

## The Embedded Librarian Model in Traditional vs. Online Political Science Courses

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### **Abstract:**

The ongoing evolution of the "information ecosystem," including the increased, effectively instantaneous availability of information, the growing number of platforms and sources, and the active spread of disinformation and misinformation (Hochschild and Einstein 2015; Jerit and Zhao 2020; Tucker et al. 2017), presents challenges in the undergraduate political science classroom (Booke and Wiebe 2017; Kaufman 2021). While students now enjoy access to an unprecedented amount of information about politics, many enter college with limited training in how to identify reliable information sources and distinguish fact from opinion or fiction; moreover, even students with such training may lack understanding of how credible knowledge is generated, leaving them more susceptible to false or misleading claims (Lanning and Mallek 2017).

**Keywords:** teaching | information literacy | embedded librarian | teaching researching writing and information literacy how to handle information

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The Embedded Librarian Model in Traditional vs. Online Political Science Courses

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## Introduction

The ongoing evolution of the “information ecosystem,” including the increased, effectively instantaneous availability of information, the growing number of platforms and sources, and the active spread of disinformation and misinformation (Hochschild and Einstein 2015; Jerit and Zhao 2020; Tucker et al. 2017), presents challenges in the undergraduate political science classroom (Booke and Wiebe 2017; Kaufman 2021). While students now enjoy access to an unprecedented amount of information about politics, many enter college with limited training in how to identify reliable information sources and distinguish fact from opinion or fiction; moreover, even students with such training may lack understanding of how credible knowledge is generated, leaving them more susceptible to false or misleading claims (Lanning and Mallek 2017).

Recognizing these challenges, political science instructors have increasingly incorporated various strategies to promote information literacy, defined by the American Association of College and Research Libraries (Association of College and Research Libraries 2015a) as the “integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning,” into their courses. One such strategy, the “embedded librarian” model, involves integrating library faculty into courses to deliver information literacy training and provide a resource for students conducting research. While previous studies suggest that this model may be effective in promoting information literacy among political science students (Shannon and Shannon 2016), most prior research has focused on the implementation of the embedded librarian model in traditional, in-person political

science courses. However, the growing emphasis on online learning, accelerated by the COVID19 pandemic, points to the need to evaluate this model (and approaches to information literacy more generally) in online settings.

This paper presents an evaluation of the “embedded librarian” model in online versus traditional settings by comparing student performance on a research paper requiring application of information literacy skills in an upper-level political science course delivered in-person in fall 2019 and online in fall 2020. In brief, we find that student research papers written for the in-person section of the course scored significantly higher on multiple indicators of information literacy compared to papers written for the online section of course. While there are important limitations to our analysis, our results strongly suggest that delivery modality conditions the effectiveness of the embedded librarian model and point to the need for greater attention to how to effectively implement this model in non-traditional settings.

The remainder of this paper proceeds as follows: we first describe the “embedded librarian” model in general terms, discuss previous research on its effectiveness in promoting information literacy, and describe its implementation in the course examined in this paper. We then review debates about the effects of teaching modality (in-person, virtual, or hybrid) on student learning and derive testable hypotheses concerning the effects of the “embedded librarian” model in in-person versus online settings. We then describe our research design, which leverages variation in teaching modality between fall 2019 and fall 2020 in an upper-level, writing-intensive political science course with an otherwise identical structure and requirements, and we present our findings and discuss the limitations of our study. We conclude by

suggesting future avenues for research on the embedded librarian model and teaching information literacy in the political science classroom.

### **The “Embedded Librarian” Model**

As the term suggests, the “embedded librarian” model involves integrating library faculty into courses to deliver information-related content and provide a resource for students throughout a course. The specifics of this model may vary, depending on the precise learning objectives for the course, but generally involve library faculty partnering with the instructor (in some cases as a co-instructor) to design and deliver content on accessing and evaluating information relevant to the course and being available to students to assist with locating and using such information (Dewey 2004; Shannon and Shannon 2016). Importantly, this allows library faculty to introduce substantive, information-related content that goes beyond the mechanics of using library resources, and to develop productive relationships with students that can transfer across courses. In this respect, the “embedded” librarian model differs from “one-shot” approaches to integrating library faculty, which typically involve librarians attending one class meeting to introduce themselves and describe available library resources (Becker et al. 2022; Sullivan and Porter 2016).

Insofar as it allows instructors to leverage the unique expertise of library faculty in information sciences, the “embedded” librarian model is particularly well-suited for teaching information literacy (Kim and Shumaker 2015). Indeed, previous research suggests that applying this model in political science courses has yielded generally positive results. For example, Shannon and Shannon (2016) find that embedding a librarian in an introductory international relations course was associated with higher

overall numbers of sources cited, source quality, and the overall quality of student research papers; similarly, Devine, Gauder, and Pautz (2021) report that embedding a librarian was associated with significant improvements in scores on an information literacy assessment across multiple political science courses, while Harkness, Rusk, and Rubio (2021) detect subtle improvements in information literacy skills among students in a political science research methods course, particularly on formative assessments, that point toward the effectiveness of the embedded librarian approach. These findings, which focus on political science courses, are broadly consistent with research in other disciplines suggesting that the embedded librarian model can contribute to improvements in information literacy (Zanin-Yost 2018).

Motivated by the growing body of evidence supporting the embedded librarian model, the authors of this paper, respectively a political science faculty member and the university political science librarian, collaborated in fall 2019 to redesign an upper-level political science course at the University of North Carolina Greensboro (UNCG), PSC 391–African Political Systems, to incorporate the embedded librarian model. We have continued this collaboration in each iteration of the course taught since fall 2019, including in fall 2020, when the course was taught online in response to the COVID19 pandemic; the course has since transitioned back to an in-person modality, and we have incorporated both in-person and online elements. The next section describes PSC 391 and our collaboration to implement the embedded librarian model, focusing mostly on the fall 2019 and fall 2020 iterations of the course, which are the object of the comparative analysis presented in this paper.

## **Implementing the Embedded Librarian Model in PSC 391**

PSC 391—African Political Systems is an upper-level undergraduate course offered by the Department of Political Science at the University of North Carolina Greensboro (UNCG), a mid-sized, public, R2 research university. The course is taught annually, with an enrollment cap of 25 students, and it mostly attracts Political Science majors; there are no formal prerequisites for the course, although most students will have completed the Political Science department's lower-level introductory course in Comparative Politics (or equivalent) before enrolling in PSC 391. The course is not required for the Political Science degree at UNCG, but it can be used in partial fulfillment of the departmental and university requirements for upper division (300-level or higher) courses, and simultaneously for the departmental concentration in Global Politics. Additionally, the course is designated as "Writing Intensive," meaning that students may use the course in fulfillment of university and departmental writing requirements.

As the title suggests, the substantive content of the course focuses on African politics. The substantive learning objectives are as follows: 1) Describe the range and scope of variation between states in Africa and other regions of the world and among African states in politically relevant outcomes, including human development, regime type, and social order; 2) Identify and critique theoretical explanations for variation between states and Africa and other regions of the world and among African states in politically relevant outcomes.

The substantive content is delivered mostly through lectures and in-class discussion, supplemented by readings from the course text (Christensen and Laitin's

*African States Since Independence: Order, Development, and Democracy*), academic journal articles, and various media sources focusing on current events. As a writing-intensive course, the main assignment for the class is a 3,000-4,000 word research paper requiring students to propose and test a theory relevant to African politics, following the principles of the scientific method and incorporating credible information sources; the assignment is scaffolded to include a proposal, literature review, draft, and final paper.

#### *UNCG University Libraries Course Development Award Program*

As a writing-intensive course with a significant research component, PSC 391 requires students to develop, practice, and apply information literacy skills; as such, it presents a clear opportunity for implementing an embedded librarian model focused on information literacy. In spring 2019, the instructor applied for and received a UNCG University Libraries Course Development Award, with the objective of modifying this course to incorporate a greater emphasis on information literacy and integrating library faculty into the course; this program, which was active from 2015 to 2020, provided stipends to instructors who agree to more intentionally incorporate information literacy concepts into their courses. The process required a brief application in which the instructor would explain how they specifically planned to incorporate information literacy concepts into their assignments and how they would collaborate with a librarian to help accomplish their goals. The instructor also needed to demonstrate that students would be required to complete at least one research-intensive assignment during the semester. If the instructor's application was accepted, they would receive a one-time \$1,000 stipend. During the 2019-2020 cycle, the stipends were increased to \$1,250 to



compensate for a new faculty development component. Instructors receiving stipends were required to participate in a group learning community which met several times per semester to bring together librarians and instructors to discuss their progress and to offer support to one another.

### *The ACRL Framework for Information Literacy for Higher Education*

The information literacy component of this project involved incorporating concepts from the UNCG University Libraries' Learning Goals and Outcomes for students. The outcomes were established in 2018 and were developed using the 2015 Framework for Information Literacy for Higher Education published by the Association of College and Research Libraries (ACRL) as a guiding document. ACRL's Framework introduced six major concepts (referred to as "Frames") associated with information literacy: Authority is Constructed & Contextual, Information Creation as a Process, Information Has Value, Research as Inquiry, Scholarship as Conversation, and Searching as Strategic Exploration (Association of College and Research Libraries 2015b). Each Frame is introduced and explained briefly and is followed by relevant "Knowledge Practices," which are ways in which learners might display an understanding of each concept, and "Dispositions," which are behaviors and attitudes that learners may demonstrate as a result of their exploration of each concept. Since the Framework was established in 2015, several discipline-specific "Companion Documents" have been released, including a version created by the Politics, Policy, and International Relations Section (PPIRS) of ACRL (Politics, Policy, and International Relations Section 2021). While the PPIRS Companion Document is extremely well-

developed and will no doubt be a valuable resource for future instructional planning, it was not published in time to inform this project.

### *Incorporating Information Literacy and the Embedded Librarian Model in PSC 391*

After consultation with the librarian for Political Science, Rachel Olsen, it was decided that information literacy instruction for the course would be divided into three in-person class sessions during the Fall 2019 semester. Using the Learning Goals and Outcomes created by UNCG librarians, the Political Science librarian chose several to serve as guiding concepts for the three sessions: Find, Create, Evaluate, and Credit. The Learning Goals & Outcomes document describes each category (Find, Evaluate, Use, Credit, and Create) and has specific outcomes for each category based on the course level. The three course levels are “First-year/General education,” “Disciplinary/major level,” and “Graduate level.” For this course, the “Disciplinary/major level” goals were chosen as the most appropriate level (Dale and Murphy 2018). As a result, the following goals were addressed in the design of the information literacy instruction for the course:

- Find: Students will develop and use effective search terms for their information needs.
- Find: Students will revise search strategies based on search results.
- Create: Students will identify scholarly conversations in their discipline.
- Evaluate: Students will identify source formats relevant to their discipline, information need, and context.
- Credit: Students will apply the citation style appropriate to their discipline.

An assessment plan for PSC 391 was developed by the Political Science Librarian to help ensure that the goals were met effectively throughout the course of the semester (Olsen 2019).

*Fall 2019 Classroom Visits*

In the Fall 2019 semester, the librarian visited the PSC 391 classroom three times. Each session was designed to introduce students to library resources and information literacy concepts, and a variety of activities were used to help assess their understanding. The first visit focused on the formation of research questions and keywords, searching in library databases and the catalog, and using the course LibGuide ([uncg.libguides.com/psc391](http://uncg.libguides.com/psc391)) effectively, as well as evaluation of sources of information. Students participated in a Kahoot activity during class related to the structure of scholarly articles. Twenty-three students participated and the average score was 81.22%. After class, students were asked to take a quiz related to the course LibGuide to ensure that they had taken the time to review the material. Thirteen students completed the quiz. The questions were relatively simple; this was not designed to be a high-impact activity but rather to acquaint students with the structure of the guide, much like a syllabus quiz.

Question #	% of students who answered correctly
1 - Which of the following are pages (tabs) on your LibGuide?	85%
2 - Name one of the databases listed under "Recommended Databases."	85%
3 - Watch the video on "Finding Articles Using Citations." What was the name of the journal that was searched for in the video?	100%
4 - Look at the APSA citation manual. In what year was it published?	100%

Two weeks later, the librarian returned to the class to specifically review the process of finding peer-reviewed articles. As a follow up activity, students were required to email the librarian one scholarly article related to their topic.

The third class visit focused on citation as well as giving students time in class to work on their literature reviews. Students took a brief post-visit survey which asked about their comfort level with using library resources and asking about which library resources they had taken advantage of online. After turning in their papers, students were offered an extra credit point on the assignment if they would complete an “information literacy reflection.” Nineteen students completed the reflection and of those students, and of those, thirteen indicated that they felt at least a little, if not significantly, more confident about discovering, evaluating, and incorporating information sources.

#### *Fall 2020 and Beyond*

PSC 391 is offered annually, so the next time the librarian and instructor collaborated was during fall 2020. Due to the COVID-19 pandemic, the circumstances had shifted quite radically and the course was taught completely online. Even though the stipend program had ended, the instructor still indicated a desire to continue incorporating information literacy concepts into the course. The same outcomes were used, only with a completely asynchronous online delivery method for this semester. In fall 2021 and fall 2022, the course returned to a primarily in-person modality; however, the information literacy components remained asynchronous and online, which allowed students to access the material at their own pace (and return as necessary while conducting their own research projects). During these semesters, the librarian attended one class meeting in-person at the beginning of the semester to introduce herself; being

able to meet their librarian and having the opportunity to ask questions in person seemed like an important way to connect with students, even though the information literacy instruction remained online.

### **The Embedded Librarian Model in “Traditional” vs. Online Settings**

As noted previously, prior research has demonstrated the effectiveness of the embedded librarian model for promoting information literacy skills, in both political science courses and undergraduate classes more broadly. However, while this model can be implemented in both “traditional,” in-person and online (or hybrid) courses (Edwards and Black 2012), previous research on its implementation in political science courses has focused mainly on its implementation in in-person, synchronous settings. This represents an important gap in our understanding of the effectiveness of the embedded librarian model, particularly in light of growing student demand for online course options (Kebritchi, Lipschuetz, and Santiague 2017), the increased number of online (both synchronous and asynchronous) courses offered by institutions of higher education (Baldwin, Ching, and Hsu 2018), and ongoing debates about the relative effectiveness of in-person versus online courses (Castro and Tumibay 2021), which acquired greater salience following the rapid, though in many cases temporary, shift to online delivery in response to the COVID-19 pandemic (Neuwirth, Jovic, and Mukherji 2021).

A full overview of the literature comparing the effectiveness of in-person versus online teaching modalities is beyond the scope of this paper (cf. Bolsen et al. 2016; Castro and Tumibay 2021; Colclasure et al. 2021; Glazier 2016; Sun and Chen 2016). However, debates in this literature imply a series of competing hypotheses concerning

the relative effectiveness of the embedded librarian model, depending on delivery modality. First, arguments that in-person modalities are more conducive to student learning imply that implementation of the embedded librarian model in traditional, in-person settings should yield greater improvements in information literacy and related outcomes than in online settings; indeed, the in-person setting may promote more frequent interaction, communication, and collaboration between students and the “embedded” librarian, including opportunities for students to ask questions and the librarian to respond “on-the-fly” to student information needs during in-person class meetings. Relatedly, students who interact with library faculty in-person during class sessions may be more likely to reach out for assistance with information needs for research projects and other assignments. Collectively, these arguments imply the following hypothesis:

*Hypothesis 1: Students in “traditional,” in-person courses where the embedded librarian model is implemented should demonstrate greater improvements in information literacy than students in online courses where the embedded librarian model is implemented.*

In contrast to Hypothesis 1, arguments that online modalities are generally more conducive to student learning suggest that implementing the embedded librarian model in online settings should produce greater improvements in information literacy and related outcomes. Specifically, because many students rely extensively on online information sources, online information literacy instruction may provide more immediate opportunities for students to practice information literacy skills as compared to an in-person class setting. Relatedly, online settings (particularly where content is presented asynchronously) enable students to access information literacy content on their own

time, and at their own pace, also allowing them to review and apply relevant skills more easily. Finally, online settings may offer more immediate access to the “embedded” librarian, facilitating greater collaboration and stronger working relationships with students. Collectively, these arguments imply the following hypothesis:

*Hypothesis 2: Students in online courses where the embedded librarian model is implemented should demonstrate greater improvements in information literacy than students in “traditional,” in-person courses where the embedded librarian model is implemented.*

The final hypothesis, in this case the null hypothesis, follows from arguments and evidence that in-person and online courses are equally conducive to student learning. This may apply if, for instance, there are unique advantages to in-person and online modalities that have similar marginal effects on student learning, and/or if students increasingly exposed to online “classrooms” have adapted learning strategies from in-person courses to online settings. More specific to the embedded librarian model, it may be equally easy for students—especially those accustomed to online learning—to build a working relationship with the “embedded” librarian as in in-person settings, even if the online setting offers no specific advantages. Collectively, these arguments imply the following hypothesis:

*Hypothesis 3: There should be no difference in improvements in information literacy between students in “traditional,” in-person courses where the embedded librarian model is implemented versus students in online courses where the embedded librarian model is implemented.*

Ultimately, whether the embedded librarian model is more effective in traditional or online classes, or there is no difference in its effectiveness, is an empirical question. We attempted to address this question by leveraging variation in the delivery modality of PSC 391 across two iterations of the course and comparing student research products; we describe the design and results of our analysis in the next section.

### **Research Design and Results**

As noted previously, we implemented the embedded librarian model in PSC 391 in fall 2019 and fall 2020. The fall 2019 version of the course was taught in-person, while the fall 2020 iteration was taught online. The information literacy content and the structure of the main assignment for the course, a scaffolded research project requiring students to apply information literacy skills to identify, integrate, and cite credible sources, were otherwise identical; by effectively holding the information literacy content and assignment structure constant, this variation in teaching modality between fall 2019 and fall 2020 provides us analytical leverage to identify how modality may condition the effectiveness of the embedded librarian model.

We conducted a retrospective study involving comparison of final student research papers written for PSC 391 in fall 2019 (n=17) versus fall 2020 (n=19).<sup>1</sup> To this end, we used a modified version of the “Information Literacy in Student Work Rubric Scoring Sheet” employed by Junisbai et al. (2016) in their study of an information literacy intervention at Claremont College; we modified this rubric to focus on the three information literacy learning objectives emphasized in PSC 391: *citation*, *evaluation of sources*, and *integration of sources*. The rubric includes four categories—initial,

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<sup>1</sup> This study was approved by the UNCG Institutional Review Board.



emerging, developed, and highly developed—reflecting increasing levels of mastery of the information literacy skills associated with the relevant objective. The full rubric is presented in the Appendix.

We then recruited a team of external readers from the University Library faculty, the Department of Political Science, and the International and Global Studies (IGS) program at UNCG, to review papers using this rubric. In total, we recruited seven readers from the University Library faculty and seven from the Political Science and IGS faculties.<sup>2</sup> The readers had not previously read the papers, and they were blinded to the semester in which the paper was written and therefore the teaching modality. We randomly assigned each paper to two readers: one from the Library faculty and one from the Political Science or IGS faculty; given 36 papers total, each reader was assigned five or six papers for review. Assigning each paper to readers from both the Library and Political Science or IGS faculties allowed us to incorporate assessments from readers with specific expertise in both information sciences and the substantive content of the student papers. Each reader was provided electronic copies of the rubric and their assigned papers (with all identifying student information removed) and asked to score the paper on each component of the rubric.

After receiving reviews from the external readers, we converted scores for each component of our information literacy rubric to numerical values, as follows: 1=initial, 2=emerging, 3=developed, 4=highly developed. We then calculated separate component scores for each paper by averaging the reviewer scores; we also calculated an overall score for each paper by averaging all scores received for the relevant paper,

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<sup>2</sup> Readers were compensated with an apparel item from the University bookstore, using funds from grants provided by the UNCG Library and the UNCG Department of Political Science.

across all components. Each paper therefore received four scores, as follows: *citation*, *evaluation of sources*, *integration of sources*, and *overall*. Finally, we used a standard, two-tailed t-test to determine if there was a significant difference in mean scores between papers submitted in fall 2019, when the class was conducted in-person, and fall 2020, when the class was conducted online. Table 1 reports the results of this analysis.<sup>3</sup>

**Table 1: Mean and Difference of Means of Information Literacy Scores**

Component	Means				
	All Papers (n=32)	In-Person (n=15)	Online (n=17)	Difference (In- Person-Online)	t
Citation	2.67	<b>2.94</b>	<b>2.37</b>	<b>0.57</b>	<b>-2.59*</b>
Evaluation	<b>3.20</b>	<b>3.47</b>	<b>2.90</b>	<b>0.57</b>	<b>-2.68*</b>
Integration	<b>2.91</b>	<b>3.21</b>	<b>2.57</b>	<b>0.64</b>	<b>-2.18*</b>
Overall	<b>2.92</b>	<b>3.21</b>	<b>2.61</b>	<b>0.60</b>	<b>-2.80</b>
* Test statistic indicates the difference in means is significantly different from 0 at p<.05					

The results reported in Table 1 are striking, especially given the relatively small size of our sample, which reduces the statistical power of our analysis and militates against finding significant differences. However, for all three components of our information literacy rubric—*citation*, *evaluation*, and *integration*—as well as the overall score, we find that the scores for papers submitted during fall 2019, when we implemented the embedded librarian model in an “traditional,” in-person format, are

<sup>3</sup> The sample size for the analysis in Table 1 differs from the sample previously reported in the paper because we are still awaiting reviews on four papers; we will incorporate the scores for these papers into our analysis once we receive these reviews.

significantly higher than scores for papers submitted in fall 2020, when we implemented the embedded librarian model in an online format. Moreover, the differences are substantively important, indicating that the in-person modality was associated with 0.57-point higher scores on the four-point scoring scales for *citation* and *evaluation*, and 0.64-point higher scores on the corresponding scale for *integration*. For the overall score, the in-person modality was associated with a 0.60-point higher score compared to the online modality; this corresponds to a 22.9% higher overall score in the in-person versus online sections of the course.

These results are consistent with Hypothesis 1, which predicted that in-person implementation of the embedded librarian model should yield greater improvements in information literacy than online implementation. However, there are some important limitations and caveats to our analysis. Firstly, we are still awaiting reviews from several external readers. We included papers with one submitted review in our analysis, using the single received score rather than the average of two scores; however, we have not received any reviews for four papers, which were entirely omitted from our analysis. While we have no reason to believe that the papers for which we have not yet received reviews, or only one review, are systematically different from other papers, we stress that our results must be considered preliminary until we are able to incorporate these papers (and the averaged scores for papers awaiting a second review) into our analysis.

Secondly, while our hypotheses focused on improvements in information literacy skills, our analysis focused solely on student research papers submitted at the end of the respective semester; as such, our analysis effectively assumed that students

entered both semesters with similar levels of information literacy knowledge and background. Given that PSC 391 primarily enrolled upper-level Political Science majors in both fall 2019 and fall 2020, we do not have strong reason to believe there were systematic differences in baseline information literacy between students in these semesters; however, we did not conduct comparable pre-tests to verify this assumption, and given our focus on the application of information literacy skills to produce research outputs, it is unclear whether it would have been possible to construct such a test.

Third, PSC 391 was offered online during fall 2020 because of the COVID19 pandemic. Unlike in spring 2020, when many in-person courses shifted online in the middle of the semester during the initial stages of the pandemic, we were able to intentionally design and prepare an online version of the course for fall 2020. Even so, the disruption and trauma associated with the pandemic severely complicate efforts to analyze the effectiveness of online modalities implemented in response to COVID19 (Fattore 2022; Tasso, Hisli Sahin, and San Roman 2021); as such, it is possible, if not likely, that the significantly lower information literacy scores in the online version of PSC 391 taught in fall 2020 were attributable to disruptive factors associated with the pandemic itself, rather than the teaching modality.

Finally, even if the lower scores in fall 2020 could be attributed to teaching modality, we caution that our results do not indicate that online settings are necessarily inferior for implementing the embedded librarian model. Notably, we implemented this model in fall 2020 in an *asynchronous* online setting, where students accessed information literacy content via videos and other materials posted to the course website. However, it is possible that a synchronous online environment, where students can

more immediately interact with the embedded librarian in a setting that more closely approximates a traditional, in-person classroom, may be more effective. In any case, applying lessons learned from this project—and others examining the effectiveness of online learning—can potentially yield improvements in implementation that could reduce the observed differences in student learning outcomes between online and traditional courses incorporating the embedded librarian model.

### **Conclusions**

The embedded librarian model, in which instructors collaborate closely with librarians to design and deliver information-related content, is a potentially useful approach for teaching information literacy skills and preparing students to navigate the complexities of the evolving “information ecosystem.” However, our findings suggest that the effectiveness of this model may depend on how it is implemented; specifically, leveraging variation in delivery modality between fall 2019 and fall 2020 in an otherwise identically structured course, we have found that student research papers submitted for the in-person iteration of the course scored consistently, and significantly, higher on multiple measures of information literacy, than papers submitted for the online version.

Our results speak to broader debates about the relative effectiveness of in-person versus online teaching modalities, and potentially to related debates about the impact of the COVID19 pandemic on student learning. More specifically to the embedded librarian model, our results point to the critical importance of context and course design considerations, including teaching modality, in conditioning the effectiveness of this model. In doing so, our findings also suggest some potentially useful avenues for future research on the embedded librarian model, including

addressing some of the limitations of this study by incorporating pre-tests into future evaluation efforts to establish baseline information literacy levels and facilitate identification of changes in information literacy during a course, comparing synchronous and asynchronous online modalities for implementing the embedded librarian model, and replicating the comparison between in-person and online modalities in a future semester less directly impacted by disruptions associated with COVID19 or other exigencies.

## References

- Association of College and Research Libraries. 2015a. "Framework for Information Literacy for Higher Education." *Association of College & Research Libraries (ACRL)*. <https://www.ala.org/acrl/standards/ilframework> (September 28, 2022).
- . 2015b. "Framework for Information Literacy for Higher Education." <https://www.ala.org/acrl/standards/ilframework> (January 25, 2023).
- Baldwin, Sally, Yu-Hui Ching, and Yu-Chang Hsu. 2018. "Online Course Design in Higher Education: A Review of National and Statewide Evaluation Instruments." *TechTrends* 62: 46-57.
- Becker, Jill K., Samantha Bishop Simmons, Natalie Fox, Andi Back, and Betsaida M. Reyes. 2022. "Incentivizing Information Literacy Integration: A Case Study on Faculty-Librarian Collaboration." *Communications in Information Literacy* 16(2).
- Bolsen, Toby, Michael Evans, and Anna McGahren Fleming. 2016. "A Comparison of Online and Face-to-Face Approaches to Teaching Introduction to American Government." *Journal of Political Science Education* 12(3): 302-317.
- Booke, Poula, and Todd J. Wiebe. 2017. "Improving Student Assessments of Elections: The Use of Information Literacy and a Course-Embedded Librarian." *Learning and Teaching: The International Journal of Higher Education in the Social Sciences* 10(2): 83–106.
- Castro, Mayleen Dorcas B., and Gilbert M. Tumibay. 2021. "A literature review: efficacy of online learning courses for higher education institution using meta-analysis." *Education and Information Technologies* 26: 1367-1385.
- Colclasure, Blake C., AnnMarie Marlier, Mary F. Durham, Tessa Durham Brooks, and Mekenzie Kerr. 2021. "Identified Challenges from Faculty Teaching at Predominantly Undergraduate Institutions After Abrupt Transition to Emergency Remote Teaching during the COVID-19 Pandemic." *Education Sciences* 11(9): 446-
- Dale, Jenny, and Maggie Murphy. 2018. "Learning Goals and Outcomes Final." *Google Docs*. [https://docs.google.com/document/d/1lb5a0RW-ukcmFvk4E0aePFRHjkd07apfOA9m\\_gNwz4/edit?usp=sharing&usp=embed\\_fac ebook](https://docs.google.com/document/d/1lb5a0RW-ukcmFvk4E0aePFRHjkd07apfOA9m_gNwz4/edit?usp=sharing&usp=embed_fac ebook) (January 25, 2023).

- Devine, Christopher J., Heidi Gauder, and Michelle C. Pautz. 2021. "Closing the Gap: Collaborating with Research Librarians to Improve Information Literacy in the Political Science Classroom." *Journal of Political Science Education* 17(4): 560-577.
- Dewey, Barbara I. 2004. "The Embedded Librarian." *Resource Sharing & Information Networks* 17: 1-2, 5-17.
- Edwards, Mary E. and Erik W. Black. 2012. "Contemporary Instructor-Librarian Collaboration: A Case Study of Online Embedded Librarian Implementation." *Journal of Library & Information Services in Distance Learning* 6(3-4): 284-311.
- Fattore, Christina. 2022. "Creating Rapport in Online Classes Through a Pedagogy of Care and Authenticity." *Journal of Political Science Education* 18(4): 624-634.
- Glazier, Rebecca A. 2016. "Building Rapport to Improve Retention and Success in Online Classes." *Journal of Political Science Education* 12(4): 437-456.
- Harkness, Suzan J., Faith A. Rusk, and Ramon Rubio. 2021. "Using an Embedded Librarian Model to Increase Information Literacy in Political Science Research Methods." *Journal of Political Science Education* 17(3): 385-405.
- Hochschild, Jennifer L., and Katherine Levine Einstein. 2015. "Do Facts Matter: Information and Misinformation in American Politics." *Political Science Quarterly* 130(4): 584-624.
- Jerit, Jennifer, and Yangzi Zhao. 2020. "Political Misinformation." *Annual Review of Political Science* 23: 77-94.
- Kaufman, Chelsea. 2021. "Civic Education in a Fake News Era: Lessons for the Methods Classroom." *Journal of Political Science Education* 17(2): 326-331.
- Kebritchi, Mansureh, Angie Lipschuetz, and Lilia Santiago. 2017. "Issues and Challenges for Teaching Successful Online Courses in Higher Education: A Literature Review." *Journal of Educational Technology Systems* 46(1): 4-29.
- Kim, Sung Un and David Shumaker. 2015. "Student, Librarian, and Instructor Perceptions of Information Literacy Instruction and Skills in a First Year Experience Program: A Case Study." *The Journal of Academic Librarianship* 41(4): 449-456.
- Lanning, Scott, and Jill Mallek. 2017. "Factors Influencing Information Literacy Competency of College Students." *The Journal of Academic Librarianship* 43(5): 443-450.
- Neuwirth, Lorenz S., Svetlana Jović, and B Runi Mukherji. 2021. "Reimagining higher education during and post-COVID-19: Challenges and opportunities." *Journal of Adult and Continuing Education* 27(2): 141-156.
- Olsen, Rachel. 2019. "PSC 391 Assessment Plan & Results." *Google Docs*. [https://docs.google.com/document/d/1wTu1bqizZmfgpWaoyfkJeu49hgtL8-Sd1jVgzg\\_3jLg/edit?usp=drive\\_web&oid=106370250615702655242&usp=embed\\_facebook](https://docs.google.com/document/d/1wTu1bqizZmfgpWaoyfkJeu49hgtL8-Sd1jVgzg_3jLg/edit?usp=drive_web&oid=106370250615702655242&usp=embed_facebook) (January 25, 2023).
- Politics, Policy, and International Relations Section. 2021. *Companion Document to the ACRL Framework for Information Literacy for Higher Education*. Association of College and Research Libraries. [https://www.ala.org/acrl/sites/ala.org.acrl/files/content/standards/Framework\\_Companion\\_PPIR.pdf](https://www.ala.org/acrl/sites/ala.org.acrl/files/content/standards/Framework_Companion_PPIR.pdf).
- Shannon, Amanda, and Vaughn Shannon. 2016. "Librarians in the Midst: Improving

- Student Research Through Collaborative Instruction.” *Journal of Political Science Education* 12(4): 457–70.
- Sullivan, Brian T., and Karen L. Porter. 2016. “From one-shot sessions to embedded librarian: Lessons learned over seven years of successful faculty-librarian collaboration.” *College & Research Libraries News* 77(1): 34-37.
- Tasso, Anthony F, Nesrin Hisli Sahin, and Gabrielle J. San Roman. 2021. “COVID-19 disruption on college students: Academic and socioemotional implications.” *Psychological Trauma: Theory, Research, Practice, and Policy* 13(1): 9-15.
- Tucker, Joshua A., Yannis Theocharis, Margaret E. Roberts, and Pablo Barberá. 2017. “From Liberation to Turmoil: Social Media and Democracy.” *Journal of Democracy* 28(4): 46-59.
- Zanin-Yost, Alessia. 2018. “Academic Collaborations: Linking the Role of the Liaison/Embedded Librarian to Teaching and Learning.” *College & Undergraduate Libraries* 25(2): 150–63.



## APPENDIX

### Research Paper Scoring Rubric

*Developed based on Claremont Colleges Library "Information Literacy in Student Work Rubric Scoring Sheet"*

Instructions: Use the enclosed rubric as you read each essay and score accordingly based on the criteria.

**Paper Title:** \_\_\_\_\_

**Scoring: See rubric for details and assistance in evaluating each category.**

	Highly developed (4)	Developed (3)	Emerging (2)	Initial (1)	Comments/Notes	Totals
Citation						
Evaluation of Sources						
Integration of Sources						
Total Score:						

**Additional Observations (optional) - choose each statement that applies to this essay.**

Positive statements

- Very robust bibliography
- Clear and consistent citations
- Chose appropriate sources to support claims
- Sources are well-integrated and used
- Shows awareness of depth of scholarship in African Political Systems

Negative statements

- Significant errors in bibliography and citations
- Missing or unclear citations
- Sources chosen are inappropriate
- Sources are not well integrated
- Lack of awareness of scholarship in African Political Systems

**Additional Comments/Notes (optional)**

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<b>Learning Outcome</b>	<b>Level of Achievement</b>			
	<b>Highly Developed (4)</b>	<b>Developed (3)</b>	<b>Emerging (2)</b>	<b>Initial (1)</b>
<b>Citation</b>	<p><i>Shows a sophisticated level of understanding for when and how to attribute/cite sources.</i></p> <p>Documents sources consistently and completely using APSA style</p> <p>Uses in-text citations correctly</p> <p>Graphs and figures are labelled and cited appropriately</p>	<p><i>Level of citation indicates some understanding of when and how to attribute/cite sources.</i></p> <p>Documents sources with some inconsistencies or errors using APSA style.</p> <p>Some errors are present in in-text citations</p> <p>Most graphs/figures are labelled and cited; some errors</p>	<p><i>Many mistakes are present in citations; these mistakes interfere with the argument or indicate fundamental misunderstandings.</i></p> <p>Frequently documents sources incorrectly; some citations are missing.</p> <p>In-text citations are weak with frequent errors.</p> <p>Graphs and figures are labelled or cited inconsistently.</p>	<p><i>Use of citation is poor to the point of creating difficulty in evaluating sources or argument(s).</i></p> <p>Fundamental &amp; consistent errors in citation.</p> <p>In-text citations are missing altogether or are significantly inconsistent/incorrect.</p> <p>Graphs and figures are not labelled or cited.</p>
<b>Evaluation of Sources</b>	<p><i>Source materials used demonstrate sophisticated evaluation and selection strategies.</i></p> <p>Uses a variety of appropriate and authoritative sources.</p> <p>Demonstrates a thorough critical exploration and knowledge of evidence, theories, and sources selected.</p>	<p><i>Source materials used are adequate and appropriate but lack variety or depth.</i></p> <p>Sources used may support claims but may not be the most authoritative source to support assertions made.</p> <p>Demonstrates a preliminary critical exploration and knowledge of evidence, theories, and sources selected.</p>	<p><i>Source materials used are inadequate.</i></p> <p>Relies on too few or largely inappropriate sources.</p> <p>Demonstrates little critical exploration and knowledge of theories and sources selected.</p>	<p><i>Source materials are absent or do not contribute to claims/argument(s).</i></p> <p>When included, sources are too few or badly inappropriate or otherwise not authoritative.</p> <p>No evidence of critical exploration and knowledge of theories and sources selected.</p>
<b>Integration of Sources</b>	<p><i>Evidence is integrated and synthesized in a sophisticated way.</i></p>	<p><i>Sufficient synthesis and integration of evidence.</i></p>	<p><i>Weak attempts at synthesis and/or integration.</i></p>	<p><i>No evidence of attempt at synthesis or integration.</i></p>

	<p>Synthesizes and contextualizes evidence appropriately for the audience.</p> <p>Identifies gaps in the literature and contributes clearly and/or significantly to the scholarly conversation.</p> <p>Multiple perspectives are used; does not over- or under-rely on the ideas of a single author.</p>	<p>May present some evidence without context.</p> <p>Begins to identify gaps in the literature or contribute to the scholarly conversation.</p> <p>May over- or under-rely on the ideas of a single author.</p>	<p>Frequently fails to put sources into context.</p> <p>Does not identify gaps in the literature or contribute to the scholarly conversation.</p> <p>Sporadically uses evidence to support claims or arguments.</p>	<p>No distinction between own ideas and ideas of others.</p> <p>Fails to contextualize quotes and evidence.</p> <p>Claims or arguments lack necessary evidence.</p>
<b>PSC Factor 1</b>				
<b>PSC Factor 2</b>				

**Rubric & Evaluation Sheet Reference:**

Junisbai, B., Lowe, M.S., & Tagge, N. (2016). A pragmatic and flexible approach to information literacy: Findings from a three-year study of faculty-librarian collaboration. *The Journal of Academic Librarianship*, 42, 604-611.

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