of assessing information literacy instruction, Pickard
and Sterling looked at the quality of students' bibliographies from the following courses taught over five semesters:

> One online section that had intensive scaffolded lessons, similar to our complete course
> Two control online sections that had no contact with the librarian, similar to our control course
> Two online sections that had limited “sustainable scaffolding,” similar to our modified course
> Two online sections that had minor scaffolding
> One classroom course (not online) that included a conventional one-hour library instruction session (Pickard 181)

The assessments were limited to the quality of the students’ bibliographies. Pickard discovered that the intensive scaffolded model was most effective, but she concluded that it was not sustainable (178). While we agree the complete course model takes more time than a less intensive model of interventions, Pickard’s claim that she spent between ten and thirty hours per week on the project seems excessive. Even during the initial stages of course design, the librarian never exceeded more than ten hours per week.

We recognize that our survey attempts to measure a wide range of student attitudes across a variety of variables. As Patricia Goubil-Gambrell argues, in quantitative research “an experimental study must have internal and external validity. Internal validity means that the difference in the dependent variable [in our case, improved student awareness of the value of research] is actually a result of the independent variable [in our case, library-based interventions]” (587). In terms of internal validity, because we taught the course online, we could account for the teaching itself being fairly standardized across semesters. The online learning management system allows one to copy a course into the following semester’s shell, and we utilized this feature throughout our survey period in order to ensure students were receiving the same instruction. When we analyzed control and modified courses, we kept the basics of the course structure (readings, assignments, etc.) substantially the same, to guarantee that the effects we measured were related to the librarian’s interventions. We wanted to confirm that the interventions themselves were the cause of the improved student attitudes, as opposed to the regular growth students might achieve simply by taking the course.

In terms of external validity, which Goubil-Gambrell defines as the results of the study being “generalizable to other groups and environments outside the

While our study is concerned with student attitudes toward research, rather than student outcomes, we believe that improving student attitudes will likely allow them to achieve greater outcomes over time, as they improve their use of and access to library services throughout their college careers.
experimental setting” (587), we believe that other online learners in basic composition and literature courses that emphasize research skills would fare similarly, having been exposed to similar interventions. The only way to ensure this validity would be to conduct similar studies in other online community college courses. Finally, while our study is concerned with student attitudes toward research, rather than student outcomes, we believe that improving student attitudes will likely allow them to achieve greater outcomes over time, as they improve their use of and access to library services throughout their college careers.

**Background on Scaffolding Library Instruction**

While scaffolding is a common technique used in composition courses, it is not frequently used for in-person library instruction. However, some librarians have experimented with scaffolded library interventions in online courses. Library literature in the first decade of the twenty-first century described new ways that librarians connected to online students via discussion boards, blog posts, and videos (Kraemer et al.; Tumbleson and Burke, “When”). Several authors asserted that scaffolded library instruction encouraged online students to connect with the library to gather research (Jackson; Stewart; Daly). Articles by Judy Xiao and David Traboulay and by Dee Bozeman and Rachel Owens described library assignments that were built into professors’ online syllabi in collaborative partnerships. More recently, several books have focused on the efficacy of library interventions in online courses. For more detailed advice about partnering with librarians online, Elizabeth Leonard and Erin McCaffrey’s book *Virtually Embedded: The Librarian in an Online Environment* is very useful. Works by Beth E. Tumbleson and John J. Burke (Embedded) and by David Shumaker offer further insight into the practice of embedded librarianship.

Stephanie N. Otis’s book chapter “Sources before Search: A Scaffolded Approach to Teaching Research” in *Successful Strategies for Teaching Undergraduate Research* describes scaffolded activities that help students evaluate source materials for usefulness and credibility before they begin their research paper. Scaffolded information literacy instruction enhances student comprehension and retention of skills through practice (Paterson and Gamtso; Malenfant and Demers; Radom and Gammons; Jackson). Elizabeth Pickard found that “with more intense ILI [information literacy instruction] scaffolding . . . students’ bibliographies became more substantial” (179). Paterson and Gamtso’s student surveys indicated that their scaffolded information literacy lessons clarified the research process for their students and changed the way that students evaluated potential research materials. They stated, “Because sessions built on the student’s existing knowledge base and provided multiple opportunities to apply those skills, the student was able to progress to higher-order thinking regarding the nature and use of materials found” (146).

While Paterson and Gamtso’s English capstone course was not online, the authors used the concept of intensive scaffolding to teach skills incrementally, as we did in our course. Vincent L. Salyers et al. created a scaffolded e-learning model, ICARE (Introduction, Connect, Apply, Reflect and Extend), with learning modules that are designed as timed “chunks” and delivered in phases, allowing their students
to engage in the course material as a community, through diverse activities (7). We designed our complete course model to achieve similar goals.

**Scaffolded Instruction in Our Course**

We scaffolded library instruction into the structure of our course at every stage of the writing process. Each lesson built on the one that came before it. In this way, students developed confidence and expertise as they completed each assignment. We knew that for many students, the log-in process was a barrier to using library databases. Therefore, we presented instructions on how to access the library materials in both written and video formats before they had to find research. In Module One, students made contact with the librarian and were informed how to get help from the library. Instead of providing students with PDFs in Blackboard, we asked them to search for articles that were on the required reading list. This gave them initial experience in searching the library’s databases that was helpful when it came time to do their essays. In Module Two, students watched the general library instruction video, practiced logging into library databases, prepared MLA style citations, and completed a low-stakes research assignment, using the encyclopedia and newspaper databases. In Module Three, students focused on writing style and forms of argumentation. In Module Four, students brought all these skills together to prepare a more demanding essay about Chinua Achebe’s novel, using research from works of literary criticism. By the time that they wrote their final essay, most students understood the basics of logging in and navigating several types of sources (encyclopedia and newspaper sources, literary criticism from peer-reviewed journals, books and ebooks). The final portfolio assignment gave them the opportunity to find more research for their revised essays, refine their writing, and reflect on their learning process.

Because we taught the simple tasks early on and repeated them in different writing contexts, the librarian observed that students asked more critical research questions in her online discussion boards, which indicated that they were beginning to engage more deeply with the content of the materials they found. Students used the discussion boards to brainstorm lists of possible key words that would retrieve better articles or ebook chapters in the databases. Later in the week, students would return to the discussion board to let the librarian know they were pleased with what they found and to ask about the articles’ content and how to integrate research into their writing more effectively. When research tasks were introduced gradually, using short, scaffolded lessons and multiple assignments, students could build on previously learned skills and acquire a better grasp of the research cycle.
Survey Data on Scaffolding

How did scaffolding impact students’ attitudes toward accessing library-based research sources in their writing? To answer this question, we wanted to understand a baseline for student library use before and after completing our course. One of the challenges we addressed in our complete course was the prevailing idea among students that the library was not a resource for them. Knowing that many students had never, or rarely, visited libraries, we wanted to know how they viewed the library as a site of research. Table 1 shows the results of students’ reported use of the library at the start of the course, and Table 2 shows their reported use at the end of the course.

Since we require students to use library-based research on at least three separate occasions for various writing tasks, we were pleased to see the shift upward of students’ reported library use in all courses. The complete courses moved the most common answer for library use from “1–2 times” (39% of students who answered the pre-survey picked this category) to “more than 4 times” (41% of students in the post-survey picked this category). In addition, while 18% of students at the start of the class admitted to never using the library, by the end of the course, this number had dropped to 6%, a decrease of 67%. Instead, the majority of students (73%), reported using the library.

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<th>Table 1. Reported Library Use among Students: Pre-Survey Results</th>
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Since we require students to use library-based research on at least three separate occasions for various writing tasks, we were pleased to see the shift upward of students’ reported library use in all courses.
either “2–4 times” or “more than 4 times” by the end of the semester, compared with 42% at the start of the semester, an increase of 42%.

In the control courses, students began with a higher number admitting to never having used the library (29%). This percentage dropped dramatically to 0% by the end of the semester. A striking difference, however, between the complete and the control courses was the relatively flat growth among the categories in the control courses. Although 65% of students in the control courses reported using the library “never” or “1–2 times” in pre-survey results, the shift upward was less dramatic, with more students falling into the “2–4 times” category than in the “more than 4 times” category (33% versus 32%). While the control courses did increase students’ reported library use, the gains were much more modest than those seen in the complete courses.

In looking at the modified courses, we saw a similar flattening out of students’ library use, with the top category in post-surveys being the “1–2 times” category (at 39%). In some ways, then, the students in the modified courses fared worse than those in the control section. The line graphs illustrate this well, where we see that all courses started with similar experiences, but that the modified and control courses showed an almost identical number of students reporting “2–4” or “more than 4” uses of the library (34% and 32%, respectively). In contrast, the complete courses showed students using the library “more than 4 times” at a rate of 56%. We attribute this to the use of videos and discussion board interactions with the librarian that did not take place in the control and modified courses.

We want students to feel comfortable turning to the library for their academic research needs, but it is also important that they understand the value of the various types of sources that they will find there. Our findings for survey Question

### Table 2. Reported Library Use among Students: Post-Survey Results

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<th>POST-SURVEY RESULTS</th>
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<tr>
<td>Complete</td>
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| NEVER | 20% | 15% | 25%
| 1-2 TIMES | 35% | 40% | 30%
| 2-4 TIMES | 25% | 20% | 25%
| MORE THAN 4 | 10% | 5% | 20%
6 (regarding sources) show that students who participated in the complete course reported greater use of library-based sources than both the control and the modified courses. Students in the complete course considered books and ebooks as sources as well as articles in databases. In the control and modified courses, in contrast, students relied primarily on articles from databases. Because they are accustomed to finding information online, students sometimes forget that books are also good sources—and that a book chapter can be read as quickly as a journal article. The enhanced connection with the librarian helped our students value a more diverse selection of research materials. Table 3 details this change. The complete courses showed an 11% increase in reported use of books and ebooks, while the control courses showed a drop of 42%. The modified courses followed the trend of the control courses with a more modest drop of 8%. Thus, the trend in the control and the modified courses was downward, with the modified course performing slightly better.

Similarly, the complete courses showed greater growth than the modified or control courses in the reported use of encyclopedias and newspapers. When we combine the statistics on students’ use of encyclopedia and newspaper sources, as we see in Table 4, we note the continued difference in scale that the complete courses provided. The complete courses showed an increase of 147%, while the control courses showed an increase of 21% and the modified courses showed an increase of 32%.

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The enhanced connection with the librarian helped our students value a more diverse selection of research materials.

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<th>TABLE 3. Students’ Reported Use of Books or Ebooks</th>
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<td>Pre-Survey</td>
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Students’ reported use of article databases such as JSTOR and Academic Search Complete showed increases across all course models, but the most significant increase occurred in the control and modified courses, as opposed to the complete courses. Table 5 shows the rate of increase from the complete courses to be a modest 29%, while the control courses increased by 54% and the modified courses showed an increase of 73% from the pre- and post-survey results.
The differences in article use between the complete courses and the control and modified courses occurred because students in the complete course reported using a wider variety of library sources, including books and ebooks. If one considers the range of research available for Essay 4, for example, some of the best materials on Chinua Achebe’s work, and certainly on the historical and cultural background of the Igbo people, were located in books and ebooks. Students in the complete courses who engaged with the librarian in discussion boards or in one-on-one consultations were more likely to choose a diversity of sources. In the modified courses, even though the librarian posted the same recommended materials online, our data suggests that students ignored the written instructions. Bibliographic recommendations are more effective when delivered in a discussion board or conversation, because the librarian can explain the usefulness of the specific source in the context of the student’s chosen theme.

Background on the Connection with the Librarian

Instructors employ a variety of technologies to connect with students online. One of the most common methods is the use of instructional videos. Three studies found that when students watched an introduction video, they were more positive in the course evaluations and contributed more to discussion boards. The use of instructor-created content increased student engagement and promoted better understanding of the material (Martin et al.; Draus et al.; Rose). Jered Borup et al. found that instructor-generated videos improved the visibility of the online instructor, as well as student success (201–02). It is clear that the amount and quality of the interactions between professors and online students positively influence student engagement.

Having a librarian in the course provides additional sites of connection for students. The embedded librarian becomes a familiar presence, a go-to source for questions that students have about doing research. A tech-savvy librarian finds creative ways to connect with students using a variety of online learning tools. Amy C. York and Jason M. Vance’s article “Taking Library Instruction into the Online Classroom: Best Practices for Embedded Librarians” emphasizes a variety of ways that the librarian became an integral part of the course: librarian-led discussion boards, online posts, email communications, and repeated messages that encourage students to reach out for assistance (206). A popular app that librarians and course professors use to engage students is VoiceThread, which allows participants to share and discuss documents, presentations, images, audio files and videos (VoiceThread). Linda Frederiksen and Sue F. Phelps’s chapter “Online Embedded Librarians: A Review and Overview” includes a list of articles on building connection with online students. Interventions include personal interaction (Ismail; Kadavy and Chuppa-Cornell), videos and discussion boards (Held; Hemmig and Montet), research guides (Daly), web conferencing (Montgomery), online advice (Knight and Loftis), and library assignments built into the course syllabi (Bozeman and Owens). Several recent studies on negative student perceptions of the research process state that the librarian’s personal mentorship, embedded in their course
structure, increases student “buy-in” to research tasks that students may otherwise avoid (Dubicki 677; Klentzin 557; Denison and Montgomery 387; Paterson and Gamstso 145). In considering how to connect, these and other articles informed the librarian’s contributions to the complete course.

**Connection in Our Course**

Our students had many questions as they navigated the online course. To mitigate the alienation that some students might feel outside a traditional face-to-face classroom, the professor connected with students via email and during in-person and telephone conferences that she scheduled twice a semester with each student. Our complete course extended this personal connection beyond the single professor by encouraging students to develop a similar rapport with the librarian. The librarian became a trusted participant in the course through her profile, contact information, and her “voice,” which was activated within the course structure through her videos, discussion boards, written posts, and announcements. The librarian’s narration in her videos became so familiar that she frequently encountered students in later semesters at the reference desk or in a library class who remarked, “I know you! I recognize your voice from the videos in my online Introduction to Literature class.”

Librarian-led discussion boards for Essays 2 and 4 in the complete course allowed her to work more intensively with individual students, experimenting with lists of keywords, creating alternative search strings to get better results in databases, finding the right articles or chapters for their topic, and answering MLA style questions. Because students returned to the discussion boards to ask further questions about their progress, the librarian checked frequently during the week the discussion board was open. If the student needed more intensive guidance, the librarian set up an appointment with the student via the telephone or in her office. Appointment requests were much more common in the complete courses than in the modified courses, which did not feature the discussion boards. The discussion boards proved to be the vehicle for more connection to students and a forum for sharing research among themselves. In the complete course, the librarian often received “thank-you” discussion board threads or emails from students, letting her know the research materials and advice were useful.

If a student is struggling, a connection with the class librarian in the course can make a tangible difference. The following two cases illustrate this point. A conscientious student in one of our courses was having a hard time balancing the demands of her work and family commitments with the challenges of multiple...
course assignments. She was a single mother with a young baby, working full-time. On her very small salary, she hired a baby sitter in the evening, so she could work on her assignments. Even so, she was not succeeding. She said that she struggled with research because her previous English courses lacked research requirements. Since the librarian was active in the course, the student felt comfortable setting up consultations with her that clarified the process of finding and integrating research into her writing and citing sources. Instead of dropping or failing the course, she passed it. In another case, a student who had serious difficulties understanding written directions connected with both the librarian and the professor by telephone to get help understanding the tasks assigned, which contributed to his ability to complete assignments. Paterson and Gantso concur that support from a librarian increases students’ persistence and self-efficacy and has a positive effect on student learning outcomes (149).

Survey Data on Connection

One of our key goals was to improve students’ choices of quality academic sources. Therefore, in our survey, Questions 1 and 2 examined how our students chose research materials, both before and after our course. Students were asked to identify all sources they used for research (Question 1) and then to rank their top three choices (Question 2). We wanted to know if our complete course positively impacted students’ choice of library-based sources and how the complete course compared to the control and modified courses. Table 6 demonstrates the percentage change between students’ answers to Question 1 in the pre- and post-course surveys. All course models showed a decrease in the use of nonlibrary-based sources (down 43% for the complete courses, down 39% for the control courses, and down 62% for the modified courses). Students reported increased use of library-based sources in all course models. However, the complete and modified groups used library sources the most, while the control courses showed half as many students choosing library-based sources. The connection with the librarian increased the use of library sources because her interventions demonstrated their specific uses. It is not effective to merely instruct novice students to get their research from the library instead of Google. Students need to learn not only how to find library materials but also how to use specific genres of credible journalism and academic writing as evidence to support their arguments.
Interestingly, when we asked students to rank their top three choices for research (Question 2), we began to see the modified courses track closer to the control courses in terms of changes in student attitudes. This leads us to conclude that while students’ basic awareness of library-based sources can be improved through even minor interventions in online courses, a more scaffolded and connected approach is necessary to truly improve students’ understanding of the nuances of writing research-based essays. Table 7 reveals the changing value that students placed on nonlibrary-based sources when they were asked to rank them.

In the complete courses, on average, students chose Wikipedia as one of their highest-quality sources 20% of the time in their pre-surveys. After taking the complete course, only 1% marked it as one of their top three sources, a

<table>
<thead>
<tr>
<th>Source Types</th>
<th>Complete courses</th>
<th>Control courses</th>
<th>Modified courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wikipedia or similar</td>
<td>-95%</td>
<td>+50%</td>
<td>-30%</td>
</tr>
<tr>
<td>Google or other search engines</td>
<td>-84%</td>
<td>-45%</td>
<td>-30%</td>
</tr>
<tr>
<td>Friends and family</td>
<td>-23%</td>
<td>-100%</td>
<td>No change</td>
</tr>
<tr>
<td>Google Scholar</td>
<td>-24%</td>
<td>+33%</td>
<td>-100%</td>
</tr>
<tr>
<td>Blogs</td>
<td>-33%</td>
<td>-100%</td>
<td>-100%</td>
</tr>
<tr>
<td>Social media, such as Twitter or Facebook</td>
<td>No change</td>
<td>-100%</td>
<td>No change</td>
</tr>
</tbody>
</table>
rate of decrease of 95%. Google and its corollaries also lost marks, with 55% of students marking it as one of their top three choices in pre-surveys and 9% marking it in post-surveys, a rate of decrease of 84%. As shown in Table 7, the percent changes in the complete courses are consistent through all categories of nonlibrary-based sources, which shows that the complete course helps students understand the limitations of nonlibrary-based sources for academic research.

In contrast, the control courses showed more mixed results. For example, in the Google or other search engines category, students reported a 45% decrease in their choice of those sources in the post-survey, but increased their choice of Wikipedia at a rate of 50%. While the modified courses showed similar trends to the complete courses, some of the individual numbers charted closer to the control courses. For example, the control courses and the modified courses showed 24% and 19%, respectively, of students claiming Google as a top three source in their post-surveys—less than stellar results. In other categories, though, the modified courses seemed to trend similar to the complete courses.

These positive gains in students’ more accurate evaluations of nonlibrary-based sources in our complete course, as compared to the mixed bag of responses we gleaned in both the control and modified courses, suggest that our complete course—and especially the increased connection with the librarian—helped students distinguish quality sources from those that have limited scope in academic research.

We wondered if this trend would bear out in students’ evaluation of library-based sources as well. We asked students to rank their top three sources for academic research. Table 8 shows the percentage change for library-based sources across the three course models.

Students in the complete course increased their rankings of sources such as books and ebooks (increase of 11%), and newspaper and encyclopedia articles (increases of 9% and 31%, respectively) with an increase of 20% of perceived value of articles from library databases and a 9% increase in the ranking of help from a librarian. Without exception, the complete course showed an upward trend for all library-based sources, and, as shown in Table 7, a downward emphasis on nonlibrary-based sources. In contrast, both the control and modified sections showed an uneven emphasis on library-based sources, with much more emphasis on the article database sources and a decreased emphasis on help from a librarian, use of books, and use of newspaper sources.
Because students had to rank their top three most valuable sources for academic research, we expected that the category “help from a librarian” would be less compelling than the actual source material that they would use for research, such as databases and books. Even in the complete course, where library interventions were most evident to students, the research materials are what they need most—not a relationship with a librarian. Nevertheless, we found an increase of 9% in the “help from a librarian” category in our complete sections. While this is modest, compared to the change in the control and modified sections, the importance of the librarian connection with students in the complete course is more evident.

The control group followed our predicted pattern of not placing high value on librarian help, showing a 25% rate of decrease between the pre- and post-survey answers. The modified group fared even worse than the control with a rate of decrease of 63% from pre- to post-course survey results. The gap between the value placed on help from a librarian in the complete course and the modified course, then, amounts to 72%. The gap with the control course was significant as well, weighing in at 36%.

While students will naturally rank the sources that they need as more important than the librarian (as they should do), the connection between the librarian and students in the complete course resulted in students being more aware of what a librarian can provide than would occur in the control or modified courses. In understanding the extreme difference between the complete and modified sections, we believe that results suggest the potential limitations of librarian interventions that are less intensive and less directly engaged in the content of the course (lacking detailed scaffolding and opportunities for connection). In particular, the lack of video tutorials and librarian-led discussion boards in the modified course pulled out significant opportunities for students to learn what librarians can do for them.

<table>
<thead>
<tr>
<th>Source Types</th>
<th>Complete courses</th>
<th>Control courses</th>
<th>Modified courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articles from library databases such as JSTOR, Academic Search Complete, etc.</td>
<td>+20%</td>
<td>+52%</td>
<td>+61%</td>
</tr>
<tr>
<td>Encyclopedias (print or online)</td>
<td>+31%</td>
<td>+31%</td>
<td>+46%</td>
</tr>
<tr>
<td>Books or ebooks from the library catalog</td>
<td>+11%</td>
<td>-30%</td>
<td>-2%</td>
</tr>
<tr>
<td>Help from a librarian</td>
<td>+9%</td>
<td>-25%</td>
<td>-63%</td>
</tr>
<tr>
<td>Newspaper articles (print or online)</td>
<td>+9%</td>
<td>-15%</td>
<td>-5%</td>
</tr>
</tbody>
</table>

**Table 8. Library-Based Sources, Percent Change, by Course Type**
If librarians are going to be effective in a course, they need to be more present via repeated and targeted interactions with students. Limited written posts and library links are not very helpful and can even be detrimental to student attitudes toward the library if such contact lacks active opportunities for students to engage with the librarian and the gradual scaffolding structure that makes this model work.

**Workload Considerations of Increased Connection**

Pickard compared the efficacy of different methods of delivering information literacy instruction in online-only anthropology courses. She found that “the intense scaffolding we tried has proved to be the most effective so far, but it is not sustainable,” concluding that a complete scaffolded instruction model was unrealistic in terms of the workload involved, and that a modified method should be developed (178). York and Vance, in their survey of online course librarians, observed that “interacting directly with students in an online course can be time-consuming work, and librarians who offer the service are usually adding it to a full plate of other duties” (204). The majority of librarians who responded to their survey served in fewer than five courses. The range of service was quite broad, from those who logged on every day to those who only went into the course once a week (205).

In our project, the librarian spent the greatest amount of time creating and editing videos and answering the discussion board questions. However, once she had created the research modules for the course, her time commitment decreased. Similarly, the professor found that coordinating modules and assignments with the librarian took extra time at the beginning, but this initial time paid off in terms of the long-term gains with regard to students’ information literacy skills. This freed up the professor’s time to focus on higher-level critical research and writing skills. While it can be time-consuming to answer research discussion board questions (Martin et al. 63), we controlled the time factor by staging only two week-long research discussion boards at times when students were actively conducting research for Essays 2 and 4. This minimized the librarian’s workload. Also, we did not build the complete course in one semester. We started with just a few elements in fall 2012 and built it over several semesters, completing it by fall 2014.
Conclusion

The deployment of scaffolded lessons coupled with enhanced connections with a course librarian resulted in students who demonstrated improved attitudes toward library-based research. This also created better discernment of the types of sources that would be useful for academic work, and a greater willingness to use the library and to contact the librarian for help. In students’ short written answers to our complete course post-survey, students discussed the importance of credibility in the research they found. A student from one of our complete courses wrote, in answer to Question 3 (about reliability of sources):

If a source is from a library reference site, or is in a literary journal—it tends to be fairly reliable. These people are writing educated pieces that show proof of research, and also these works have been edited and checked by other people in their field. Sites such as Wikipedia are not held to the same quality standards as articles, books, journals, that are published.

Although our students were novice researchers, connections with the course librarian in the complete course model allowed them to begin to effectively integrate credible academic research into their essays. In the complete courses, the professor saw less panicked end-of-semester questions about how to do basic research. Instead, in conferences with students, she was able to focus on helping students effectively use the research they found to write about the literature they read. We concluded that, like the writing process, research is best presented in scaffolded lessons that occur over time. However, from the results of our data, we have learned that courses must be carefully designed to maximize results. The data from our modified courses indicates that removing scaffolded lessons, videos, and connection with the course librarian lessens the success of the course. Student attitudes and behavior toward research in the modified courses showed less improvement and skewed closer to the control courses, in which there was no contact with a librarian. This data points to the need to further investigate a richer modified approach to embedded librarian-ship, which might combine some of the benefits of the complete course with a less intensive time commitment.

Similar approaches can be applied to courses that are not taught online, as we found when we translated these methods of scaffolding and connection to our in-person classrooms in the English and library departments. During the project, the librarian began to offer a multiclass model of in-person library instruction to English, media studies, art history, and modern language and literature professors. This freed her from the constraints of the single library session that hamper the scaffolding of research skills. Librarians, who have much to offer students in added support and expertise, can be valued partners with course professors in teaching the critical thinking, reading, and writing skills that we want our students to develop, particularly in online courses.
**APPENDIX A: PRE- AND POST-SURVEY QUESTIONS**

**Question 1: Multiple Answers: How do you find information for your research papers?**

Check all that apply.

a. Wikipedia or similar
b. Books or ebooks from the library catalog
c. Google or other search engines
d. Articles from library databases, such as JSTOR, Academic Search Complete, etc.
e. Google Scholar
f. Newspaper articles (print or online)
g. Blogs
h. Social Media, such as Twitter or Facebook
i. Encyclopedias (print or online)
j. Friends and Family
k. Help from a librarian

**Question 2: Multiple Answers: Of the choices above, which three sources do you think provide the highest quality information for research papers? Check your top three choices.**

a. Wikipedia or similar
b. Books or E-books from the library catalog
c. Google or other search engines
d. Articles from library databases, such as JSTOR, Academic Search Complete, etc.
e. Google Scholar
f. Newspaper articles (print or online)
g. Blogs
h. Social Media, such as Twitter or Facebook
i. Encyclopedias (print or online)
j. Friends and Family
k. Help from a librarian

**Question 3: Short Answer: How do you decide if a source is reliable to be used in academic research? Please write your answer in a few sentences.**

**Question 4: Multiple Answers: What do you find most challenging in conducting research?**

a. Finding sources to use
b. Deciding on how much research I have to do
c. Deciding if the sources are acceptable for academic research
d. Knowing how to integrate research sources with my own ideas
e. Deciding how to evaluate the usefulness of a source for my particular topic
f. Knowing how to use appropriate search terms to help me find information on my topic

**Question 5: Multiple Choice: How often in the last two years have you used a library to research your papers or projects?**

a. Never
b. 1–2 times
c. 2–4 times
d. More than 4 times
Question 6: Multiple Answers: If you have used a library for research, what materials did you use?
   a. Books or ebooks
   b. Articles from databases, such as JSTOR, Academic Search Complete, etc.
   c. Newspaper articles
   d. Encyclopedia articles
   e. Other (please describe in question 7)

Question 7: Short Answer: If you chose “other” in question 6, please describe which other materials you used from the library here.

Question 8: Multiple Choice: How important is it to give credit to the authors of the research sources that you gather when writing an essay?
   a. Very important
   b. Somewhat important
   c. Worth doing only if the information is easy to find
   d. Not really necessary
   e. A waste of time

Question 9: Short Answer: What steps do you take to prepare to write your research paper? Please write down all the steps that you typically utilize.

Question 10: Short Answer: Informed Consent

Dear Students,

As part of the research Professor Glisson and I are conducting about how well our program works to help online students develop research skills, we would like to have the option to use some of your writing assignments as samples and examples in our research studies. We are required by the Borough of Manhattan Community College to submit informed consent forms for any student whose work we would like to use.

Please read the attached form, and, if you agree to the terms, please type your complete name in the blank below. You are under no obligation to consent to have your writing used, and will receive the extra credit for completing the survey in any case. If you would not like to consent, leave this question blank.

Best,
Professor Secovnie

APPENDIX B: COMPARISON OF THE COMPLETE, MODIFIED, AND CONTROL COURSES SCAFFOLDED RESEARCH ACTIVITIES

Legend: √ = intervention was included
        − = intervention was not included
        + = intervention was replaced with a substitute intervention
## Module One Interventions

<table>
<thead>
<tr>
<th>Complete Courses</th>
<th>Control Courses</th>
<th>Modified Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introductory Discussion Board:</strong> students, the professor and the librarian introduce themselves and respond to each other’s posts to build community.</td>
<td>+ (instructor and students only)</td>
<td>+ (instructor and students only)</td>
</tr>
<tr>
<td><strong>Instructor’s Information:</strong> Permanent tab that includes professor’s and the librarian’s contact information and greeting message.</td>
<td>+ (instructor only)</td>
<td>√</td>
</tr>
<tr>
<td><strong>Pre-Course Survey:</strong> administered to students for extra credit.</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td><strong>Introductory Announcement:</strong> professor-created announcement introducing the librarian and her role in the course.</td>
<td>−</td>
<td>√</td>
</tr>
<tr>
<td><strong>Librarian’s Post:</strong> librarian contact information and information on the various ways to get help at the library and on its website.</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td><strong>Library Day Video and Test:</strong> librarian-created instructional video, <em>Hunting for Treasure at BMCC Library,</em> demonstrates modeled searches and a citation lesson modeled after an in-person library instruction class. After viewing the video, students are given a test to assess learning.</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td><strong>Log-in and Citation Videos:</strong> two-minute videos are repeated throughout the course, teaching students how to log into the library databases and cite using MLA style.</td>
<td>−</td>
<td>−</td>
</tr>
</tbody>
</table>

## Module Two Interventions

<table>
<thead>
<tr>
<th>Complete Courses</th>
<th>Control Courses</th>
<th>Modified Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Librarian’s Post:</strong> a two-minute video by the librarian establishing her as a familiar face and reinforcing library services that are available for students.</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td><strong>Librarian’s Post:</strong> library resources available at the library for the theater of the absurd, such as other plays from the genre and literary criticism; links to the library catalog and databases for ebooks, articles, and reference books; includes information about logging in from home and a link to the login video.</td>
<td>+ (professor’s post on library resources for Essay 2 and logging into library databases)</td>
<td>+ (librarian’s post on resources for Essay 2 and logging into library databases)</td>
</tr>
</tbody>
</table>
**Library Research Activity for Essay 2:** a four-webpage activity on using newspaper and encyclopedia databases that are required for Essay 2, followed by a graded assessment test to reinforce and track what they learned.  

<table>
<thead>
<tr>
<th>+ (activity given as an optional resource, without graded assessment)</th>
<th>+ (activity given as an optional resource, without graded assessment)</th>
</tr>
</thead>
</table>

**Extra Credit Discussion Board:** a research discussion board set up for one week only, led by the librarian, scaffolded for students with a list of suggested topics and questions.

| − | − |

### Module Three Interventions

<table>
<thead>
<tr>
<th>Complete Courses</th>
<th>Control Courses</th>
<th>Modified Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research Break:</strong> a break from intensive research to focus on other aspects of the course involving writing and interpretation.</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### Module Four Interventions

<table>
<thead>
<tr>
<th>Complete Courses</th>
<th>Control Courses</th>
<th>Modified Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Librarian’s Post:</strong> a list of good bibliographic sources pertaining to the novel students were reading/writing about for Essay 4; links to databases, library contacts, and MLA and log-in videos are repeated.</td>
<td>+ (professor posts a truncated version of information for Essay 4)</td>
<td>✓</td>
</tr>
</tbody>
</table>

**Advanced Research Video:** short three-minute video prepared by the librarian models how to look for articles of literary criticism, articles on culture and gender, and historical information for Essay 4.

| − | − |

**Advanced Research Activity:** following the librarian’s video, an activity requires students to use the library’s databases that were featured in the video to construct a Works Consulted list in MLA style. The activity is graded on the quality of the research found and the accurate formatting of the works cited list.

| − | + (*see note below) |

**Extra Credit Discussion Board:** the librarian-led research discussion board helps students revise Essay 4. Students reflect on their research and writing process and connect with the librarian, who promotes individual consultations beyond the discussion board forum.

| − | − |
The video was replaced by a librarian’s post that provided PDFs of good articles to use when writing about the novel. An activity required that students pick two suggested articles and/or ebook chapters that were not provided as PDFs, find them in the databases, and use them in their essays. The course professor did not assign any points toward their final grade for that activity. Assigning points to an activity is essential to motivating students to complete the work.

Final Portfolio and Course Wrap-Up

<table>
<thead>
<tr>
<th>Complete Courses</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Librarian’s Course Announcement: an email to students offers help with any Essay 4 research questions.</td>
<td>–</td>
<td>√</td>
</tr>
<tr>
<td>One-on-One Conferences: professor with students to check their progress and offer suggestions for revising Essay 4 and the final portfolio, which allows her to spot any research challenges and refer students to the librarian.</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Post-Course Survey: extra credit survey reproduces the pre-course survey to assess students’ attitudes and behaviors towards research</td>
<td>√</td>
<td>√</td>
</tr>
</tbody>
</table>

Works Cited


**Kelly O. Secovnie** is an associate professor of English at the Borough of Manhattan Community College, City University of New York. She is currently at work on a sabbatical project examining how African literature is used in community college general education “Introduction to Literature” courses, in order to provide resources for faculty wishing to teach it more effectively. **Lane Glisson** is an associate professor and e-learning and instruction librarian at the Borough of Manhattan Community College, City University of New York. Her research on disinformation, “Breaking the Spin Cycle: Teaching Complexity in the Age of Fake News” was recently published in the July 2019 issue of the journal *portal: Libraries and the Academy*, Johns Hopkins University Press.